

21 April 2023

## **DETAILED SCHEME FOR THE OPENING OF A DISCIPLINE AT POSTGRADUATE LEVEL**

**Discipline Title: Business Administration**

**Code: 8340101**

SECTION 1: GENERAL INFORMATION ABOUT THE INSTITUTION .....	4
1.1. AN OVERVIEW OF THE BRITISH UNIVERSITY VIETNAM .....	4
SECTION 2: THE NECESSITY TO OPEN THE DISCIPLINE .....	6
2.1. SUITABILITY FOR LOCAL, REGIONAL AND NATIONAL HUMAN RESOURCE DEVELOPMENT NEEDS .....	6
2.2 SUITABILITY FOR THE UNIVERSITY'S MISSIONS & DEVELOPMENT STRATEGY.....	15
2.3 RESULTS OF THE SURVEYS, ANALYSIS AND ASSESSMENT OF THE NEED FOR HUMAN RESOURCES WITH AN UNDERGRADUATE DEGREE IN BUSINESS ADMINISTRATION.....	17
2.3.1. Results of the survey for businesses/enterprises.....	17
2.3.2. Results of the surveys for students and social organisations .....	18
2.3.3. Results of the surveys for experts .....	19
2.3.4. Results of the surveys for faculty .....	21
2.3.5. Results of the surveys on alumni's opinions .....	24
SECTION 3: CONDITIONS ON THE TRAINING PROGRAMME TO OPEN A TRAINING DISCIPLINE	26
3.1. TRAINING OBJECTIVES .....	26
3.1.1. General Objectives.....	26
3.1.2. Specific Objectives .....	26
3.2. OUTPUT STANDARDS.....	27
3.2.1. Knowledge.....	27
3.2.2. Skills.....	27
3.2.3. Autonomy and Responsibilities .....	27
3.2.4. Learners' Career Prospects after Graduation .....	28

3.2.5. Learner’s ability to learn and develop after graduation .....	29
3.3. ACADEMIC LOAD.....	29
3.4. ENTRY REQUIREMENTS .....	29
3.5. TRAINING PROCEDURE & GRADUATION REQUIREMENTS.....	31
3.6. METHODS OF ASSESSMENT .....	31
3.6.1 Learning & Teaching methodologies .....	31
3.6.2 Assessment method .....	35
3.7. TRAINING PROGRAMME CONTENT .....	36
3.8. IMPLEMENTATION GUIDE.....	51
3.8.1 General Principles.....	51
3.8.2. Training plan.....	51
SECTION 4: CONDITIONS ON THE LECTURING STAFF AND SCIENTISTS TO OPEN THE DISCIPLINE.....	53
4.1. FULL-TIME LECTURERS AND SCIENTISTS .....	54
4.2. LIST OF LECTURERS TO OPERATE AND IMPLEMENT THE TRAINING PROGRAMME .....	57
4.3. LIST OF MANAGERS.....	59
4.4. SCIENTIFIC RESEARCH TOPICS OF THE INSTITUTE, LECTURERS AND SCIENTISTS RELATED TO THE DISCIPLINE .....	59
4.5. PUBLISHED SCIENTIFIC WORKS OF LECTURERS AND SCIENTISTS RELATED TO THE DISCIPLINE .....	60
SECTION 5: CONDITIONS FOR FACILITIES TO OPEN THE DISCIPLINE.....	66
5.1. FACILITIES AND EQUIPMENT FOR THE TRAINING PROGRAMME AT UNDERGRADUATE LEVEL .....	66
5.2. RESEARCH CENTRES, LABORATORIES, AND PRACTICE FACILITIES FOR THE DISCIPLINE.....	69
5.3.1 Libraries .....	70
5.3.2 Course books, books, reference materials .....	71
5.3.3 Online libraries.....	73
5.3.4 Academic databases in use .....	74
5.3.5 Online learning system .....	75
SECTION 6: CONDITIONS ON THE ORGANIZATION OF THE MANAGEMENT APPARATUS TO OPEN THE DISCIPLINE.....	78
6.1 QUALITY ASSURANCE STRUCTURE .....	78

SECTION 7: PREVENTIVE AND CORRECTIVE PLANS REGARDING THE RISKS IN OPENING THE DISCIPLINE .....	87
7.1. RISKS ANALYSIS IN OPENING THE DISCIPLINE .....	87
7.2. PREVENTIVE AND CORRECTIVE PLANS .....	88
SECTION 8: EVIDENCE ATTACHED TO THE SCHEME.....	90

## SECTION 1: GENERAL INFORMATION ABOUT THE INSTITUTION

### 1.1. AN OVERVIEW OF THE BRITISH UNIVERSITY VIETNAM

British University Vietnam (BUV) began operations in 2009 in a small, city-centre campus in the city of Hanoi, Vietnam. The initial cohort of 20 students joined in May 2010; studying BUV developed English and foundation programmes as an approved pathway to beginning Staffordshire University (SU) degree programmes at BUV in September 2010. With its ongoing development of programmes and growth in student numbers, BUV moved to a state-of-the-art campus in Ecopark township, Hung Yen province, on the edge of Hanoi in 2018, which has a planned capacity for over 5000 students in the first two phases of its development. BUV has experienced significant development with the opening of the new campus, growing from:

- Three faculty members to 53 higher education faculty and 13 non-higher education teaching staff, with a total number of 192 full and part-time staff members.
- Two undergraduate programmes initially to 11 undergraduate degree programmes and an MBA.
- 20 initial students to over 1600 students currently studying for undergraduate and post-graduate degrees.

As well as offering degrees from its UK partners of SU and University of London (UoL), BUV is, as part of its Vietnamese governmental licence, a fully established and licenced Vietnamese University. As an internationally owned Vietnamese company, BUV has contextualised the requirements of operating as a British university within an international environment and operates within both an academic and ownership related governance structure.

#### **Mission**

BUV's mission is to develop highly employable and confident graduates who are first and foremost 'good' human beings with an ethics of kindness and caring. They will also be cross-disciplinary in skills and language; creative and adaptable; respectfully confident; and committed to continuous learning and self-development.

Above all else, BUV expects all its staff and students to care about the wellbeing of people; respect their environment; and be socially and culturally inclusive.

### **BUV Drivers/Objectives.**

Our three main drivers in achieving our mission are:

1. To offer accredited British and international higher education and training in Vietnam.
2. To provide five-star university campuses, learning experiences, and services.
3. To include an international learning experience with a unique program of personal and social growth.

### **BUV Core Values.**

*Kindness & Respect* - embodied in our commitment to maintaining peaceful, safe learning and working environments for all; demonstrated by our focus on embracing diversity with compassion and care; evident in our commitment to behaving politely and respectfully; and, embedded within our personal and social growth programme for students and the actions of our staff.

*Collaboration & Innovation* - showing how diversity in the ways we work enriches creativity, new ideas and forms of expression, and intellectual curiosity and willingness to take risks to make real and meaningful impact.

*Sustainability & Responsibility* - illustrated in our University-wide commitment to lead by example in preserving and protecting our natural resources and environment, and in our approach to responsible financial planning.

*Learning & Relearning* - understanding that in today's ever-changing environment of political, social, and technological change, it is important to accept the need for life-long learning for all our students and every member of staff at BUV.

## **SECTION 2: THE NECESSITY TO OPEN THE DISCIPLINE**

### **2.1. SUITABILITY FOR LOCAL, REGIONAL AND NATIONAL HUMAN RESOURCE DEVELOPMENT NEEDS**

Following the Decision No. 579/QĐ-TTg dated 19/4/2011 of the Prime Minister on the Strategy for Human Resource Development of Vietnam in the period 2011-2020, the general objective of development of Vietnamese human resources in the 2011-2020 period is to make Vietnamese human resources a foundation and the most important advantage for the country's sustainable development, international integration and social stability, raising the competitiveness of Vietnamese human resources to a level corresponding to those in advanced regional countries and reaching in certain lengths those of developed countries around the world. One of the specific objectives is to build a system of educational institutions which is advanced, modern and diversified, with a synchronous, multi-level and dynamic sectoral structure which is articulated between different levels and sectors nationally and internationally, widely distributed across the country, contributing to the establishment of a learning society, and meeting the life-long learning demands of citizens. By 2020 the number of workers who have a bachelor's degree will reach 5 million, with 300,000 people holding postgraduate degrees. The country will have 2.5 - 3 million entrepreneurs, 80% of entrepreneurs will have graduate or postgraduate qualifications.

Decision No. 711/QĐ-TTg dated 13/06/2012 of the Prime Minister on the Strategy for Education Development of Vietnam in the period 2011-2020 stated that the objective of Education Development in Vietnam to 2020 is to "complete the structure of higher education; to adjust the structure of training disciplines and occupations and training levels, to improve training quality to meet human resource requirements of socio-economic development; to train persons with creative ability, independent thinking, civic responsibility, professional ethics and skills, foreign language proficiency, a sense of labour discipline, industrious working style, with self-employment capacity and ability to adapt to labour market changes, with a segment of them being regionally and internationally competitive."

Vietnam's strategy for Human Resource Development: Following the Decision No. 579/QĐ-TTg dated 19/4/2011 of the Prime Minister on the Strategy for Human Resource Development of Vietnam in the period 2011-2020, the general objective of development of Vietnamese human resources in the 2011-2020 period is to make Vietnamese human resources a foundation and the most important

advantage for the country's sustainable development, international integration and social stability, raising the competitiveness of Vietnamese human resources to a level corresponding to those in advanced regional countries and reaching in certain lengths those of developed countries around the world. One of the specific objectives is to build a system of educational institutions which is advanced, modern and diversified, with a synchronous, multi-level and dynamic sectoral structure which is articulated between different levels and sectors nationally and internationally, widely distributed across the country, contributing to the establishment of a learning society, and meeting the life-long learning demands of citizens. By 2020 the number of workers who have a bachelor's degree will reach 5 million, with 300,000 people holding postgraduate degrees. The country will have 2.5 - 3 million entrepreneurs, 80% of entrepreneurs will have graduate or postgraduate qualifications.

Vietnam's strategy for Education Development: Decision No. 711/QĐ-TTg dated 13/06/2012 of the Prime Minister on the Strategy for Education Development of Vietnam in the period 2011-2020 stated that the objective of Education Development in Vietnam to 2020 is to "complete the structure of higher education; to adjust the structure of training disciplines and occupations and training levels, to improve training quality to meet human resource requirements of socio-economic development; to train persons with creative ability, independent thinking, civic responsibility, professional ethics and skills, foreign language proficiency, a sense of labour discipline, industrious working style, with self-employment capacity and ability to adapt to labour market changes, with a segment of them being regionally and internationally competitive."

Opening more own degree programmes including Master of Business Administration serves the university's three key pillars Positioning; Market Expansion and Differentiation. BUV already launched its collaborative programme on MBA in 2018 and received good feedback from industrial partners as well as students. Opening an own degree on the same subject would bring more option of learning for prospective students.

### **Public demand for Business Administration:**

Considered the most popular post-graduate programme worldwide, an MBA not only helps participants improve business skills, gain leadership knowledge, gain management skills and strategic, but also helps broaden their network and build up relationships with influential figures in different industries.

In the context of an increasingly competitive and globally integrated business environment, entrepreneurs and C-level managers have experienced difficulty in their day-to-day management due to their inexperience in senior management. Because of the scarcity of high-level personnel in the country, most senior positions are still occupied by foreigners. Recent reports also suggest that level of competition is likely to be even more acute when the law allows ASEAN Economic Community workers (AEC) to work in Vietnam without a permit. It is a common fact that there is still significant mismatch within the senior labour market, and candidates with international MBA degrees are very much sought after by recruitment agencies.

Globally, 86 percent of companies plan to hire recent MBA graduates in 2017, up from 79 percent that hired them in 2016. Demand for recent MBA graduates is strongest in the United States and Asia-Pacific, where 9 in 10 respondents plan to hire MBA graduates in 2017. More than half of employers (52%) report they will increase starting salaries for new MBA hires in 2017 at or above the inflation rate.

Over the last recent years, Vietnam has gained many strong development steps against regional economies. Accordingly, a series of policies on foreign trade and human resources for the region will create a new step for countries with potential in people, resources and foreign investment, including Vietnam. According to Tran Anh Tuan - Deputy Director of Centre for Forecasting Demand for Human Resources and Labour Market Information in Ho Chi Minh City, in the period of 2020 to 2025, in Ho Chi Minh City alone, each year, the City needs about 270,000 jobs in business administration.

In the general economic development of each country, the human resources with Business Administration expertise and experience is considered the centre of the economy. Graduating in this field, students can become specialists in marketing, sales, planning, or opening their own business. Those who obtain post-graduate degrees can hold leadership and operating roles in the company. According to Google, there are about 40,500 searches per month for MBA-related keywords from Vietnam. This means that almost every minute Vietnamese people look for MBA information. The number of MBA searches is nearly double the number of searches for the second most searched course.



Higher Education in Business Administration in Vietnam: Students following business administration will be provided with the necessary knowledge to manage the business processes in an organisation, thereby maintaining and developing the business. Business administration employees in an organisation will help businesses balance, create the most optimal system, and help business managers make rational decisions in accordance with actual conditions. Business administration is one of the training sectors that plays an extremely important role in the international economic integration of Vietnam and is considered to be very suitable training for dynamic young people who like to work in a competitive environment, promoting their business management capabilities.

However, according to a report from Vietnam Briefing, overseas education and working level English are the two most important factors under “Qualifications” when it comes to hiring mid-level managers in Vietnam. Despite the fact that MBA programmes are currently provided by many universities in Vietnam, the course design does not match the market demand in terms of necessary applied skills and experience. While developing knowledge and skills during study, these courses do not provide practical sessions where students can experience their leadership skills or meet and learn from inspirational leaders of organisations or experts. Moreover, most of the current training programs are based on the transition from previous management bachelor programmes and/or economics bachelor programs combined with the admission of a number of courses from foreign universities to transfer change to business administration, so there is a mix, overlap and lack of logic in the programmes.

According to recent research by economic experts published on SaigonPress in 2018, the shortage of highly qualified human resources in business sectors accounts for about 40% of the total labour demand in the market and the growth rate must reach about 50 % new to meet the current market. Through a survey of 100 enterprises, 85% said they had to spend an average of 3-6 months to train new graduates who could meet the minimum work requirements. That is to say, businesses are willing to pay higher for graduates who are well trained in business administration and are equipped with practical knowledge and experience, rather than spending time and money on training so that they know how to work.

According to Centre of Forecasting Manpower Needs and Labour Market Information HCMC, in the period of 2020 to 2025, Ho Chi Minh City alone will provide about 270,000 business administration related jobs.

According to the World Labour Organization (ILO) forecast, Vietnam will be able to create 6 million more jobs, equivalent to one tenth of the total number of jobs increased by 2025 of the entire ASEAN regions due to the impact of the formation of the AEC. When joining the AEC, the number of jobs in Vietnam will increase by 14.5% by 2025.

Vietnam ranked 92 out of 125 countries in the 2019 Global Talent Competitiveness Index (2019 GTCI). Compared to last year, the results of this year's GTCI report showed that Vietnam slipped five places. This is the fourth consecutive year that Vietnam has been downgraded on the talent competitiveness index. This year's report has a special focus on entrepreneurial talent - how it is being encouraged, nurtured and developed throughout the world and how this affects the relative competitiveness of different economies.

Report on recruitment demands for senior management level in 1st quarter 2018 by an executive search firm Navigos Search indicates a sharp rise in demand for mid-level and senior management staff in fields such as Finance and Banking, Retail, Manufacturing, Information technology and Service sectors... as the impact of free trade agreements and FDI begins to take shape on recruitment needs in Vietnam. showed that.

Although the number of candidates seeking jobs rose by 40 per cent, compared to the same period last year, the report shows that 41 per cent of employers had not been able to recruit a sufficient number of qualified candidates.

Here's list of jobs that are likely to require candidate to have MBA in Vietnam:

# VIETNAM

## ACCOUNTING & FINANCE

ROLE	PERMANENT SALARY PER ANNUM USD (\$)	
	2018	2019
<b>Accounting</b>		
Accounting Director	36 - 60k	36 - 60k
Accounting Manager	24 - 38k	24 - 36k
Tax Manager	30 - 60k	24 - 60k
Cost Controller/Manager	20 - 35k	20 - 35k
Chief Accountant	20 - 30k	18 - 30k
Credit Controller	18 - 24k	18 - 24k
<b>Finance</b>		
Chief Financial Officer	84 - 144k+	72 - 180k+
Finance Director - MNC	66 - 102k+	66 - 102k+
Finance Director - SME	60 - 70k+	60 - 70k+
Financial Controller - MNC	50 - 65k	50 - 65k
Financial Controller - SME	40 - 64k	40 - 54k
Finance Manager	32 - 52k	32 - 52k
Business Controller	20 - 42k	20 - 42k
Commercial/FP&A/BP&A Manager	26 - 45k	26 - 45k
Finance/Business Analyst	20 - 35k	20 - 35k
Treasury Manager/Director	36 - 60k	36 - 60k
Treasury Supervisor	20 - 26k	20 - 26k
Investment Director	75 - 150k	75 - 150k
Investment Manager	37 - 60k	37 - 60k
Investment Analyst	23 - 30k	23 - 30k
Head of Research	55 - 150k	55 - 150k
Research Manager	23 - 38k	23 - 38k
Research Analyst	15 - 23k	15 - 23k

NE: Figures are basic salaries exclusive of benefits/bonuses unless otherwise specified.

## HUMAN RESOURCES

ROLE	PERMANENT SALARY PER ANNUM USD (\$)	
	2018	2019
<b>Human Resources</b>		
HR Director	70 - 120k	75 - 130k
HR Shared Services Manager	40 - 60k	40 - 60k
HR Manager	40 - 60k	40 - 60k
Rewards Manager	32 - 60k	32 - 60k
Training & Development Manager	30 - 42k	32 - 45k
Talent Acquisition Manager	25 - 40k	28 - 40k
Organisation & Development Manager	30 - 52k	35 - 55k
Compensation & Benefits Manager	32 - 45k	32 - 45k
HR Business Partner	30 - 55k	30 - 55k
HR Executive	9 - 15k	12 - 20k
<b>Business Support</b>		
Office Manager	20 - 26k	20 - 26k
Executive Assistant	10 - 18k	18 - 30k

NE: Figures are basic salaries exclusive of benefits/bonuses unless otherwise specified.

**SUPPLY CHAIN, PROCUREMENT & LOGISTICS**

ROLE	PERMANENT SALARY PER ANNUM USD (\$)	
	2018	2019
<b>Supply Chain &amp; Procurement</b>		
Supply Chain Manager	30 - 60k	<b>34 - 65k</b>
Logistics Manager	30 - 45k	<b>35 - 50k</b>
Customer Service Manager	28 - 45k	<b>30 - 45k</b>
Planning Manager	30 - 45k	<b>35 - 50k</b>
Procurement Manager	30 - 45k	<b>35 - 48k</b>
Merchandising Manager	36 - 54k	<b>40 - 57k</b>

NB: Figures are basic salaries exclusive of benefits/bonuses unless otherwise specified.

**ENGINEERING**

ROLE	PERMANENT SALARY PER ANNUM USD (\$)	
	2018	2019
General Manager	80 - 135k	<b>90 - 144k</b>
Plant Manager	67 - 80k	<b>70 - 96k</b>
Continuous Improvement Manager	38 - 53k	<b>40 - 55k</b>
Engineering Manager	38 - 53k	<b>40 - 55k</b>
QA/QC Manager	38 - 53k	<b>40 - 55k</b>
Project Manager	38 - 53k	<b>40 - 65k</b>
Maintenance Manager	38 - 50k	<b>40 - 54k</b>
Production Manager	34 - 47k	<b>37 - 55k</b>
HSE Manager	31 - 44k	<b>35 - 50k</b>

NB: Figures are basic salaries exclusive of benefits/bonuses unless otherwise specified.

**SALES & MARKETING  
CONSUMER, DIGITAL & TECHNOLOGY**

ROLE	PERMANENT SALARY PER ANNUM USD (\$)	
	2018	2019
<b>Management</b>		
General Manager/Managing Director	160 - 220k	160 - 230k
Country Manager	86 - 120k	95 - 130k
<b>Sales</b>		
Sales Director	70 - 120k	70 - 134k
Key Account Manager	38 - 50k	38 - 50k
Area Sales Manager	25 - 35k	27 - 40k
<b>Marketing</b>		
Trade Marketing Director	95 - 110k	100 - 130k
Marketing Director	90 - 130k	90 - 130k
Marketing Manager	60 - 80k	60 - 80k
Trade Marketing Manager	40 - 52k	40 - 52k
Brand Manager	26 - 45k	26 - 45k
<b>Digital</b>		
Head of Digital	57 - 70k	60 - 78k
Digital Marketing Manager	20 - 40k	20 - 45k
<b>Technology/E-commerce</b>		
General Manager/Country Manager	80 - 130k	90 - 130k
Head of Business Development/Head of Sales	55 - 75k	60 - 80k
Account Manager/Customer Success Manager	18 - 35k	18 - 38k
Head of Marketing	50 - 70k	50 - 78k
<b>Retail &amp; Luxury</b>		
Country Manager	70 - 90k	80 - 120k
Head of Retail Operations	60 - 60k	42 - 70k
Brand Manager	40 - 50k	40 - 65k
Retail Manager	17 - 20k	15 - 24k

NB: Figures are basic salaries exclusive of benefits & bonuses unless otherwise specified.

According to a report from Vietnam Briefing, overseas education and working level English are the two most important factors under “Qualification” when it comes to hiring mid-level managers in Vietnam.

According to statistics from Vietnam International Education Cooperation Department (2018):

**Master of Business Administration: (19 programmes)**

With UK university:	03 programmes
With US university:	03 programmes
With New Zealand university:	01 programmes
With Australian university:	03 programmes
With French university:	03 programmes
With Thai university:	01 programmes
With Malaysian university:	01 programmes

With Taiwan university: programme	01 programmes
With Germany university: programme	01 programmes
With Sweden university: programme	01 programmes
With Belgium university:	01 programmes

### List of MBA providers:

RMIT (Australia)

Hanu - La Trobe (Australia)

VIỆN ĐÀO TẠO QUỐC TẾ (IEI) - ĐHQG TP.HCM - Andrews Uni (USA)

VIỆN ĐÀO TẠO QUỐC TẾ (IEI) - ĐHQG TP.HCM - Paris Graduate School of Management (France)

ERC INTERNATIONAL - Greenwich Uni (UK)

Đại học Quốc Tế - Đại học Quốc gia HCM - Đại học Hawaii (USA)

CFVG (France)

Đại học Kinh tế TP HCM (UEH) - Western Sydney Uni (Australia)

Đại học Bách Khoa - ĐH Quốc gia Tp.HCM và trường Đại học Khoa học Ứng dụng Tây Bắc Thụy Sĩ (FHNW) (Sweden)

Solvay (Belgium)

Đại học Bách khoa - Trường Đại học Tổng hợp Leipzig, CHLB Đức (germany)

Đại học Bách khoa - Northampton (UK)

Trường Đại Học Ngân Hàng TP HCM - Bolton (UK)

Đại học Kinh tế TP hcm-trường ĐH Massey (NZ)

Đại học Kinh tế TP hcm-Các trường thuộc CCIP (ESCP-Europe...), ĐH Paris-Sorbonne, Paris Dauphine (France)

Đại học Kinh tế TP hcm- ĐH Quebec at Montreal (Canada)

Đại học Bách Khoa, ĐH Quốc Gia TP.HCM - Maastricht School of Management (Hà Lan)

Đại học Đông Á - Đại học Benedictine (USA)

Đại học Kinh tế Tài Chính (UEF) - Bangkok

Đại học CÔNG nghệ TP HCM - Malay

Đại học Thương mại - YunTech (Đài Loan)

## 2.2 SUITABILITY FOR THE UNIVERSITY'S MISSIONS & DEVELOPMENT STRATEGY

British University Vietnam is a foreign-invested university established under Decision No. 1428 / QĐ-TTg of the Prime Minister dated September 9, 2009 to provide undergraduate and postgraduate degrees. BUV has a range of different responsibilities for its higher education provision which differ depending on the programme of study and partner. At all levels, BUV is responsible for the provision of learning opportunities to students, ensuring the quality of teaching provided, managing student registrations and behaviour within BUV, and ensuring the needs of students from a non-academic perspective are met.

With its ongoing development of programmes and growth in student numbers, BUV moved to a state-of-the-art campus in Ecopark township, Hung Yen province, on the edge of Hanoi in 2018, which has a planned capacity for over 5000 students in the first two phases of its development.

Following the move to the new EcoPark campus in 2018, and the subsequent growth in staff and student numbers, BUV has experienced a series of significant changes related to this growth. The governance system has become increasingly formalised, including the creation of a University Senate and associated committees. The goal of this change was to allow for a system of governance that recognises BUV's unique position as a university licenced and operating within Vietnam but operating on the principles of providing significant learning autonomy from students and allowing a student-centred approach enabling them to develop their own learning journey.

Faced with the above changes and challenges and BUV's stated strategic priorities, there are two key implications related to the safeguarding of academic standards and ensuring the quality of students' learning experiences. The first of these is the move to a new system of School level management. This move will allow BUV to scale-up the opportunities it provides to students and means that processes and policies can be adapted where needed based on the need of individual Schools.

The second implication of the changes is the progression to the next phase of the growth of the campus. Building for the second phase has now commenced, and this means that our planned increased growth in the period post 2025 will not be limited by classroom, student support, or facilities

constraints, and that student's learning opportunities will not be negatively impacted as we increase our student numbers. Phase two of the campus also includes further specialised facilities, plans of which are being developed with input from faculty from the relevant Schools. Along with the physical growth in facilities, the operation of academic centres will bring benefits to student learning, faculty research and opportunities for further international study options.

Professor Dr Raymond Gordon, Vice-Chancellor, and President stated: "2023 marks the 50th anniversary of bilateral relations between Vietnam and the United Kingdom. Since its inception, BUV has contributed to the strength of the relationship between the two nations, and it will continue to do so. BUV will continue to contribute resources to the Vietnamese Government's education priorities. Receiving the highest level of accreditation from both QS and QAA is a result of the University's goal to invest in a world-class higher education learning environment in Vietnam."

In the immediate future BUV will focus on activities ranging from: continuing to align its academic curriculum to the practical needs of the Vietnam labour market; continuing to provide students with internship opportunities in a wide range of industries and positions; striving to maintain its record 100% of students attaining employment or moving on to higher studies within 3 months of graduation; completing the third phase of its campus construction by 2028 with a planned total investment of more than USD 165 million; expanding its market reach and services throughout Vietnam; attracting international students and academics to Vietnam; facilitating high-quality research on Vietnam's economic and social priorities; and, increasing access to British degree programmes through a Scholarship and Financial Aid Fund worth billions of VND.

BUV's mission is to develop highly employable graduates who are first and foremost good human beings with an ethic of kindness and caring. Graduates will also be cross-disciplinary in skills and language; innovative, imaginative, respectfully confident; and committed to continuous learning and development. BUV expects all its staff, students, and stakeholders to be courteous and care about the wellbeing of other people; to respect their environment; and be socially and culturally inclusive.

Apart from applying an advanced academic model from its partner universities, British University Vietnam has also focused on investment in the best physical and academic facilities to meet the learning needs of students.



Moreover, British University Vietnam works with leading established and emerging corporations and business organisations in Vietnam such as Hilton, Standard Chartered Bank, HSBC, British Embassy, Alpha Books, British Business Group Vietnam and others so that all the degree programme will be relevant to students. The programme will include guest speakers from these corporations and organisations and who will also help monitor the relevance of the degrees to the modern world of work. For MBA students, BUV creates an advanced skills and broader knowledge scheme to ensure that students on this programme can gain equally from theory as well as from experts in leadership skills. This includes talks by Chief Executives, diplomats and economic think-tank as well as attendance at British Business Group Vietnam (BBGV) and Vietnamese business forum events.

Thus, the objectives of learning and teaching at BUV lie in visibly achieving rigorous academic objectives and the contribution to providing high quality human capacity to meet the development needs arising from Vietnam's rapid economic and social integration.

In short, BUV is committed to the bilateral relations between Vietnam and the UK and will continue to turn young Vietnamese students into talented and respectful adults that are confident and caring, but most importantly they are prepared to lead the way and thrive in a challenging and exciting future in which the jobs and roles they will play are yet to be invented.

## **2.3 RESULTS OF THE SURVEYS, ANALYSIS AND ASSESSMENT OF THE NEED FOR HUMAN RESOURCES WITH AN UNDERGRADUATE DEGREE IN BUSINESS ADMINISTRATION**

### **2.3.1. Results of the survey for businesses/enterprises**

The total number of surveys that have been issued to representatives of employers was 10 which BUV received 8 responses which account for 80%. The survey results for employers and enterprise representatives showed 100% agreement on the need for training in Business Administration at both Bachelor and Master levels. 8 enterprises participated in the survey including 6 enterprises with foreign investment and 2 domestic enterprises. Businesses operate in a wide range of sectors and industries such as Accounting (Deloitte), ICT (Tinh Vân), Baking (HongLeong Bank), publication (Alpha Book), education (UNIS), consultation (Grant Thornton), conglomerate (Jardines) and real estate (Hongkong Land).

Overall, the survey of enterprise audiences shows an increasing demand for high-quality business administration personnel, especially in the stage of Industry 4.0 development. The essential skills discussed include the ability to manage human resources, risk management, strategic formulation, and corporate leadership.

These are key skills and skills for to survive and grow, so companies such as Deloitte, Tsinghua, HongLeong Bank, Grant Thornton, Jardines and Hong Kong Land are eager to see BUV open business administration discipline at both undergraduate and graduate levels to provide high-quality personnel, not only to these but also to their partners.

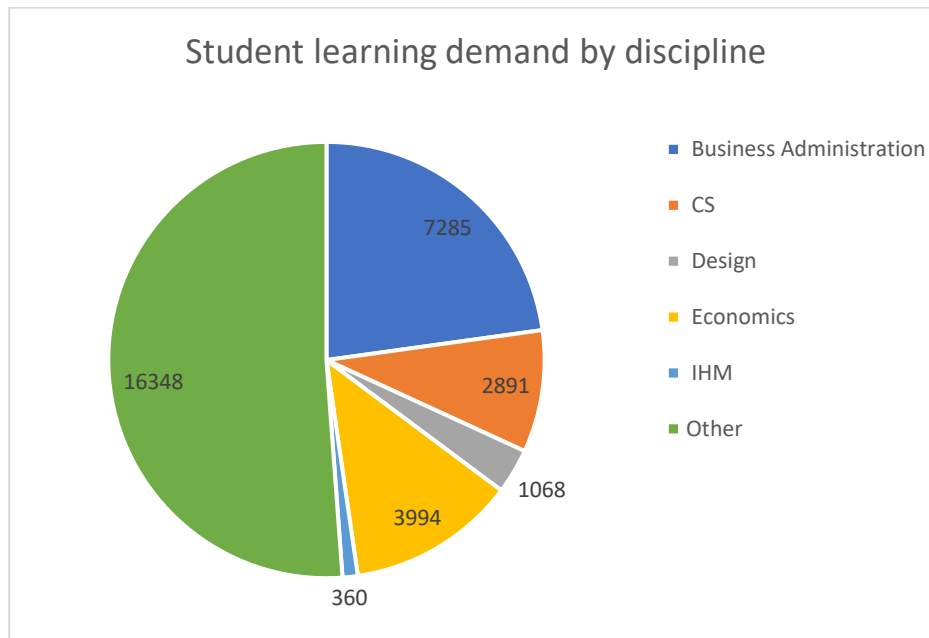
### **2.3.2. Results of the surveys for students and social organisations**

As part of the process to open the Discipline, BUV conducted a survey to analyze the assessment of the demand for human resources in relation to the expected Discipline in order to obtain opinions from high school students, university students, graduated students, social organisations, representative of employers.

- Objectives of the survey: Identify the actual status of the learning needs of the student, the recruitment needs for the quantity and quality that meet the requirements for employment in the unit; training orientation that meets the social needs; assess the need for the opening of the training sector.
- Subjects of the survey: high school students, university students, graduated students, social organisations, representative of employers.
- Survey method: The survey sample is designed with the content of questions in line with the purpose of the survey of each subject. The survey copies after being sent to the survey subjects will be collected and validity checked then conducted aggregation and analysis of the information obtained.
- Survey forms: Live polls, email, phone calls, online surveys and collaboration with Times and Education newspapers.

The total number of votes issued to 12th grade students across the country is unlimited, the number received is 31,946 votes. Among them, the number of students choosing the disciplines

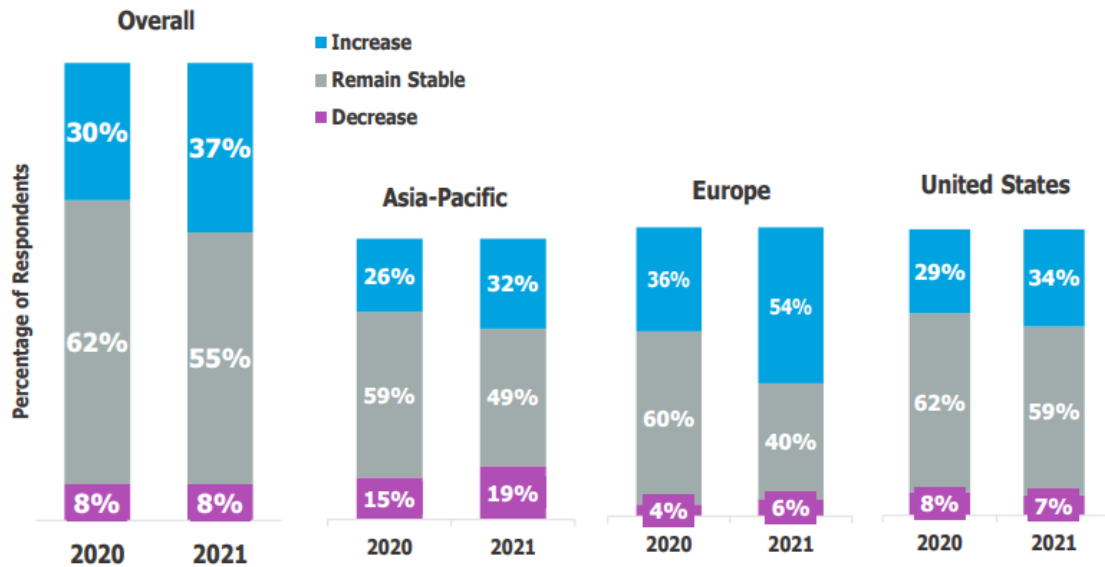
of Business Administration was 7,285, accounting for 22.8%. From the survey result, it is clear that Business Administration is demanded the most among students, followed by Economics and Computer Sciences.



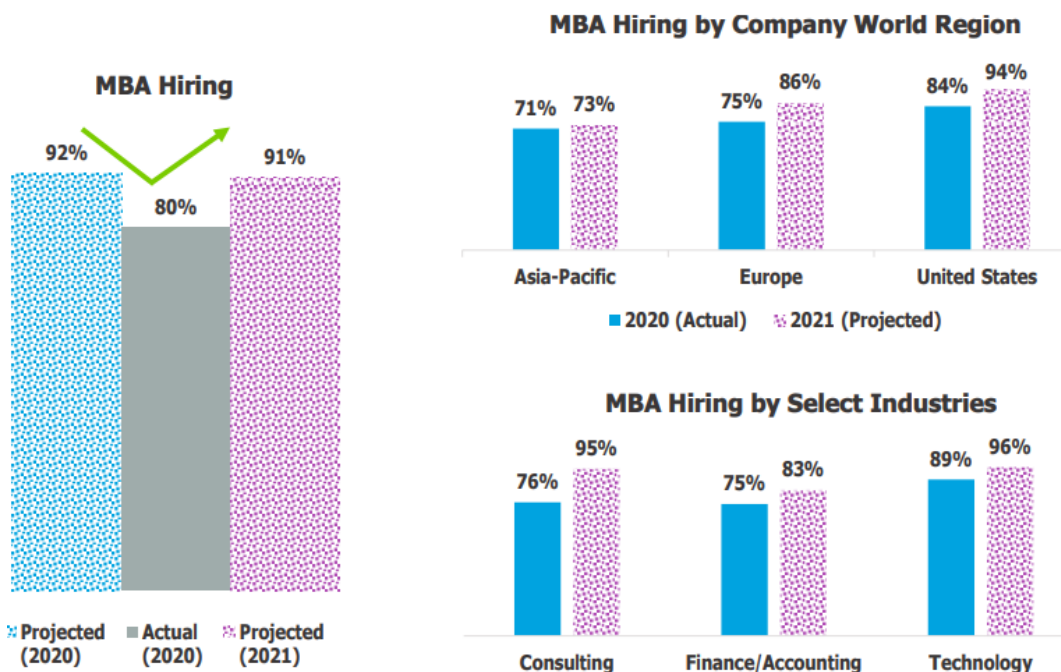
### 2.3.3. Results of the surveys for experts

In 2021, Graduate Management Admission Council conducts the annual Corporate Recruiters Survey (CRS) to provide vital data for employers and business schools in understanding trends and insights about hiring, salaries, and skills for MBA and business master’s graduates. The survey report focuses on the demand for graduate management talent from the viewpoint of employers. It narrates the key take-aways and provides related data by regions, programs, and industries. Despite the continuing impact of the pandemic on hiring, the survey gathered 569 responses from corporate recruiters between February 25 and March 31, 2021.

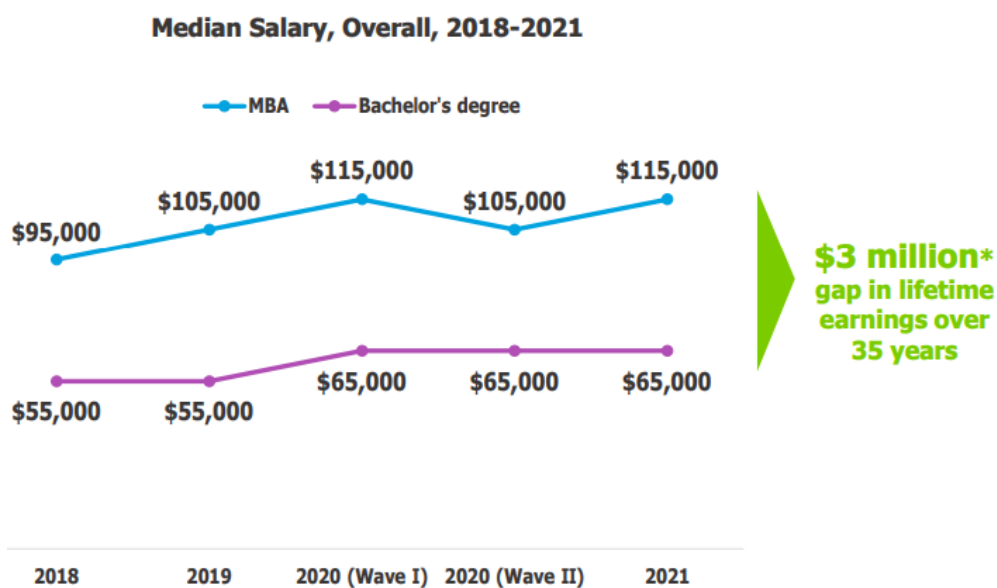
### Demand for Business School Graduates in the Next Five Years, 2020-2021



Recruiters project a robust demand for business school graduates: Overall, a higher proportion of recruiters in 2021 (37%) expect the demand to increase compared to the previous year (30%). In terms of regions, a higher proportion of European recruiters (54%) expect the demand to increase as compared to Asian (32%) and American (34%) recruiters.



MBA hiring projections indicate a rebound in 2021: The proportion of recruiters planning to hire MBAs in 2021 (91%) returned to the same level as pre-pandemic 2020 (92%). MBA hiring projections exhibit strength across key regions and industries. Specifically, 95 percent of consulting sector recruiters are planning to hire MBA graduates—a reversal from the 2020 actual hiring of 76 percent.



MBA salary premium holds at the pre-pandemic levels: The median MBA salary for 2021 is projected to recover to its pre-pandemic 2020 levels. At \$115,000, the median salary of MBA graduates is 77 percent more than those with a bachelor’s degree (\$65,000) and 53 percent higher as compared to those hired directly from industry (\$75,000). This salary premium could help an MBA graduate earn US\$3 million more than someone only holding a bachelor’s degree.

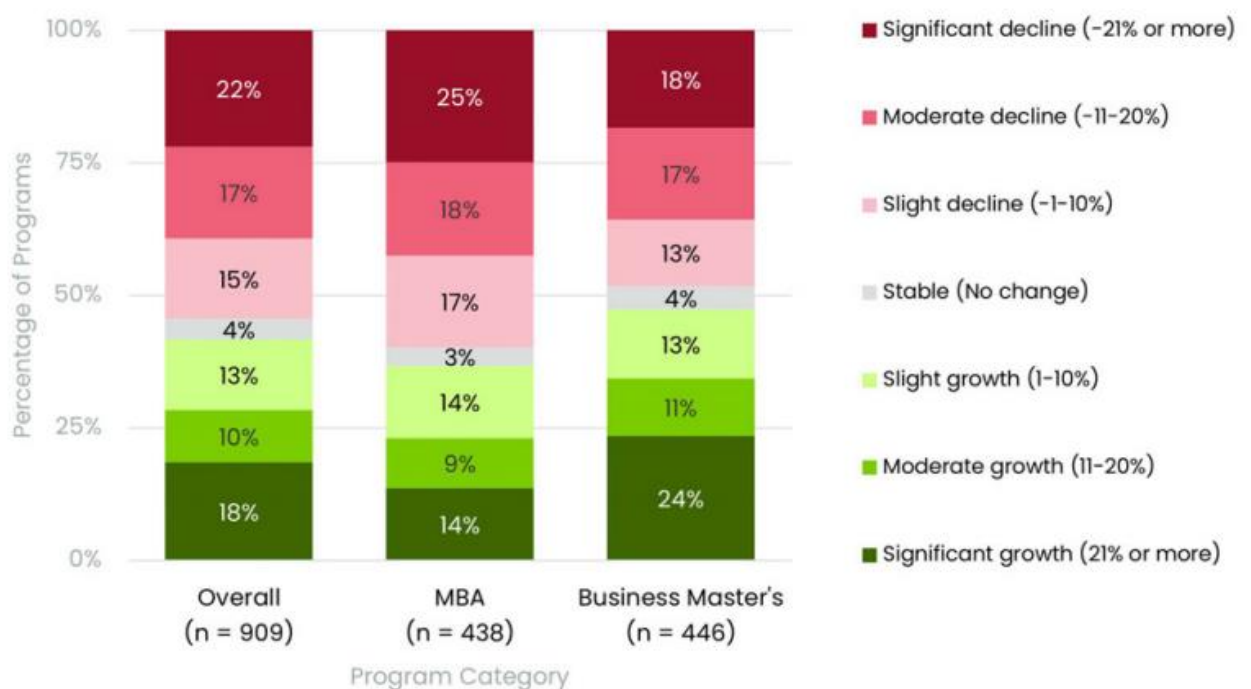
### 2.3.4. Results of the surveys for faculty

The Graduate Management Admission Council (GMAC) conducts the annual Application Trends Survey (ATS) of business school admissions offices around the world to offer timely insights into the demand for graduate management education (GME). This survey aids admissions, recruitment, and marketing professionals in understanding the candidate pipeline and informing their future strategies. This report focuses on global demand for GME and analyzes differences by programs and regions for the 2020-2021 admissions season (incoming class of 2021). This survey data was collected between July 8 and August 23, 2021, and

garnered responses from 967 programs at 269 business schools worldwide. More details are available under the methodology section, along with the respondent profile and program statistics.

Total applications to graduate business schools dipped this year from their pandemic highs, slipping 3.4 percent year-on-year among a matched sample of programs. This comes after application volumes increased 2.4 percent year-on-year in 2020 amid the start of the pandemic and sustained that level of demand in 2021, when schools reported a 0.4 percent year-on-year increase. This year reflects perhaps the end of the pandemic disrupted years and offers insight into how the post-pandemic market for graduate management education (GME) may take shape. As the pandemic’s effects on mobility lessened this admissions cycle, international applications saw a rebound, particularly for those applying to programs in the United States. There, most programs reported international application increases, especially full-time two-year MBA programs (80% of programs) and STEM-designated programs (61%). In Europe, though most business master’s programs saw international applications decline after years of growth, most MBA programs saw more applications from abroad this year.

### Relative Year-on-Year Change in Total Applications, by Program Category



While full-time one-year MBA programs at business schools saw particular growth in applications from women in 2022, this same trend can be seen across overall applications for European GME programs. Over half (58 percent) of GME programs in Europe reported growing or maintaining the number of applications from women at the same time as overall applications in the region decreased.

The same is true for the Asia Pacific region, where 57 percent of business schools either grew or maintained women’s representation in applicant pools. This growth is more significant when considering that, over the past five years, the proportion of GME programs reporting application growth has been unstable. In 2021, 73 percent of programs reported stable or growing application numbers, compared to just 54 percent this year.

### Full-Time Two-Year MBA, Asia Pacific (n=19)

Relative Year-on-Year Change in Applications, 2022			
Applicant Category	Percentage of Programs		
	Growth	Stable	Decline
Total	32%	16%	53%
Domestic	33%	28%	39%
International	11%	39%	50%
Women	26%	21%	53%
Summary Statistics			
Median Total Applications			287
Mean Percentage of Female Applications			37%
Median Applications Per Seat			5.1
Median Acceptance Rate			24%
Median Enrollment Rate			60%
Median Class Size			70

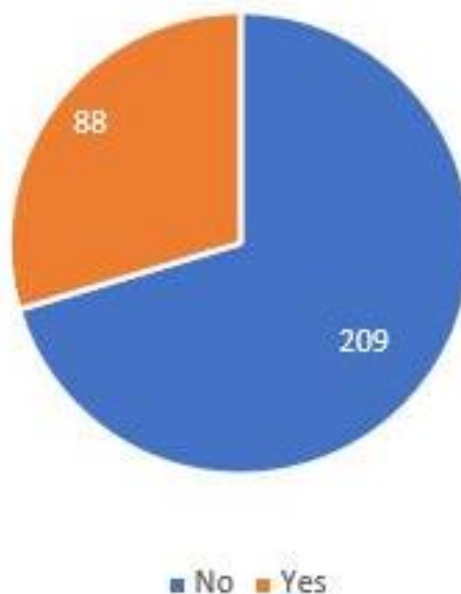
Overall, women accounted for 45 percent of total applications in Europe, the highest of any global region. The figure in Asia Pacific was 42 percent, higher than in other regions, including India and Australia.

The reason Europe seems to be winning over competitive regions like the US when it comes to GME could, in part, be down to culture, says Claire.

“It’s important to note that access to education is a lot more within reach in Europe in terms of costs, flexibility, blended programs, multi-campuses, and government initiatives that promote gender equality in education,” she explains. “With GBSB Global, like many European learning institutions, the school has traditionally maintained a 50:50 gender ratio for several years now.”

### 2.3.5. Results of the surveys on alumni’s opinions

Number of students continue Master degree



BUV closely monitors the post-graduation success of our former students and engages in both formal and informal communication with our graduates. Formal channels such as graduate surveys and phone calls are used to determine our post-graduation statistics as shown in 255 Post-graduation Summary Figures, and BUV are extremely proud of our 100% rate of



employment or education within three months of graduation, which prove that there is high market demand for this discipline.

This information is also used by the team to invite them to relevant events and therefore improve our ability to provide opportunities for current students, as well as to broaden our alumni network who can provide support for current students in BUV.

BUV are proud of the destinations of our graduates, which include Big Four professional services firms, world leading multinational enterprises such as Samsung and Heineken, as well as leading local technology and banking firms.

The survey is issued to all alumni of the University. We received 297 responses from alumni. Among which, 88 responses which account for 30% of alumni confirmed that they want to study Master degree and about 50% want to study MBA whether at BUV or oversea university. This research result proved that there is high demand in alumni to continue with MBA after graduation.

## SECTION 3: CONDITIONS ON THE TRAINING PROGRAMME TO OPEN A TRAINING DISCIPLINE

### 3.1. TRAINING OBJECTIVES

#### 3.1.1. General Objectives

The aim of the MBA is to enable students to deal with real world issues of management & leadership within the intellectual and challenging environment of the University. It will enable you to develop key competencies providing the ability to apply contemporary techniques for decision making in complex situations faced by managers & leaders across a wide range of industry & business sectors.

#### 3.1.2. Specific Objectives

The following MBA programme aims seek to establish a solid basis for career advancement or for those seeking new employment opportunities:

- Provide an advanced course of study in management & leadership within rapidly changing business environments where teaching seeks to explore contemporary approaches to business practice.
- Develop defined management & leadership competencies in high capability individuals who can apply their knowledge to address contemporary business challenges.
- Based on problem, practice learning, develop an understanding of critical evaluation methodologies appropriate to address contemporary challenges in business.
- Develop an overall capacity for independent, critical and creative thinking.
- Develop critical skills to assess & evaluate academic literature and other forms of research output to inform business practice in the context of management & leadership.
- Prepare you for career advancement or new employment opportunities or continued employment with a diverse range of key & clearly defined management & leadership competencies.

## 3.2. OUTPUT STANDARDS

### 3.2.1. Knowledge

#### **Knowledge & Understanding**

Demonstrate a systematic awareness, understanding and knowledge of contemporary management and leadership issues in both a local and global context.

#### **Learning**

Demonstrate the ability to learn and to take responsibility for continuing career contextualise, analyse and learn from experience or simulated environments taking both local and global perspective on contemporary developments and research in management and leadership.

### 3.2.2. Skills

#### **Enquiry**

Devise and apply valid problem/practice-based evaluation and investigative techniques to interpret complex business challenges and propose solutions. Demonstrate understanding of selected investigative techniques within contemporary business paradigms.

#### **Analysis**

Demonstrate a conceptual understanding and critical awareness of contemporary developments in management and leadership. Evaluate the rigour and validity of evaluation and relevance to contemporary issues in management and leadership.

#### **Communication**

Articulate complex business information, situations and scenarios based on critical awareness and knowledge, adapting to different audiences, circumstances and feedback using a variety of communication tools and approaches.

### 3.2.3. Autonomy and Responsibilities

#### **Problem Solving**

Generate innovative and enterprising approaches and solutions to management and leadership challenges which inform decision making in effective business risk management.

## Application

Demonstrate intellectual and entrepreneurial skills in the problem/practice-based application of management and leadership, together with a practical understanding of how established management and leadership techniques are applied in contemporary business applications.

## Reflection

Reflect on and demonstrate development of the underpinning management and leadership competencies to enhance employability and/or career advancement in positions of management and leadership.

### 3.2.4. Learners' Career Prospects after Graduation

The MBA offered by BUV is designed to develop you into business leaders of the future. Not only does it hone the critical skills you need, but it also gives your career plans the direction and momentum to get where you want to be. We help you succeed in your career by preparing you to enter blue-chip businesses at an advanced level or equipping them with the knowledge they need to start their own successful business.

Our MBA graduates are well prepared with the ability to solve complex business problems, adapt to changes and manage diverse workforces.

- **Increase your edge:** Our MBA provides you with the skills, real-life experience and industry acknowledged qualification you will need to stand out from the crowd in a competitive world.
- **Career-focused personal tutors:** Helps you channel your new-found skills and experience, through one-to-one support, into a complete employability package, support you to develop an outstanding CV, extensive interview training and career planning skills.
- **360-degree perspective on business:** Our MBA focus is on providing our students a 360-degree perspective on business and operations. The target for an MBA student is to achieve managerial positions, having core knowledge on Finance, Marketing and Risk will provide our students with sufficient knowledge to embrace the business in its full dimension.
- **Networking:** Our MBA allows you to build contacts outside your own alumni group, and benefit from the expertise of high-quality industry speakers, respected faculty and staff, and – most importantly – potential employers.

- **Corporate partnerships:** Our national and regional renowned partners play a crucial role in framing our MBA strategy, ensuring a real-world focus to our activity, as well as establishing a formal link between our students and the leaders of industry.

### **3.2.5. Learner's ability to learn and develop after graduation**

The programme brings together global business knowledge. Course participants exchange and learn from one another as well as from the faculty, sharing valuable insights from their part of the world. We focus on personal development, supporting participants in achieving their own plans for the future. Our approach emphasises proactive studying, utilising personal working experience as a foundation for building new knowledge. Rather than opt for traditional, passive learning methods, our MBA is a tour de force in active learning and high-level problem solving.

MBA graduates will be well prepared for high level management roles, with the ability to solve problems, apply theory and demonstrate a unique and deep understanding of management skills and leadership. The detailed syllabus has been fully developed to ensure the objectives of the program and the output standards, to ensure the organisation of the training.

### **3.3. ACADEMIC LOAD**

BUV Master of Business Administration is a course that has a modular structure and each module has a credit rating with a total of 60 credits. The course is part-time and 18-months long. We will also integrate additional activities throughout our course, including regular workshops, company visits, and guest lectures on campus in order that students benefit from outside viewpoints and perspectives. When students graduate, they will have developed a deep level of knowledge and accompanying practical skills to find employment and achieve in the working world of the business administration discipline, or to undertake further study at a doctorate level.

### **3.4. ENTRY REQUIREMENTS**

There are two pathways for students to enroll on the MBA. Option A, and Option B.

Option A is for students who are not yet fully confident to immediately begin a postgraduate programme studied fully in English. These students will study the first three modules of the MBA in Vietnamese, whilst at the same time, studying English language programmes to help them gain

confidence in their English skills before entering the main programme. The entry requirements for students choosing Option A are as follows:

- Hold a bachelor's degree from a recognised Higher Education Institution
- At least 1 year full-time working experience
- IELTS 5.5 (no sub - score less than 5.0 or equivalent)
- Application essay (\*)
- Supporting references from suitable sources
- Admission Interview

(\*) Essay questions to be considered:

- How do you feel an MBA will help your career and why? How has your work experience shaped this belief?
- Discuss the greatest opportunities and threats that are affecting your business sector globally and specifically related to Vietnam.
- Please give an example of when you have demonstrated leadership skills and/or a significant contribution to a team. Specifically highlight what your role was in the situation.
- Looking at your particular skill set which areas do you feel need to be developed to support your career development?
- Describe one occurrence that has exemplified you as an individual.

Option B is for students who are already confident in beginning their postgraduate study in English. The entry requirements for students choosing Option B are as follows:

- Hold a bachelor's degree from a recognised Higher Education Institution
- At least 1 year full-time working experience
- IELTS 6.5 (no sub - score less than 6.0) or equivalent
- Application essay (\*)
- Supporting references from suitable sources
- Admission Interview

(\*) Essay questions to be considered:

- How do you feel an MBA will help your career and why? How has your work experience shaped this belief?

- Discuss the greatest opportunities and threats that are affecting your business sector globally and specifically related to Vietnam.
- Please give an example of when you have demonstrated leadership skills and/or a significant contribution to a team. Specifically highlight what your role was in the situation.
- Looking at your particular skill set which areas do you feel need to be developed to support your career development?
- Describe one occurrence that has exemplified you as an individual.

After completing the initial programme of study for either Option A or Option B, all students continue to study the remainder of the MBA programme together, in English.

### **3.5. TRAINING PROCEDURE & GRADUATION REQUIREMENTS**

Training procedure and graduation requirements strictly follow Circular 08/2021/TT-BGDDT of Ministry of Education and Training dated 18 March 2021 that regulated higher education training policy and Decision No. 2809/2020/QĐ-BUV dated 28 September 2020 of Vice Chancellor of British University Vietnam that approved 22 policies of British University Vietnam Senate, including Progression policy.

### **3.6. METHODS OF ASSESSMENT**

#### **3.6.1 Learning & Teaching methodologies**

##### **Problem Practice Based Learning (PPBL)**

The underpinning approach and hence philosophy throughout the MBA is Problem Practice Based Learning (PPBL).

The aim of the MBA is to enable students to deal with real world issues within an intellectual and challenging environment in this dynamic area of management and leadership. It will enable you to develop key competencies providing the ability to apply contemporary techniques for decision making in complex situations faced by managers and leaders across a wide range of industry and business sectors.

The principal approach to learning is centred on Problem Practice Based Learning (PPBL). All MBA students will work collaboratively with each other and with teaching staff tackling real world or authentic problems allowing development of skills and hence application as management and leadership competencies. Focus on PPBL will lead students to be capable independent learners, who understand the key issues relevant to business and their respective professions.

MBA teaching staff will utilise their wide experiences to create valid and challenging learning experiences throughout all MBA teaching and learning. MBA students come from a wide range of backgrounds and hence possess a wide range of skills and competencies plus expectations at the start of their study. The aim is to work in partnership with MBA students to ensure all students are continuously challenged whilst being provided with the required support to enable success.

### **Learning to Learn**

All our students will engage in 'learning to learn' and become increasingly reflective learners through adoption of the PPBL philosophy and hence development of key management and leadership competencies.

Employers will recognise that our students are better equipped to enter the world of work, or will make a greater contribution to their current roles. Learning activities are tailored to this approach by engaging with authentic and challenging real problems, allowing you to evolve understanding, and analytical skills; hence facilitating development of the 5x key management and leadership competencies.

The focus will therefore be on 'active' learning. Active learning is centred on communication and discussion which replaces more traditional teacher led classroom engagement. Class sessions will therefore be an opportunity for teaching staff to demonstrate their expertise and enthusiasm of the subject and hence facilitate your learning most effectively.

Many approaches to PPBL will be innovative and novel – pushing the boundaries of learning and knowledge in the MBA subject areas. MBA class sessions aim to be dynamic where participants are valued contributors to constructive, collaborative and technology-based learning. The PPBL



philosophy aims to set in context the latest theories, models and frameworks throughout all modules so participants can see where to apply their new skills as competencies in management and leadership roles.

The methods of teaching and learning used will vary according to the nature of the subject matter but will have a wide diversity from formal lectures to more student centred activities including tutorials, seminars, case studies, management simulation/exercises, group work, workshops, project work, role play plus virtual learning environments in addition to independent study and desk based/empirical research activity. In all classes, much emphasis will be placed on active, experiential learning which encourages preparatory work for full class participation. Come prepared to both learn and participate.

Directed independent and work-based study will also be utilised to support and build on knowledge, skills and competencies to provide a fuller understanding and context to each module. Both personal and module tutors will be available to provide 1:1 support for students where it is required.

Students must meet the overall university requirements in order to graduate.

### **Teaching quality**

The quality of teaching at BUV is closely monitored to ensure any problems arising are swiftly dealt with. In order to ensure quality teaching standards, BUV carries out the following activities:

- Formal and informal student feedback to ensure that the student voice is taken into account through:
  - Staff-Student Liaison meetings where any broad concerns that students have about BUV is discussed (see Student Feedback below)
  - End of module final feedback
- Teaching assessments conducted by the Staffordshire University Partnerships team: Our teaching quality is also monitored by Staffordshire University during regular visits by our programme Link Tutors. These visits allow our partner to observe multiple teaching sessions and gain an understanding of any areas of concern, both on an individual and overall basis.
- Regular faculty performance reviews are carried out including reviews of concerns raised during formal student feedback. All student feedback forms part of individual faculty

members' Key Performance Indicators and regular discussions are held between faculty and their line managers to ensure standards are maintained.

- Faculty training on the standards of teaching, assessment and marking is regularly performed within BUV to ensure a common understanding of quality standards. Additional training is provided on an ad-hoc basis when requested by individuals or when standards are not being met.

### **Student Feedback**

A comprehensive system of feedback is used to listen, understand and act upon the student voice. At the mid-point of each set of two modules, a Student Staff Liaison Committee meeting is held with two elected student representatives present from each student cohort. Student representatives collect and summarise student feedback from their cohort which is aired and addressed in the SSLC meeting chaired by the Chief Academic Officer, with Deputy CAO, Programme Leaders, Head of Academic Services and Student Experience Manager present. At the end of each module more specific and comprehensive feedback is taken and this is analysed by the Academic Management team, fed into the Module Monitoring Report as discussed above and, where beneficial, discussed with individual faculty with the objective of professional development.

### **Improving Compliance**

order to improve the oversight and accountability of key decisions made in the university, BUV has a University Senate committee which meets four times per year, as well as sub-committees which meet more frequently and as required. This additional structure of governance acts as an independent check and balance on strategic academic decisions being made. BUV also has an academic management position of Head of Quality and Academic Development whose role is to ensure that quality is being maintained and enhanced across all programmes offered at the university. To further enhance our quality and compliance in 2019, we have created a new role of Academic Compliance Manager/Officer to ensure that BUV is compliant to all requirements of both MOET and our external partners as well as the QAA.

### **3.6.2 Assessment method**

The modules on all programmes are assessed in a variety of ways and many of them by more than one method. The exact mixture of different methods depends on the nature of the module. The assessment methods may include class tests, essay assignments, projects, presentations and examinations.

#### **Internal Quality**

##### **Assessment creation and marking**

We have a rigorous system in place to ensure that assessments are created which are free from error, are suitable for the level that the student is studying at and which accurately assess the learning outcomes of the modules at the correct level. For all Staffordshire University MBA modules within BUV, the module leader creates the assessment and an internal moderator checks it for subject level accuracy. The programme leader then evaluates the assessments against the overall requirements of the programme, and the assessment is approved to be sent for further checks by Staffordshire University. In cases where there are new modules being delivered, or new faculty members are delivering the module, the Head of Quality performs one final check of the assessment before it is sent to Staffordshire.

Staffordshire University lecturers then further check the assessment against their own guidelines, ensuring the level is identical as for those studying at Staffordshire University. Once this has been approved by Staffordshire University External Examiner, this is approved for release to students at BUV.

A similar process is followed for the marking of assessments, with the module leader carrying out the grading, the moderator confirming this, and the programme leader or the Head of Quality carrying out a final quality check to ensure compliance with our standards. There are also multiple checks carried out by the BUV Examination office to ensure compliance with marking procedures, and accuracy of grade inputted to computer systems. All non-quantitative assignments are checked for plagiarism using the Turnitin software package, and BUV has introduced a system of checking for the use of ghost-writers by maintaining a record of student writing samples which can be compared against submitted assessments for any differences in language proficiency/style.

Module Monitoring Reports are created for every module delivered in collaboration with Staffordshire University, and these are used internally and externally to record any suggestions for improvements which could be made to modules for the following delivery.

### External Quality

As described above, BUV has a rigorous process of monitoring its own quality, but further checks are also made by our external partners. In March 2018, BUV was successful in passing its first completed Partnership and Periodic review with Staffordshire University. This was a major exercise with our collaborative partner which praised BUV for its delivery of the Staffordshire University programmes.

BUV is required to submit annual monitoring reports to both of its collaborative partners. These reports highlight the challenges which we have faced as a university and discuss the improvements which BUV have made, or plan to make in order to continue to enhance the delivery of our programmes.

## 3.7. TRAINING PROGRAMME CONTENT

### Dual Stream Entry Programme: Students may either take Option A or Option B.

#### Option A (All Academic courses taught in Vietnamese)

<b>Academic Programme</b>	Business Thinking 4 Credits	Cross Cultural and International HRM 4 Credits	Project Management 4 Credits	NA
<b>English Programme</b>	English: Writing	English: Reading	English: Speaking	English: Listening

All English modules are compulsory but non-credit bearing for students taking Option A.

### Option B (All Academic courses taught in English)

<b>Academic Programme</b>	Business Thinking 4 Credits	Cross Cultural and International HRM 4 Credits	Project Management 4 Credits
---------------------------	--------------------------------	---	---------------------------------

Following the completion of the Option A or Option B stream, the remainder of the course is studied in English by all students. Students will study the following modules sequentially on a month by month basis:

<b>Module</b>	<b>Number of credits</b>
Managing People & Organisations	5
Leadership & Strategic Management	5
Financial Concepts & Practice	5
Risk Management	5
Strategic Marketing Management	5
Performing in Organisations	5
International Business	5
Marketing Innovations	5
Project	8
<b>Optional Module</b>	<b>Number of credits</b>
Decision Analytics	5

No.	Module	Aim at the end of the course (summary)	Module code	Total credits/ hours	Note
1.	<i>General compulsory courses</i>				
1	English Listening	<p>This course is designed to improve students' English listening skills for the academic environment. Students will develop their abilities listening for context by understanding what people are saying in different situations. They will also develop the ability to listen for information.</p> <p>Students will learn specific techniques for following lectures and effective note-taking.</p>	BUVBS10 1	86 hours 0 Credits	For students taking Option A only
2	English Reading	<p>Students will develop necessary university level reading skills by developing vocabulary, literal and inferential comprehension, textbook reading techniques, and by fostering reading for pleasure. Students may become more efficient readers by learning to vary rate and comprehension depending upon purpose for reading.</p>	BUVBS10 2	86 hours 0 Credits	For students taking Option A only

3	English Speaking	- This course develops students' speaking skills in order to help them succeed in an academic English-speaking environment, including lecturers, tutorials, internships and seminars. Students are guided in practical ways to learn how to exchange personal ideas and give presentations for both formal and informal settings.	BUVBS10 4	86 hours 0 Credits	For students taking Option A only
4	English Writing	- This course develops the academic writing abilities of students in order to succeed in university. Students will be guided to mastery of paragraph construction, sentence construction, grammar, punctuation and correct spelling. Students will also develop essay writing abilities using various essay writing forms including descriptive, comparative, argumentative and expository essays. All of these skills are required components of a degree.	BUVBS10 3	86 hours 0 Credits	For students taking Option A only
2.	<i>Specialised courses</i>				
2.1	<i>Foundation knowledge of the programme</i>				
1	Business Thinking	Students will also be required to consider what psychological techniques are most appropriate	MBAF01	200 Hours 4 Credits	

		and how they should best be applied to a range of business scenarios (e.g. enhancing confidence, helping a team deal with pressure).			
2	Cross Cultural and International HRM	<p>Understanding the progress and implication of the internationalization of HRM</p> <p>Understand and critically evaluating the key debates of contemporary international talent management and development</p> <p>Evaluating the impact of intercultural competencies on successful cross cultural management development</p> <p>Recognising the potential contribution of international and comparative HRM to enhancing organisational competitive advantage</p> <p>The module integrated practical element, as guest speakers from industry, in the area of Human Resource Management, will share their insights and real-life situations. The interactions will be used to integrate both the theoretical knowledge, but also to direct the assignment to a student-centred,</p>	MBAF02	200 Hours 4 Credits	



		problem-solving application of knowledge.			
3	Project Management	<p>The module covers the following areas:</p> <ol style="list-style-type: none"> <li>1. The role that projects play in an organisational context.</li> <li>2. Project evaluation techniques.</li> <li>3. Project Lifecycle concepts.</li> <li>4. The role of the project manager.</li> <li>5. Project management methodologies.</li> <li>6. People processes.</li> <li>7. A critical awareness of project planning (including, but not limited to, developing a work breakdown structure, scheduling, costs and benefits, stakeholder management and risk management).</li> <li>8. Project monitoring control.</li> <li>9. Effective project closure.</li> </ol>	MBAF03	200 Hours 4 Credits	
2.2	<i>Knowledge of the programme</i>				
4	Managing People & Organisations	<ul style="list-style-type: none"> <li>• Historical developments in managerial approaches to the coordination and performance of the workforce.</li> <li>• The influence of the external and global business environment and the</li> </ul>	HRMG70 054	250 Hours 5 Credits	

		<p>implications for the management of people.</p> <ul style="list-style-type: none"> <li>• The influence of the internal organisational context including organisation design, job design, the nature of the business, nature of the workforce and general workplace culture.</li> <li>• The contribution of leadership, including qualities such as emotional intelligence for effective people management.</li> <li>• The 'dark side' of organisations including issues of power, authority and political tactics, dealing with bullying, discrimination and victimisation.</li> <li>• The nature of the 'human resource' and the challenges it presents to managers, including the problems of motivation, engagement and the management of conflict in the workplace.</li> <li>• The pursuit of creativity and knowledge sharing, including the importance of facilitating employee voice,</li> </ul>			
--	--	---	--	--	--

		participation and involvement practices.			
5	Leadership & Strategic Management	<p>Learning</p> <ul style="list-style-type: none"> <li>• Conceptual thinking and evaluation of the subject area. Challenging assumptions.</li> <li>• Characterising contemporary strategic challenges, assessment &amp; evaluation.</li> </ul> <p>Practice</p> <ul style="list-style-type: none"> <li>• Identifying &amp; developing individual strategic &amp; organisational agility competency in management &amp; leadership roles.</li> </ul> <p>Evaluating the implications through analysis of problem/practice-based evaluation of case examples.</p>	STRA701 84	250 Hours 5 Credits	
6	Financial Concepts & Practice	<p>On completion of this module, students will be able to:</p> <p>Understand &amp; appreciate the regulatory framework and the conceptual framework governed by the International Financial Reporting Standards (IFRS) Foundation.</p>	STRA701 84	250 Hours 5 Credits	

		<p>Apply knowledge on issues impacting the recognition and measurement of financial assets and liabilities.</p> <p>Evaluate key financial statements of a wide range of business types (public, private, not for profit, various size and structure) and be aware of current problems and/or new insights in financial and non-financial concepts and practices.</p> <p>Reflect on and demonstrate development of associated underpinning strategic agility and drive for results competencies to enhance employability and/or career advancement in positions of management &amp; leadership.</p>			
7	Risk Management	<p>Defining risk and uncertainty and gaining an appreciation for the random nature of business events from a broadly multi-disciplinary approach such as economics, finance and accounting.</p> <p>Evaluations of contemporary risk management:</p> <ul style="list-style-type: none"> <li>• The purpose of insurance</li> <li>• The purpose of hedging</li> <li>• The purpose of forecasting</li> </ul>	ECONO7 0143	250 Hours 5 Credits	

		The dynamic nature of dealing with the future will be central to the analytical nature of this module including how to incorporate these aspects in to business decisions such investment, borrowing and lending.			
8	Strategic Marketing Management	<ul style="list-style-type: none"> <li>• The relationship between Corporate strategy and Strategic Market Management</li> <li>• Strategic Analysis: External and internal audits including scenario planning.</li> <li>• Strategy formulation: levels of marketing strategy, creating advantage (generic strategies), Market-led strategic change and achieving a market-orientation</li> <li>• Brand strategy</li> <li>• Segmentation, target marketing and positioning</li> <li>• Impact of digital marketing.</li> </ul> <p>Design of an appropriate contemporary marketing mix i.e. 8 P's</p> <ul style="list-style-type: none"> <li>• Implementation issues, including: leadership and</li> </ul>	MKTG70 307	250 Hours 5 Credits	

		<p>planning, measuring market performance</p> <p>Evaluating emerging themes such as sustainability/CSR, digital and social media marketing; value co-creation within marketing; governance and risk.</p>			
9	Performing in Organisations	<p>Exploring development of organisational agility via enhancement of personal performance and well-being along with the performance and well-being of the wider team.</p> <p>Explores a range of concepts including:</p> <ul style="list-style-type: none"> <li>• How to understand, manage, and respond positively to stress.</li> <li>• How we think and view demands helps an individual &amp; team to perform more effectively.</li> <li>• The social identity approach to leadership: considering 3 stages (Reflection, Representation, Realisation)</li> </ul> <p>Considers how individuals time (e.g., when should cognitively demanding tasks be completed), and habits (e.g., sleep, email</p>	SPOR709 21	250 Hours 5 Credits	

		activity) and that of the organisation can be structured most effectively to enhance performance and well-being.			
10	International Business	<p>Defining patterns &amp; dynamics of international business and hence global economy</p> <p>Evaluations of contemporary patterns of the global economy:</p> <ul style="list-style-type: none"> <li>• The role of the TRIAD</li> <li>• Impact of emerging economies on TRIAD dynamics</li> <li>• Implications of emerging economies on the global economy</li> </ul> <p>Future dynamics of international business</p> <ul style="list-style-type: none"> <li>• Globalisation</li> <li>• Factors likely to impact patterns of economic growth</li> <li>• Implications for emerging economies and future growth of the global economy</li> </ul>	IBUS7000 1	250 Hours 5 Credits	
11	Marketing Innovations	The module will focus on the marketing management of innovative new products within the context of small entrepreneurial firms and large established global	MKTG70 224	250 Hours 5 Credits	

		<p>companies. The module will also explore the challenges faced by marketers, entrepreneurs and consultants in bringing an innovative product to the market.</p> <p>The module will also examine the drivers of market adoption and evaluate marketing strategies for successful launch of innovative new products.</p> <p>The module integrated practical element, as guest speakers from industry, in the area of Marketing, will share their insights and real-life situations. The interactions will be used to integrate both the theoretical knowledge, but also to direct the assignment to a student-centred, problem-solving application of knowledge</p>			
12	Decision Analytics	<p>This module looks at Machine Learning Algorithms, Data Mining and Big Data Analytics in the context of decision making.</p> <p>The content includes:</p> <ul style="list-style-type: none"> <li>• The nature of Knowledge Discovery, and the role and contribution of Machine Learning, Data Mining,</li> </ul>	MBAS01	250 Hours 5 Credits	Optional



		<p>Organisational Decision Making and Data Science.</p> <ul style="list-style-type: none"> <li>• Data Quality and ethics in machine learning and Big Data Analytics</li> <li>• The nature of Big Data and Big Data Analytics and the selection of analysis strategies</li> <li>• Professional issues and obligations in relation to data analysis</li> <li>• Machine Learning and Data Mining algorithms using the Weka environment or optionally the R statistical software package, including: <ul style="list-style-type: none"> <li>○ Classification</li> <li>○ Clustering</li> <li>○ Association Rules</li> </ul> </li> <li>• Visualisation and communication of the results of analysis</li> </ul>			
2.3					
13	Project	<p>The final Project study phase will commence with a series of 2x3 hours/week intensive seminars over an initial 6-week period (36 hours total) on problem/practice based approaches to complex case study evaluation &amp; research methodology. The aim is to</p>	STRA701 72	400 Hours 8 Credits	

		<p>prepare fully all students for this final independent &amp; autonomous phase of the MBA study. The outcome of this first phase will be a final Project proposal.</p> <p>Definition and preparation of a problem/practice-based project proposal to be assessed by appropriate 2 x academic staff.</p> <p>An individual presentation of the proposal against established benchmark criteria to a panel of 3xacademic staff for critical evaluation.</p> <p>Submission of a successful Project proposal is followed by a final Project study on an approved topic. This must incorporate:</p> <ul style="list-style-type: none"> <li>• Critical evaluation underpinned by a range of relevant &amp; contemporary theories &amp; frameworks leading to reasoned conclusions which address the final Project benchmark criteria.</li> <li>• Reflect critically on the underpinning management &amp; leadership competencies as they relate to the Project topic.</li> </ul>			
--	--	--	--	--	--

		In the event an appropriate Project topic is not identified/offered by the student, an approved Project topic/subject area will be provided by nominated academic staff.			
--	--	--	--	--	--

### 3.8. IMPLEMENTATION GUIDE

#### 3.8.1 General Principles

- Training direction: The training programme is application-oriented, so when implementing the programme, related personnel must pay attention to:
  - Prioritise application to potential;
  - Keep the common and foundational knowledge at a reasonable amount;
  - Increase the specialised knowledge, mainly in the practical sessions
- Bases for the implementation of the program: Consolidated Document No. 17/VBHN-BGDDT dated May 15, 2014 of the Minister of Education and Training; other State regulations on the field of training; effective regulations & policies in BUV: Teaching Load Policy, BUV Academic Teaching Classifications and Standards of Faculty, Teaching and Learning Performance Evaluation Policy, Performance Management Policy, Policy on Employee Recognition Programmes.
- When implementing the programme: the related personnel and departments must strictly follow the training programme that has been approved.
- Training plan and teaching staff allocation: must be reasonably arranged in terms of expertise as per programme and must be approved by the Dean.
- The Discipline Leads and Module Leaders must develop lectures and test banks for all modules, implement the programme with a student-focused method, and encourage students' autonomy in studying and research.

#### 3.8.2. Training plan

BUV Master of Business Administration is a course that has a modular structure and each module has a credit rating with a total of 60 credits. The course is part-time and 18 months long. We will also integrate additional activities throughout our course, including regular workshops, company visits, and guest lectures on campus in order that students benefit from outside

viewpoints and perspectives. When students graduate, they will have developed a deep level of knowledge and accompanying practical skills to find employment and achieve in the working world of the computing discipline, or to undertake further study at a postgraduate level.

The programme brings together global business knowledge. Course participants exchange and learn from one another as well as from the faculty, sharing valuable insights from their part of the world. We focus on personal development, supporting participants in achieving their own plans for the future. Our approach emphasises proactive studying, utilising personal working experience as a foundation for building new knowledge. Rather than opt for traditional, passive learning methods, our MBA is a tour de force in active learning and high-level problem solving.

MBA graduates will be well prepared for high level management roles, with the ability to solve problems, apply theory and demonstrate a unique and deep understanding of management skills and leadership. The detailed syllabus has been fully developed to ensure the objectives of the program and the output standards, to ensure the organisation of the training.

## **SECTION 4: CONDITIONS ON THE LECTURING STAFF AND SCIENTISTS TO OPEN THE DISCIPLINE**

BUV offers 100% international faculty. We will arrange 5 full-time lecturers with Doctor of Philosophy (PhD) degrees to be in charge of Business Administration and other 5 full-time lecturers with Doctor of Philosophy (PhD) degrees to be in charge of Economics discipline. All lecturers will have to be in the same or close to the registered course, and who must go through a careful interview and selection based on their qualifications and relevant teaching experience. One Doctor of Philosophy (PhD) will take charge and administer the training curriculum and is held accountable for training quality.

BUV aims to recruit faculty with cross-cultural experiences from a diverse range of countries that have recognised educational systems, and who are able to provide students with a quality of education that meets or exceeds the standards set for teaching staff within BUV. BUV's faculty members are regularly assessed on their appropriateness and suitability for teaching on the academic programmes, and the outputs of the students feedback process and formal teaching evaluations are integrated into the performance evaluations of faculty. This is done through annual, and (if necessary) bi-annual, performance reviews in compliance with the Performance Management Policy which sets out the guiding principles and processes for how performance reviews will be carried out for both faculty and professional staff. These reviews provide opportunities for faculty and line managers to reflect on the performance attained over the period in question, for support to be provided as needed, as well as allowing for the monitoring of individual and departmental level Key Performance Indicators.

These performance evaluations draw on evidence from students feedback on modules, as well as formal teaching observations that have been carried out throughout the year by senior academic faculty. Using this system of performance management, BUV ensures that academic standards are maintained, and that any potential issues with academic faculty are addressed as rapidly as possible to maintain an effective learning environment for students. The academic performance management process at BUV allows for issues to be resolved through a progressive system of disciplinary actions, which may eventually result in non-renewal of contracts.

BUV supports all faculty to engage in Continuous Professional Development (CPD), whether through formal education, development and accreditation of their teaching practices, or skills development. All faculty are provided with an annual hours allocation for CPD in their overall workload calculations and this can be used in a variety of ways based on identified training needs by either faculty or line managers.

Curriculum Vitae of lecturers and publications are attached in appendix of this document, including copy of publication, recruitment decision, contracts and qualification.

#### 4.1. FULL-TIME LECTURERS AND SCIENTISTS

(Form No.1, Annex 3, Circular 02/2022/TT-BGDĐT)

No. (1)	Full name, DOB (2)	Passport number/ ID Card (3)	Academic title, Awarding year (4)	Academic qualifications, Awarding country, Awarding year (5)	Major (Highest qualification) (6)	(Full time contract with BUV) Recruitment		Insurance number (9)	Academic experiences (10)	Public research		Signature (13)
						Recruitment date (7)	Labour contract (8)			MOET (11)	Institution (12)	
1	Raymond Daniel Gordon	PB1626423	Professor of Leadership and Organizational Behaviour, Bond University, 2009 until now	Dr, 2003	Management	05/02/2018	x	0130825618	16	0	6	

2	Rick Bennett	PB2713617	Professor Rick Bennett BA (Hons) Fine Art, MHEd, PhD, 2015 until now	Dr, 2009	Higher Education /Art	15/04/2022	x	7937473129	28	0	21
3	Anchit Bijalwan	Z5968952	Dr, 2016	Dr, 2016	Computer Science and Engineering	13/05/2022	x	0132059089	15	0	24
4	Jason Alexander MacVaugh	563376605	Assoc. Professor or Jason MacVaugh, 2014 until now	Dr, 2009	Knowledge Management	30/01/2023	x	0132338097	19	0	13
5	Maren Viol	C4KPGP L3L	Dr, 2016	Dr, 2016	Tourism and Events	30/01/2023	x	0128175579	12	0	3
6	Michael George Perkins	536578269	Dr, 2013	Dr., UK, 2013	Management	03/09/2013	x	0128175566	10	0	10

7	Jyotsna Ghildiyal Bijalwan, 18/11/1983	Z3636990	Dr, 2013	Dr., India, 2013	Management/ Business Management	13/05/2022	x	0132059096	15	0	8	
8	Adrian Wee Tiong Weng, 27/04/1968	A54886757	Dr, 2016	Dr., Australia, 2016	Business Management	01/04/2020	x	7937473045	24	0	5	



## 4.2. LIST OF LECTURERS TO OPERATE AND IMPLEMENT THE TRAINING PROGRAMME

(Form No.2, Annex 3, Circular 02/2022/TT-BGDĐT)

No. (1)	Full name (2)	Modules (3)	Semester and Year (4)	Number of credits				Leading lecturer, tenure lecturer, etc. (9)
				Compulsory		Optional		
				On Campus (5)	Online (6)	On Campus (5)	Online (6)	
1	Raymond Daniel Gordon	Business Thinking	Year 1	4				Leading Lecturer
		Project Managementt	Year 1	4				
		Leadership & Strategic Management	Year 2	5				
		Strategic Marketing Management	Year 1	5				
2	Rick Bennett	Leadership & Strategic Management	Year 2	5				
		Strategic Marketing Management	Year 1	5				
		Marketing Innovations	Year 1	5				
3	Anchit Bijalwan	Risk Management	Year 2	5				
		Marketing Innovations	Year 1	5				
4	Jason Alexander MacVaugh	Cross Culture & International HRM	Year 1	4				
		Risk Management	Year 2	5				
		Performing in Organisations	Year 2	5				
		Project	Year 2	8				

		Financial Concepts Practice	Year 1	5				
5	Maren Viol	English: Reading	Year 1	0				
		English: Speaking	Year 1	0				
		English: Listening	Year 1	0				
		International Business	Year 2	5				
		Performing in Organisations	Year 2	5				
6	Michael George Perkins	Business Thinking	Year 1	4				
		Managing People & Organisations	Year 1	5				
		Financial Concepts Practice	Year 1	5				
		Project Managementt	Year 1	4				
7	Adrian Wee Tiong Weng	English: Writing	Year 1	0				
		English: Reading	Year 1	0				
		English: Speaking	Year 1	0				
		English: Listening	Year 1	0				
		International Business	Year 2	5				
8	Jyotsna Ghildiyal Bijalwan	English: Writing	Year 1	0				
		Cross Culture & International HRM	Year 1	4				
		Managing People & Organisations	Year 1	5				
		Project	Year 2	8				

### 4.3. LIST OF MANAGERS

(As per Form No.3, Annex 3, Circular 02/2022/TT-BGDĐT)

No.	Full name, DOB, position	Education, year	Discipline	Note
1	Jason MacVaugh, 16 February 1978, Dean (Higher Education)	PhD University of Gloucestershire, 2009	Knowledge Management	
2	Joao Fialho, 11 July 1979, Head of Post Graduate Centre	Phd, University of Évora, Portugal	Mathematics; Differential Equations, Functional Analysis	Discipline Lead
3	Tony Summers, 14 July 1954, University Registrar	Master, Kingston University - London, 2005	MBA	
4	Tran Duc Trung, 25 February, 1989, Deputy University Registrar	Master, Royal Melbourne Institute of Technology, Melbourne, Australia, 2019	MBA	
5	Hoang Phuong Yen, 12 September, 1988, Course Office Manager	Master, University of Adelaide, 2018	International Trade & Development	

### 4.4. SCIENTIFIC RESEARCH TOPICS OF THE INSTITUTE, LECTURERS AND SCIENTISTS RELATED TO THE DISCIPLINE

Whilst BUV is still primarily a teaching university, we encourage all faculty members to continuously develop and update their research and professional practice. This can be done both formally and informally through scholarly research, practice-based research, and engagement with scholarly and professional networks. The Scholarly Activity Encouragement Policy sets out what is meant by scholarly activity within BUV, how BUV will support in the dissemination of this activity and how these activities will be recognised. As BUV grows, we are seeking to develop and enhance our research capabilities and reputation to fulfil strategic objective 10: 'Produce research that benefits Vietnam and the world', and 11 'Attract world-class researchers and practitioners to the campus to engage with BUV students and academics from across Vietnam'.

The introduction of the BUV Academic and Teaching Classifications and Standards of faculty and promotion policies being developed will also serve to encourage and drive research activities and outputs within BUV. The Faculty Research Activity shows some of the recent research activities that

BUV faculty have engaged in, ranging from local conference presentations, through to publications in top-tier international journals. We recognise that not all faculty are engaged on contracts which involve research expectations, and therefore encourage scholarly activity across the entire range of activities discussed in the Scholarly Activity Encouragement Policy.

Enhancing the research and teaching capabilities of BUV is part of strategic priority one for 2022: 'Enhance the University's reputation relative to its competitors by obtaining quality assurance accreditations and the development of faculty research and teaching.'. To enhance BUV's ability to produce high-quality research, BUV provides the following support to faculty:

- Condensed teaching periods to allow for block research time.
- Funding opportunities to present at conferences.
- Workload allowances for faculty actively engaged in research.
- Encouraging faculty members to be fully engaged in professional and academic networks.
- Developmental opportunities for faculty members to present at BUV internal conferences.
- Ad-hoc funding support for research projects.
- Student Research Assistants (SRAs) to support faculty with research activities. The introduction of SRAs has been agreed and recruitment of these positions has begun and will be scaled up from the beginning of the 2023 academic year.

The Policy on Employee Recognition Programmes, and the Policy on Employee Recognition Programmes - Procedure shows the value that BUV places on scholarly activity, as well as teaching. Research related awards and recognition include an annual best research award (Vice-Chancellor and President's award) with a cash value of \$1000, and a biannual best research award (Dean's award).

Beyond traditional scholarly activity outputs, BUV recognises the value of faculty maintaining broad external networks to help support both research and teaching practices. Faculty Engagement with Professional and Academic Networks shows how faculty members are involved with, and engaging actively with other institutions, and both academic and professional networks. This engagement allows faculty members to remain current in their professional and academic practices, provide scope for collaboration on a range of professional or research projects, and enables them to continue to develop and improve their teaching practices.

#### **4.5. PUBLISHED SCIENTIFIC WORKS OF LECTURERS AND SCIENTISTS RELATED TO THE DISCIPLINE**

(As per Form No.5, Annex 3, Circular 02/2022/TT-BGDĐT)

<b>No.</b>	<b>Publications</b>	<b>Remarks</b>
------------	---------------------	----------------

1	Chaudhary, S. K., and Nguyen, K.V. (2018), 'An Empirical Analysis of Export-led Growth of Vietnam: Trade in Value Added (TiVA) Approach', <i>The Journal of Business and Management</i> , 5(1), p.1-15.	
2	J. Fialho (2018), 'A biomechanical model for the idiopathic scoliosis using spinal traction devices', <i>Journal of Physics: Conference Series</i> , 1141, p.012022.	
3	Kais Mejri, Jason Alexander MacVaugh, Dimitrios Tsagdis (2018), 'Knowledge configurations of small and medium-sized knowledge-intensive firms in a developing economy: A knowledge-based view of business-to-business internationalization', <i>Industrial Marketing Management</i> , 71, p.160-170.	
4	Perkins, M., Gezgin, U. B., & Roe, J. (2018), 'Understanding the Relationship between Language Ability and Plagiarism in Non-native English Speaking Business Students', <i>Journal of Academic Ethics</i> , 16(4), p.317-328.	
5	Viol, M., Todd, L., Theodoraki, E. & Anastasiadou, C. (2018), 'The role of iconic-historic commemorative events in event tourism: Insights from the 20th and 25th anniversaries of the fall of the Berlin Wall', <i>Tourism Management</i> , 69, p.246-262.	
6	Yam, L., Raybold, M, Gordon, R.D. (2018), 'What Makes People Stay? An investigation of job embeddedness construct, and the exploration of the effects of on-the-job and off-the-job embeddedness on voluntary turnover in the hospitality industry', <i>Journal of Human Resources in Hospitality and Tourism</i> , 17(4).	
7	Chaudhary, S. K., and Nguyen, K.V. (2019), 'Assessing Position of Vietnam in Global Value Chain (Vietnamese)', <i>VNU Journal of Humanities and Social Sciences</i> , 5(3), p.292-313.	
8	Chaudhary, S. K., and Nguyen, K.V. (2019), 'Re-assessing the export competitiveness of Vietnam', <i>VNU Journal of Social Sciences and Humanities</i> , 5(5), p.539-549.	
9	Chaudhary, S. K., and Pandit, K. R. (2019), 'Price Elasticity of Sectoral Lending in Nepal', <i>NRB Economic Review</i> , 31(2), p.1-24.	

10	F. Minhós, J. Fialho (Eds.), (2019), <i>New Trends in Differential and Difference Equations and Applications</i> , MDPI, Switzerland.	
11	Fialho, J and Minhós, F. (2019), 'Existence results for functional first order coupled systems and applications', <i>Mathematical Methods in the Applied Sciences</i> , 42(7), p.2398-2403.	
12	Fialho, J and Minhós, F. (2019), 'First order coupled systems with functional and periodic boundary conditions: existence results and application to SIRS models', <i>Axioms</i> , 8(1), p.23.	
13	J. Fialho, F. Minhós (2019), 'Existence results for functional first-order coupled systems and applications', <i>Mathematical Methods in the Applied Sciences</i> , 42(7), p.2398-2403.	
14	Jyotsna Bijalwan (2019), 'Corporate Governance System in India', <i>International Journal of Management</i> , 3(2), p.260-269.	
15	Jyotsna Ghildiyal, RC Joshi (2019), <i>Business Ethics and Corporate Governance</i> , McGraw Hill, US.	
16	Nguyen, K. V., and Chaudhary, S. K. (2019), [in] Nguyen, T., and Nguyen. N. (Eds.), <i>Vietnam National Economic Report 2019: On the Doorstep to the Digital Economy</i> (Chapter 4), Vietnam Institute for Economic and Policy Research, Hanoi.	
17	Nguyen, K.V., Phan, H.T.T., and Chaudhary, S. K. (2019), 'Small and Medium Enterprises' Participations in Global Value Chains (Vietnamese)', <i>Review of the World Economic and Political Issues</i> , 4(276), p.23-35.	
18	Perkins, Gezgin & Gordon (2019), 'Plagiarism in higher education: classification, causes and controls', <i>Pan-Pacific Management Science</i> , 2, p.3-21.	
19	Pillai, A.K (2019), 'Modelling Cost Allocation Adoption as an Endogenous Consequences of Senior Executives' Characteristics', <i>Journal of Business, Sciences and Technology</i> , 2(1), p.1-47.	
20	Roe, J., Perkins, M. (2019), 'Learner Autonomy and English Learning in the Vietnamese HE Context: A Literature Review', <i>Asian Journal of University Education</i> , 16(1), p.13-21.	

21	F. Minhos, J. Fialho, R. Souza, (2020), ' <i>Periodic n dimensional first order coupled systems and periodic schizophrenia phenomena</i> ', <i>Journal of Mathematical Analysis and Applications</i> , 492(2), p.124482.	
22	Malhotra R.K., Jyotsna Bijalwan, Thapliyal B.L. (2020), ' <i>Corporate governance in emerging economies: An Indian Insight</i> ', <i>International Journal of Management</i> , 11(9), p.663-670.	
23	Pang, J.M. and Wee, A.T.W. (2020), ' <i>Corporate Social Responsibility Reporting in Locally Owned Hotel Chains in Singapore</i> ', <i>ASEAN Journal on Hospitality and Tourism</i> , 18(1), p.43-57.	
24	Perkins, M., Gezgin, U., & Roe, J. (2020), ' <i>Reducing plagiarism through academic misconduct education</i> ', <i>International Journal For Educational Integrity</i> , 16(3).	
25	Perkins, M., Gezgin, U.B, Gordon, R. (2020), ' <i>Plagiarism in higher education: classification, causes and controls</i> ', <i>PanPacific Management Science</i> , 2.	
26	Perkins, M., Roe, J., Gordon, R (2020), ' <i>Management Versus Measurement: A Renewed Categorization of Performance Terminology</i> ', <i>Pan Pacific Management Science</i> , 3, p.3-16.	
27	Pillai, A.K., Tan, K.C., and Teo, Z.X.H (2020), ' <i>Key Influences of Cost Allocation Adoption: The Role of Managerial Characteristics, Personality Traits, Behavioural Intention and Decision Styles</i> ', <i>Journal of Business, Sciences and Technology</i> , 2(1), p.10-47.	
28	Benjamin Chiao, Jason MacVaugh (2021), ' <i>Open innovation and organizational features: An experimental investigation</i> ', <i>European Management Journal</i> , 39(3), p.376-389.	
29	Chaudhary, S. K. (2021), ' <i>Assessing Participation and Position of Vietnam in Global Value Chains</i> ', <i>Journal of Nepalese Business Studies</i> , 14(1), p.29-39.	
30	Dana Alshwayat, Jason Alexander MacVaugh, Hammad Akbar (2021), ' <i>A multi-level perspective on trust, collaboration and knowledge sharing cultures in a highly formalized organization</i> ', <i>Journal of Knowledge Management</i> , 25(9), p.2220-2244.	

31	F. Minhós, J. Fialho (Eds.), (2021), <i>Nonlinear Differential Equations and Dynamical Systems: Theory and Applications</i> , MDPI, Switzerland.	
32	F. Minhos, J. Fialho, R. Souza (2021), 'On coupled systems of Lidstone-type boundary value problems', <i>Mathematical Modelling and Analysis</i> , 26(3), p.358-371.	
33	J Fialho (2021), 'Key performance indicators and individual prediction models for penalty kicks', [in] <i>Recent Developments in Mathematical, Statistical and Computational Sciences</i> , 18-23 August, 2019, 137-146.	
34	Viol, M. & Southall, C. (2021), 'A conceptual framework for understanding Western-centrism in transnational education in tourism', <i>Current Issues in Tourism</i> , 26(1), p.1-5.	
35	Chaudhary, S. K. (2022), [in] Dhami, N., Shrestha, D., Chhetry, T., Gurung, S., Thapa, A. (Eds.), <i>Transformation of Higher Education in Nepal: Dimensions, Dynamics and Determinants</i> (p.119-124), Pokhara University, Nepal.	
36	Chaudhary, S. K. (2022), 'Remittances, Economic Growth and Investment Nexus: Evidence from Nepal', <i>NRB Economic Review</i> , 34(1), p.1-23.	
37	J. Fialho, F. Minhos (Eds.), (2022), <i>Advances in Nonlinear Boundary Value Problems: Theory and Applications</i> , MDPI, Switzerland.	
38	Jasper Roe & Mike Perkins (2022), 'What are Automated Paraphrasing Tools and how do we address them? A review of a growing threat to academic integrity', <i>International Journal for Educational Integrity</i> , 18(1).	
39	Jyotsna G Bijalwan, Anchit Bijalwan (2022), 'Multivariate Analysis for Overcoming Complexities of Corporate Governance and Managerial Dilemma using Data Mining Technique', <i>Discrete Dynamics in Nature and Society</i> , 2022, p.1-12.	
40	Nguyen, B. L. and Viol, M. (2022), [in] Stylidis, D., Kim, S., & Kim, J., (editors), <i>Tourism Marketing in Southeast and East Asia</i> (p.22-38), CABI.	
41	Nguyen, K. V., and Chaudhary, S. K. (2022), 'Position of Vietnam in global value chains: an empirical approach', <i>International Journal of Value Chain Management</i> , 13(4), p.383-394.	



42	Pillai, A.K. (2022), 'Using Decomposed Theory of Planned Behavior (DTPB) to examine educators' behavioural intention towards TPACK', [in] <i>Redesigning Pedagogy International Conference 2022: Transforming education &amp; strengthening society: Conference proceedings</i> , Singapore, 30 May - 1 June, 2022, National Institute of Education, Nanyang Technological University (NIE NTU), Singapore.	
43	Pillai, A.K., Pereira, M., Luong K.H., & Roe J. (2022) (2022), 'Curriculum Innovation in Vietnam: A Study on Teachers' Attitudes Using the Dimensions of ACB (Affective, Cognitive and Behavioral) Model', <i>Vietnam Journal of Education</i> , 6(1), p.20-30.	
44	Pillai, A.K., Pereira, M., Luong K.H., & Roe J. (2022) (2022), 'Implementing Curriculum Innovation in Vietnam: Exploring Four Teachers Narrative Experiences', <i>Journal of Business, Sciences and Technology</i> , 4(1), p.7-21.	
45	Fialho, J. and Diep, N. (2023), 'Brand equity and purchase intention for ecommerce platforms in Vietnam', [in] <i>Proceedings of the International Conference on Application of AI and Statistical Decision Making for the Business World, ICASDMBW 2022</i> , Rukmini Devi Institute of Advanced Studies, 16-17 December 2022, EAI, Delhi.	
46	Mike Perkins (2023), 'Academic Integrity considerations of AI Large Language Models in the post-pandemic era: ChatGPT and beyond', <i>Journal of University Teaching &amp; Learning Practice</i> , 20(2).	
47	Jyotsna G. Bijalwan, Malhotra R.K (), 'Corporate Governance Policies and Practices: With Special Reference to Private Sector Firms in Ethiopia', Shodh Sarita.	

## SECTION 5: CONDITIONS FOR FACILITIES TO OPEN THE DISCIPLINE

### 5.1. FACILITIES AND EQUIPMENT FOR THE TRAINING PROGRAMME AT UNDERGRADUATE LEVEL

Infrastructure and facility: The area of Campus in Ecopark is 6,5ha. The timeline for construction of new Campus consists of 3 phases: Phase 1- 2,84ha and Phase 2 and 3 - 3,66ha. Phase 1 was completed and the current facilities in Ecopark Campus includes:

Order	Category	Number	Total area (m2)
1	Library	01	1.230,1
2	Classrooms	23	1.947,5
3	Lecture hall	02	851,4
4	Teacher office	02	258,5
5	Research area	06	490,4
6	Sport area	03	654,7
7	Canteen	02	4,096
8	Others		4.887,8
<b>Total</b>			14.416,4

The library building is designed in a contemporary style, which includes Library area, 24-hour study area, specialised discussion rooms for students and computer access.

Classrooms: 23 classrooms with open design and flexible to serve the various needs. These rooms can accommodate 30-45 students and are fully equipped modern teaching auxiliaries, projectors, LCD screens, high-quality audio system, air conditionings, standard light system.

02 large lecture halls: with an average area of 425 m2 accommodating 250 students per lecture hall, 6m high, equipped with smart board, projector, LCD screen, high quality sound system, air conditioning, system Standard lighting system. In addition, large lecture halls also have an online system that allows students to sit anywhere in or outside the Ecopark Campus to participate in interactive lectures through online tools.

The construction of the BUV campus Phase 2 at Ecopark started in August 2022, with an investment of 33 million USD, and is expected to be completed in early 2025.

Specifically, BUV invested in building a new canteen with a total floor area of 4,096m<sup>2</sup>, a sports complex including basketball and badminton courts, and a new academic building. The indoor and outdoor spaces are arranged in harmony in an open, green landscape. The iconic minimalist and liberal architectural style indicative of 4IR reflects the educational approach at BUV.

All of the spaces at BUV are designed for Higher education level students. Our Learning Studio, Learning Cluster, X-space, Theater Pod & Halls were designed for the delivery of lectures. BUV also has functional classrooms that customised for the delivery of our specific higher education programmes. This includes, for example, Art Studio & Photo Studio; Learning kitchen, Restaurant, Front Office & Housekeeping; Digital Lab, Computer Games Design Lab & Cyber Security Lab, Motion Capture Studio.

Outside of standard & functional classrooms, BUV also provides a wide range of discussion & break-out rooms with various capacities that students can use for group work or individual study. There is also a 24/7 Study Area that serves as a Quiet Study Area during LRC operational hours.

(As per Form No.6, Annex 3, Circular 02/2022/TT-BGDĐT)

<b>Order</b>	<b>Category</b>	<b>No.</b>	<b>Total Area (m<sup>2</sup>)</b>	<b>Module</b>	<b>Usage Schedule (Semester, Academic year)</b>	<b>Remarks</b>
1	Lecture Halls, classrooms, discussion rooms multimedia rooms, multi-purposes rooms, faculty rooms	45	2651			
1.1	Learning Theatres, Halls, Classrooms with over 200 pax	1	464			

1.2	Classrooms with 100-200 pax	1	370			
1.3	Classrooms with 50-100 pax	1	84			
1.4	Classroom with less than 50 pax	19	966	Managing People & Organisations	Year 1	
				Leadership & Strategic Management	Year 2	
				Financial Concepts & Practice	Year 1	
				Risk Management	Year 2	
				Strategic Marketing Management	Year 1	
				Performing in Organisations	Year 2	
				International Business	Year 2	
				Marketing Innovations	Year 1	
Project	Year 2					
1.5	Multipurpose Rooms	6	608			
1.6	Discussion Rooms	15	159			
1.7	Faculty Rooms	2	258,5			

2	Libraries/Learning Resources Centres	1	1230, 1			
3	Research centre, laboratories, practical rooms	12	1121			

## 5.2. RESEARCH CENTRES, LABORATORIES, AND PRACTICE FACILITIES FOR THE DISCIPLINE

(As per Form No.8, Annex 3, Circular 02/2022/TT-BGDĐT)

List of Equipment					Module	Time of use	No. of user/unit
Order	Name of Equipment, Product Code, Usage Purposes	Country of Origin, Model Year	Number	Unit			
<b>Computer Lab 1-4</b>					All modules	All academic year	
1	PC Computer (Gigabyte Workstation W281-G40 )	China / 2021	31	pcs			1
2	Monitor Gigabyte 27-inch Gaming monitor	China / 2021	62	pcs			1
3	Wacom tablet						1
<b>Digital Lab 2-4</b>							
4	Apple iMac 27 inch	2019	16	pcs			1
5	Color printer Epson SC-P807	2019	1	pcs			1
6	Scanner Epson Perfection V600	2019	6	pcs			1
<b>LRC Computer Lab</b>							
7	PC Computer (HP Elitedesk 800 G3 )	2018	24	pcs			1
8	Monitor HP Z24i G2	2018	24	pcs	1		

## 5.3. LIBRARIES, COURSEBOOKS, BOOKS, REFERENCE MATERIALS

### 5.3.1 Libraries

The library building is designed in a contemporary style, which includes Library area (1.230,1m<sup>2</sup>), 24-hour study area, specialised discussion rooms for students and computer access.

- During operation hours between 8.30 am and 6.30 pm from Monday to Friday, there are 13 discussion rooms with a capacity of 4-6 people/room & 26 classrooms with a capacity of 30 people/rooms available for students to book. Students can book rooms with Student Information Office 1 day in advance at the earliest. Each student can use rooms for at most 1 hour per booking & at most 2 hours per week.
- Outside operation hours of between 8.30 am and 6.30 pm from Monday to Friday, BUV provides a range of Out-of-hours campus access facilities including the 24/7 Study Area, 6 normal classrooms & 8 functional classrooms for students to book. Students can request Out-of-hours campus access to 24/7 Study Area and classrooms with Student Information Office by 4 pm from Monday to Friday.

BUV provides open access to 24 PCs and 13 iMacs for students in the LRC (Learning Resource Centre)'s Lab & shared space. To ensure that students could easily access all digital learning resources, all students entering degree programmes from April 2019 were issued Apple iPads. Konica Minolta printing, photocopying and scanning facilities are available for general use. Students can print using BUV open-access computers in the LRC. BUV offers printing and photocopying accounts for students. Students receive the account in the 1st semester of study with 189 pages for printing and 189 pages for photocopying free of charge. The account is extended automatically after each semester.

In addition, students can loan 1,494 titles of print books from LRC with a maximum of 5 books each time for 14 days in total. LRC users have access to a range of digital databases and online resources including e-books, journals, articles, case studies, and reports, which are available 24 hours, 7 days/a week on and off campus.

BUV provides a separate Wi-Fi network for students, if they access BUV students' WiFi network, they can access Online ebooks Database without authentication. But if the student doesn't access

BUV's Wi-Fi network, they need to pass the authentication stage using registered passwords & emails.

BUV uses Koha - an open-source integrated library system (ILS) for cataloging. The system at the moment does not support online catalogues and off-campus access.

### 5.3.2 Course books, books, reference materials

(As per Form No.7, Annex 3, Circular 02/2022/TT- BGDDT)

No.	Name of books or journals	Author	Publisher	Quantity	Module that uses	Module Code	Time of use
1	Human Resource Management: Theory and Practice 6E	Bratton, J. and Gold, G.	Macmillan International Higher Education, 2017	20	Managing People & Organisations	HRMG70054	Year 1
2	Contemporary Strategy Analysis: 11E	Robert M. Grant	Wiley, 2021	15	Leadership & Strategic Management	STRA70184	Year 2
3	Exploring Strategy, Text and Cases, 12th Edition	Gerry Johnson	Pearson, 2019	15	Leadership & Strategic Management	STRA70184	Year 2
4	ACCA F9 Financial Management - Study Text	BPP Learning Media	BPP Learning Media, 2017	20	Financial Concepts & Practice	STRA70184	Year 1
5	Contemporary Issues in Accounting 2E	Michaela Rankin, Patricia Stanton,	Wiley, 2018	20	Financial Concepts & Practice	STRA70184	Year 1

		Susan McGowan, Kimberly Ferlauto					
6	Risk Management and Financial Institutions, 5E	John C. Hull	Wiley, 2018	15	Risk Management	ECONO70143	Year 2
7	Marketing Management, An Asian Perspective, 7E	Kotler, Philip/Keller, Kevin Lane/Ang, Swee Hoon	Pearson, 2017	20	Strategic Marketing Management	MKTG70307	Year 1
8	Psychology in organizations: The social identity approach	S. Alexander Haslam	Sage, 2004	15	Performing in Organisations	SPOR70921	Year 2
9	International Business Strategy: Rethinking the Foundations of Global Corporate Success, 3E	Alain Verbeke	Cambridge University Press, 2021	15	International Business	IBUS70001	Year 2
10	Innovation Management and New	Paul Trott	Pearson, 2021	20	Marketing Innovations	MKTG70224	Year 1



	Product Development GE						
11	Statistics for Business and Economics, Global Edition 10E	Newbold, Paul/Carlson, William L./Thorne, Betty	Pearson, 2022	14	Project	MBAS01	Year 2
12	Research methods for business students 8E	Prof Mark N. K. Saunders; Adrian Thornhill; Dr Philip Lewis	Pearson, 2019	14	Project	MBAS01	Year 2

### 5.3.3 Online libraries

Title	Type	Quantity
ACM Digital Library	Article	117500
Arts & Humanities Database	Journal	7818
	eBooks	21515
	Newspaper	2176
BMJ Journals Online	Journal	70
Ebook Central (formerly known as ebrary)	eBooks	100000
eBooks on EBSCOhost	eBooks	2400000
Emerald Management ejournal collection	Journal	100
Internurse.com (off-campus access)	Article	700
JSTOR	Article	1150
Newspapers - Global Newsstream	Newspaper	2800
Performing Arts Database	Journal	100

RCN Journals (Royal College of Nursing)	Journal	11
ScienceDirect - Elsevier	Journal	4603
	eBooks	32662
Scopus	Journal	2960
	eBooks	48300
VLeBooks	eBooks	7667
Wiley Online Library	eBooks	20000
	Journal	1600
<b>TOTAL</b>	<b>eBooks</b>	<b>2630144</b>
	<b>Journal</b>	<b>141588</b>

### 5.3.4 Academic databases in use

No.	Titles	Publisher	Description
1	Academic Search Ultimate	EBSCO	<b>Academic Search Ultimate</b> offers students an unprecedented collection of <b>peer-reviewed, full-text journals, including many journals indexed in leading citation indexes indexed</b> in leading citation indexes to meet the increasing demands of scholarly research.
2	ProQuest ABI/Inform Global	ProQuest	<b>The database</b> features thousands of <b>full-text journals, dissertations, working papers, key business, and economics periodicals</b> such as the Economist, country-and industry-focused reports, and downloadable data. Its international coverage gives researchers a complete picture of companies and business trends around the world.
3	Euromonitor	Euromonitor	<b>This online market research tool</b> monitors industry trends and gives you <b>strategic analysis and market size and market share database</b> for all your products across all key countries.

4	Emerald Market Case Studies Collection 2022	Emerald	<b>Emerald Market Case Studies Front List Collection 2022</b> offers over <b>600 cases</b> is the product to encourage entrepreneurial thinking and critical exploration. Each case is accompanied by <b>complimentary teaching notes</b> that have been compiled by teaching faculty at some of the world's best business schools.
5	Emerald eBooks Business, Management & Economics & Social Sciences collection	Emerald	<b>Emerald eBooks Business, Management &amp; Economics Collection</b> offers over <b>1,600 eBook titles (1991-2022)</b> broken into 7 subject collections, highlighted below. As well as via the individual collections content from the portfolio can be accessed in full on a rental basis: Accounting, <b>Finance &amp; Economics; Business, Management &amp; Strategy; Marketing; HR &amp; Organization Studies; Public Policy &amp; Environmental Management; Library &amp; Information Sciences; Tourism &amp; Hospitality Management.</b>
<b>Emerald eBooks Social Sciences collection</b> offers over <b>1,000 eBook titles (1999-2022)</b> broken into two subject collections, <b>Education &amp; Sociology.</b>			
6	PressReader Annual Subscription	Emerald	<b>Multidisciplinary e-Journal suite</b> , including more than <b>7,000 articles from magazines</b> such as The Washington Post, The Guardian, and The Globe and Mail, to Forbes, Vogue, Bloomberg Businessweek, Elle, and GQ.

### 5.3.5 Online learning system

There is a strong focus at BUV on the use of digital tools to help prepare students for future 4IR modes of work, and this supports strategic objective 4: 'Deliver cutting-edge British pedagogical models, teaching methods and education technologies'. BUV has invested heavily in digital learning resources and this investment has enabled BUV to continue to deliver its high-quality programmes despite the challenges Covid-19 has presented.

From an academic perspective, BUV was well equipped to pivot to online and hybrid learning strategies during the Covid-19 pandemic. In April 2019, BUV introduced the digital textbook system of Kortext to increase the speed in being able to access textbooks as well ensuring the most up to date editions were accessible by students. Prior to this, if module leaders wished to adjust a textbook for a module, this would have to be done three months prior to the commencement of the module due to checks required by government ministries on physical learning materials imported into the country. With a digital textbook system in place, this meant that there was an increased amount of flexibility to choose the most appropriate learning resources for the module.

In the October 2019 semester, BUV introduced the Canvas Learning Management System (LMS) from Instructure, which is used as the core BUV digital learning environment. Through Canvas, students can access learning resources for modules, access documentation and training relevant to their programme of study, access and complete formative and summative assessments (including proctored online exams), and connect to BUV's online teaching platform of BigBlueButton. To ensure that students could easily access all digital learning resources, all students entering degree programmes from April 2019 were issued with Apple iPads.

These investments have enabled BUV to continue to deliver its programmes uninterrupted throughout the pandemic, as well as supporting our communications with our students.

Although BUV have always made learning resources available to students online, this was previously done through a relatively basic file management system of Google Drive. To support our strategic objective 4 as discussed above, we introduced the Canvas Learning Management System (LMS) in October 2019. Through this system, students can access learning resources for modules, access documentation and training relevant to their programme of study (and other training provided by the Learning Resources team), access and complete formative and summative assessments, and connect to BUV's online teaching platform of BigBlueButton. As we continue to add functionality to the LMS (for example, with the introduction of the Proctorio online proctoring system for exams) training and support is provided by the LMS team to students and faculty on an ongoing basis, so that all members of the University are both aware of and can utilise the full range of functionality of the LMS. The LMS team also monitor the content provided on Canvas and provide support to faculty where technical errors have been made in the use of the system.

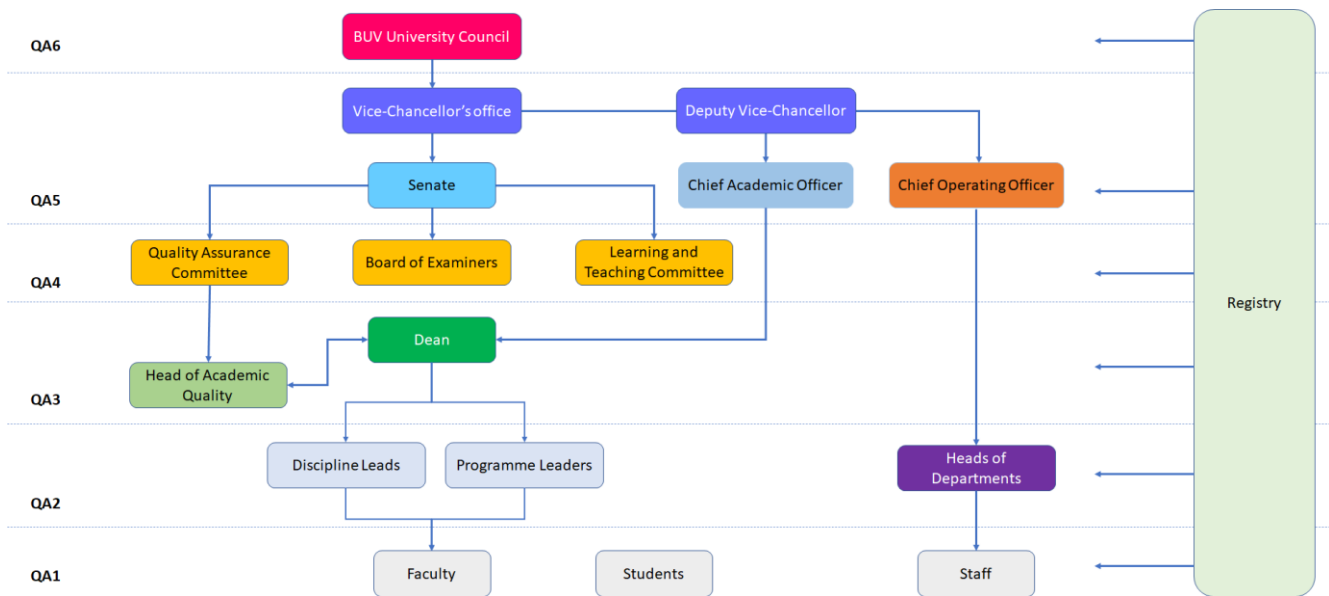
Improving the use of digital tools by faculty is an academic priority, and faculty members must demonstrate a broad use of these tools in their teaching. BUV have recruited a LMS Curriculum Designer to support faculty with the development of new learning materials, so that we can continue to expand our capacity in this area. This position will work closely with the LMS team and the academic leadership team to ensure that all material available is modern, up-to-date and relevant for each module.

Students studying with collaborative academic partners have access to the online journal, database, and textbook resources of the relevant partner. Over the last two years, BUV have begun investing in access to our own digital databases and online resources that go beyond what is available through our collaborative academic partners, and specifically support students on our own-degree programmes. Academic Databases Summary shows the databases currently in use at BUV, as well as previous databases that have been trialled. It also shows the feedback mechanisms that are used with both faculty and students so that we can make investments in the databases that faculty and students find helpful.

Following the introduction of the Canvas LMS (discussed in paragraph 33), BUV were then equipped to use online learning where required and appropriate. This was used in occasional circumstances where faculty or guest speakers were unable to be physically present on campus but was not a primary mode of delivery.

These investments have enabled BUV to continue to deliver its programmes uninterrupted throughout the pandemic, as well as supporting our communications with our students.

## SECTION 6: CONDITIONS ON THE ORGANIZATION OF THE MANAGEMENT APPARATUS TO OPEN THE DISCIPLINE



### 6.1 QUALITY ASSURANCE STRUCTURE

BUV approach to QA is based on a hierarchical structure, as shown in the diagram in Appendix 1 and explained in Section 5. There are six levels of formal QA responsibilities as follows:

**QA Level 1** - Faculty, Students, and Staff

**QA Level 2** - Discipline Leads(DLs), Program leaders(PLs), and Heads of Departments (HoD).

**QA Level 3** - Dean, Head Academic Quality (HAQ).

**QA Level 4** - Quality Assurance Committee, Board of Examiners, Learning and Teaching Committee.

**QA Level 5** - Senate, Chief Academic Officer(CAO), Chief Operating Officer(COO),Deputy Vice Chancellor(DVC) Vice Chancellor's Office (VC)

**QA Level 6** - BUV University Council.

Although the University Council has the ultimate responsibility for the quality and standards of the University, it delegates the governance role to Senate, and the executive role for the

management of this function to the Vice Chancellors Office, for development, operations and reporting purposes.

These QA levels refer to specific QA responsibilities held by positions and do not imply an organisational or line management structure.

## **QUALITY ASSURANCE AND ENHANCEMENT RESPONSIBILITIES**

The responsibility for the academic quality and standards of the University's awards rests with the University through the Senate. The Senate delegates a number of these responsibilities to committees within the University within a clear structure (codified in the terms of reference of the Senate and its sub-committees, policies and procedures) that ensures that it is aware of how these delegated authorities are used.

The University also recognises that the responsibility for academic quality and standards is a shared one, between those University bodies with formal accountability for academic quality and standards, and all staff engaged in the delivery and support of learning and teaching and research degree supervision. The quality assurance structure is therefore based on the following shared understanding of the roles and responsibilities of each level within the University.

### **QA Level 1: Faculty, students, and staff**

#### **Faculty**

All staff involved in the delivery and support of learning and teaching contribute to the assurance of quality within BUV in the following ways:

1. By reflecting on the effectiveness of their practice and how this might be enhanced (for example, on the basis of the day-to-day observation of the impact of teaching). This will include consideration of their practice in relation to their designated role in learning, teaching and research degree supervision as part of their formal performance reviews.
2. Where appropriate, consulting with students prior to or following a change introduction. This may be carried out informally within the operations of a module to address student concerns, or more formally through discussions held at Student and Staff Liaison Committee (SSLC) meetings or through meetings with the Student Association Committee.

3. Evaluating the effectiveness of any change made within a module (for example by checking in a subsequent teaching session, via the mechanisms discussed in the Teaching and Learning Performance Evaluation Policy and Procedure or the Academic Monitoring Policy and Process.

## Students

Students provide feedback on the perceived quality of the education they are receiving, the University, and they contribute to the QA process through a variety of quantitative and qualitative processes, for example:

1. Student representation at the Senate.
2. Student and alumni representation within School Practitioner Advisory Groups (SPAGs) and on special projects where student representation is deemed by the project group to impact student learning experience.
3. Feedback provided through the semesterly meeting between the Student Association Committee (SAC) and the University.
4. Students on programmes taught at BUV complete surveys at module, programme, and institutional levels, and provide feedback via the Student-Staff Liaison Committee (SSLC) held every semester, and via Net Promoter Score surveys carried out every semester.
5. Data from student surveys and discussions are considered by the Dean and Discipline Leads for any staff quality concerns, and by the Academic and Student Operations team for any timetabling or logistics concerns.
6. Students are involved in periodic programme reviews through consultation during the development of the self-evaluation document and at the periodic programme review event.
7. Students are involved in the programme revalidation process and are included as panel members at validation/periodic programme review events, subject to the policies of external partners.
8. Feedback can also be provided through other channels, such as parent meetings, emails to [feedback@buv.edu.vn](mailto:feedback@buv.edu.vn), and [cao@buv.edu.vn](mailto:cao@buv.edu.vn).
9. Formal feedback from research students is obtained via all mechanisms discussed above except for feedback mechanisms linked directly to taught programmes.



## **Staff**

BUV recognizes that staff, who are not directly responsible for teaching and learning, also contribute to the overall quality of BUV in their daily activities. Specifically, this can be seen in the following ways:

1. Contributing to tasks which enhance various elements of the student experience.
2. Work carried out on strategic projects which contribute to the Mission and strategic priorities of the University.
3. Supporting teaching, learning and assessment activities.
4. Provision of non-academic support to students.
5. Contributing to the Senate and its committees where specified within the Senate or
6. Committee Terms of Reference.

## **QA Level 2: Programme Leaders, Discipline Leads, Heads of Department**

### **Programme Leader**

At the second level of Quality Assurance, in addition to the contributions made by all teaching faculty, Programme Leaders contribute to effective QA in the following ways:

1. Reviewing and approving assessments.
2. Providing guidance to Module Leaders (MLs) on teaching content and modes of delivery.
3. Assessing the quality of delivered teaching through formal teaching evaluations.
4. Contributing to SSLC meetings and leading other meetings as required.
5. Providing recommendations on changes to modules and programmes via Programme Monitoring Reports.
6. Performing quality checks of assessments marking within their program.

### **Discipline Leads**

All Discipline leads reflect on and review activities within their discipline to ensure standards are achieved. Working with the Head of Quality and Academic Development and the Dean, they contribute directly to Quality Assurance in the following key areas:

1. Operationalizing and ensuring compliance with any necessary evaluation, quality assurance, and monitoring procedures, both internal and external. These may relate to teaching, research, and management of resources.
2. Ensuring high-quality teaching takes place by identifying examples both of good practice, and areas for potential improvement, and managing this through appropriate staffing and reporting mechanisms.
3. Performing quality checks of assessments marking within their program as and when required.
4. Reporting to the Dean as required on issues related to quality.
5. Contributing to the Senate and its committees.

### **Heads of Departments (Operations)**

Heads of Departments in non-academic areas are vital to maintaining a quality culture across the entire University. Working cross-functionally where appropriate, they contribute to Quality Assurance in the following ways:

1. Developing and approving policy related to non-academic areas within BUV to ensure that the quality of services and experiences by all stakeholders is maintained.
2. Supporting and monitoring staff within departments to ensure that processes and procedures are followed accurately.
3. Leading on non-academic projects contributing to the Strategic Priorities and Mission of the University.

### **QA Level 3: Dean and Head Academic Quality**

The Dean and Head Academic Quality will reflect on and review activities across the university to ensure academic standards are achieved. They will work in coordination and maintaining and enhancing academic quality within the University.

#### **Dean**

The Dean is responsible for the operationalization of quality activities within BUV academic programmes. These activities may be deputized to the Discipline leads as required. They contribute to Quality Assurance activities in the following way:

1. Providing direct line management to faculty members and Discipline Leads.

2. Acting on guidance provided by Senate committees to request draft policies related to quality activities to be developed.
3. Approving the implementation of policy which directly affects teaching and learning activities.
4. Directing faculty to contribute to quality-related activities and motivating them for the training sessions as required.
5. Identifying overall trends from Discipline action plans, and reporting on these via the LTC to Senate.

### **Head Academic Quality**

The Head Academic Quality and Academic Development works closely with the academic leadership team to lead and contribute to projects related to maintaining and enhancing quality within the University. Specifically, they may contribute to Quality Assurance in the following ways:

1. Responsible for ensuring that quality assurance policies and procedures are understood and followed by all members of the University.
2. Leading the development and implementation of quality-related projects, initiatives, policies, and processes.
3. Supporting faculty and academic support staff in matters relating to assessment creation and marking.
4. Providing advice and support to Discipline Leads, Dean, Registrar, CAO, or the Senior Leadership Team in matters relating to Quality Assurance.
5. Chairing the Quality Assurance Committee and reporting on its activities to Senate.

### **QA Level 4: Senate Committees**

On Quality assurance level 4 Senate committees will ensure all the quality guidelines and policies are in line with the QAA standard. Senate committee will ensure that all the proposed policies or change in the policy has passed through due processes.

### **Senate Committees and Sub-committees**

Senate committees (in particular, the Quality Assurance Committee and the Learning and Teaching Committee) contribute to Quality Assurance activities as specified in their respective

Terms of Reference. The Board of Examiner Committee will pay due regard to the maintenance of academic standards, fairness, and consistency in the Assessment process. It will report to the Senate for improvement in the quality standards across the university. Please refer to the Terms of Reference for specific details of these committees. these activities. All changes to Senate committee and sub-committee terms of reference must be approved by the full Senate.

## **QA Level 5: Senate, Vice Chancellor's Office, Deputy Vice Chancellor Chief Academic Officer, Chief Operating Officer.**

### **Vice Chancellor's Office**

The Vice Chancellor's Office is a governance group of senior University officers who are responsible for the overall management of quality and standards within the university. Following directions from the University Council, they develop overall plans and projects and develop specific performance targets to ensure that the strategic priorities of the University are met.

Within this group, there are two following positions with specific roles related to the development and management of Quality within the University.

### **Deputy Vice-Chancellor**

The Deputy Vice-Chancellor is responsible for the overall management of quality and standards within the university. Following directions from the University Council and Vice-Chancellor, he designs overall plans and projects and develops specific performance targets to ensure that the strategic priorities of the University are met. He receives reports from the Chief Academic Officer(CAO) and Chief Operating Officer (COO) and supports the development and management of Quality within the University.

### **Senate**

The Senate is the governing body responsible for the overall assurance of quality within BUV. It contributes to this in the following ways:

1. Ensuring that appropriate structures, policies, and procedures are in place to both assure and enhance the quality of learning opportunities within the University degree programmes.

2. Providing oversight of the activities of committees with responsibilities for Quality Assurance.
3. Delegating responsibilities for the implementation of policies to the Quality Assurance Committee, the Academic Compliance Office, the Chief Academic Officer or the Chief Operations Officer as appropriate.

### **Chief Academic Officer (CAO) and Chief Operating Officer (COO)**

The CAO and COO have responsibility for all the activities carried out within the Academic (CAO) and Operations (COO) areas of the University. Within their respective fields, they have the following QA responsibilities:

1. Provide overall guidance and supervision of all projects related to assuring or enhancing quality.
2. Delegating quality-related responsibilities and tasks to appropriate departments or individuals.
3. Coordinating with external bodies or agencies as required to assure or enhance quality.
4. Contributing to the overall strategic direction of BUV through membership of Senate and input at the BUV University Council

### **QA Level 6: University Council**

The University Council has the ultimate responsibility for the quality and standards of the University. At this highest level of responsibility, the University Council is responsible for setting and agreeing the quality related strategic priorities and projects of the university. These priorities are operationalized by University members and bodies via the Vice Chancellor's Office.

### **Key Supporting Roles**

#### **Registry Services**

Registry services within BUV plays a key role in coordinating and supporting quality assurance and enhancement activities across all QA levels within the university. Within Registry Services are the following groups who have specific QA-related roles and responsibilities.

#### **Academic compliance**

1. Acting as Senate, Senate Committee, and sub-committee Secretary

2. Responsible for the writing and review of policy, processes, and regulations
3. Updating and ensuring compliance with regulations of partner universities and national authorities.
4. Leading on new programme licenses and license renewals as well as reviews of existing programme.
5. Supporting on quality accreditations at the University and Programme level.
6. Managing the Exceptional Circumstances and Academic Conduct panels.
7. Providing training and support to faculty and students as required.

### **Exams Office**

1. Acting as the primary point of contact between faculty and partners for issues related to the management of assessments and approval of module marking.
2. Managing processes for assessment approval, planning, set up & preparation.
3. Managing process of approvals of marking completed by faculty.
4. Providing training and support to faculty and students as required.
5. Preparation and uploading of Examination Board Grids to partners and External Examiners.
6. Preparation & uploading of documents for Examination Boards
7. Coordinating re-sit/rework processes.

### **Academic Quality Officer**

The Academic Quality Officer plays an important role in controlling and assuring academic quality across all activities of Registry Services and the Academic and Student Operations department. Reporting to the University Registrar and the Chief Academic Officer, they carry out the following specific responsibilities related to Quality Assurance:

1. Analyzing academic data at a Programme, School, and University level and providing analysis of this to relevant officers of the University.
2. Working closely with the Head Academic Quality (HOQ), and Discipline Leads to support the development, implementation, and monitoring of QA-related projects, policies, and processes.

## SECTION 7: PREVENTIVE AND CORRECTIVE PLANS REGARDING THE RISKS IN OPENING THE DISCIPLINE

### 7.1. RISKS ANALYSIS IN OPENING THE DISCIPLINE

#### **Risk of labour market demand**

For any organization, business administration is an essential component of the overall business operation. These days, every company, whether it is in the service industry or the manufacturing of goods, needs to have an excellent management team in order to promote their brand extensively and, as a result, reach a significant number of customers. In light of the ever-increasing level of competition, the function of this sector is assuming an increasingly essential position. As a result, there are a multitude of work prospects open to these pupils. This is a sector with a significant demand for recruiting, and the demand of businesses is always more than the supply of the human market, according to a number of publications that have been compiled by professional organizations. The size of the firm and the position you hold both have an impact on the amount of money you make as a marketer. On the other hand, considering the demand of the labor market, The following potential dangers are associated with marketing:

The first challenge is the intense competition that exists at all levels, from middle school to college to university to master's. Training for the marketing business is being provided by institutions across the country, particularly the best ones.

The second significant event is the fourth industrial revolution, which caused a shift in the demand for workers. A majority of businesses and professions in the domains of agriculture, industry, and services will see significant shifts as a result of advances in mechanization, robotics, and artificial intelligence. Without timely training and good training, many people will be unemployed because these types of training typically come with job introductions and new employment contacts.

Third, because the labor market in this industry is still in its infancy, it is difficult for both students and their parents to differentiate between the many educational facilities in terms of the quality of the instruction they get.

### **Danger of changes in market demand.**

The fourth-generation technological wave has moved quickly around the globe and has had an impact on all regions.

The economy and way of life in numerous locations. People's ways of communicating, shopping, working, and entertaining themselves are largely dependent on the foundation of the internet and new applications, which have drastically changed the way companies conduct business in the modern era. This is because people's behaviors and psychological states are changing at an increasingly rapid rate. The truth of the matter is that marketing is currently through a process of gradual innovation in order to adapt to the digital era; industrialisation - modernization of today, but before the transformation as a storm of today, this was one of the challenges that marketing activities faced.

## **7.2. PREVENTIVE AND CORRECTIVE PLANS**

Threats to the level of demand in the labor market:

### **University level:**

Improve the quality of the output and the modern facility system to make the institution more competitive with other educational institutions that specialize in business administration.

### **Discipline level:**

Communication and introduction to the industry so that students and their parents can have a better understanding of the profession and appreciate the quality difference compared to other educational institutions that offer marketing training.

Cooperate with them in the training process and help graduates find employment.

Alterations in market demand can be met with the following solution:

The Answer to the Shifting Demand in the Market:

### **University level:**



Improving the conditions under which students complete their internships by enhancing the available equipment and facilities, particularly by ensuring that regular software updates and demand analysis applications are installed.

Help students participate in hands-on learning experiences that aren't related to a specific industry.

**Discipline level:**

Develop and modify the training program so that it corresponds with the real-world circumstances. Annual review of output standards based on changes in actual fluctuations of the situation outside the market, adjusting the supplementation of components in accordance with the needs and changes in the needs of the market.

Consistent monitoring and analysis, with the goal of capturing the shifting tendencies in the market. Create a strategy and a path to train students not only well in theory but also well in practice by working together with industrial partners.

## SECTION 8: EVIDENCE ATTACHED TO THE SCHEME

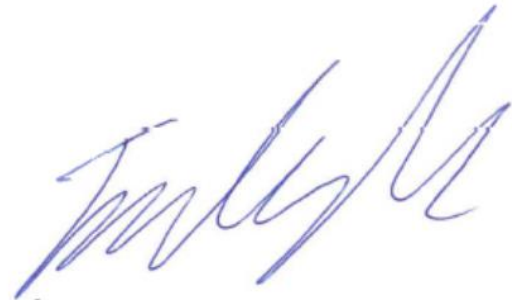
### LIST OF DOCUMENTS

1	Minutes of the Senate meeting about Frame Principles Evaluation
2	Decision of the University Council on approving the frame principles for opening the discipline
3	Meeting minutes of Senate for appraisal of Detailed Scheme
4	Decision of the Vice Chancellor to establish the Programme drafting Committee
5	Decision of the Vice Chancellor to set up the External Programme Appraisal Committee
6	Programme Appraisal Documents (Appraisal Minutes, Appraisal of the Training Programme)
7	Minutes of the Senate meeting about Programme Content Endorsement
8	Decision of the Vice Chancellor on approval of the new programme
9	Full-Time Lecturers and Scientists (As per Form No.1, Appendix 3, Circular 02/2022/TT-BGDĐT)
10	List Of Lecturers to Operate and Implement the Training Programme (As per Form No.2, Appendix 3, Circular 02/2022/TT-BGDĐT)
11	List Of Managers (Form No.3, Appendix 3, Circular 02/2022/TT-BGDĐT)
12	Scientific Research Topics of The Institute, Lecturers and Scientists Related to The Discipline (As per Form No.4, Appendix 3, Circular 02/2022/TT-BGDĐT)
13	Published Scientific Works of Lecturers and Scientists Related to The Discipline (As per Form No.5, Appendix 3, Circular 02/2022/TT-BGDĐT)
14	Facilities And Equipment for The Training Programme at Undergraduate Level (As per Form No.6, Appendix 3, Circular 02/2022/TT-BGDĐT)
15	Course books, books, reference materials (Form 7, Appendix 3, Circular 02/2022/TT-BGDĐT)
16	Research Centres, Laboratories, And Practice Facilities for The Discipline (As per Form No.8, Appendix 3, Circular 02/2022/TT-BGDĐT)
17	Application form
18	Module descriptors
19	Training programme content
20	Benchmarking with other universities' training curriculum
21	Academic Curriculum Vitae
22	Copies of recruitment decisions or labour contracts
23	Certified copies of diplomas issued by Vietnamese training institutions or diplomas granted by foreign training institutions and certificates of diplomas issued by competent authorities
24	Self-Assessment of The Fulfilment of Eligibility Requirements for Opening Disciplines
25	Survey form on the need of opening the discipline
26	Survey result on the need of opening the discipline

## RECIPIENTS

- Senior Leadership Team
- Learning and Teaching Committee
- Vice Chancellor Executive
- Senate
- Archived

## SENDER



---

Asso. Prof. Dr. Jason MacVaugh  
**Chair of Learning & Teaching Committee**

## **APPENDICES**

**Appendix I:** Frame Principles

**Appendix II:** Resolution of University Council approve the Frame Principles

**Appendix III:** Capabilities of the Institution

**Appendix IV:** Decision on issuing programme content

**Appendix V:** Module Description

**Appendix VI:** Academic CVs & research

**Appendix VII:** Document self-assessing the fulfilment of eligibility requirements for opening disciplines.

**Appendix VIII:** Appraisal minutes and form

**Appendix IX:**

- Decision on Setting up the Programme drafting Committee.
- Decision on Setting up the External Programme Appraisal Committee.
- Decision on approving and issuing the programme curriculum

# **APPENDIX III**

## FULL-TIME LECTURERS AND SCIENTISTS

(As per Form No.1, Appendix 3, Circular 02/2022/TT-BGDĐT)

No. (1)	Full name, DOB (2)	Passport number/ ID Card (3)	Academic title, Awarding year (4)	Academic qualifications, Awarding country, Awarding year (5)	Major (Highest qualification) (6)	(Full time contract with BUV) Recruitment		Insurance number (9)	Academic experiences (10)	Public research		Signature (13)
						Recruitment date (7)	Labour contract (8)			MOET (11)	Institution (12)	
1	Raymond Daniel Gordon	PB1626423	Professor of Leadership and Organizational Behavior, Bond University, 2009 until now	Dr, 2003	Management	05/02/2018	x	0130825618	16	0	6	
2	Rick Bennett	PB2713617	Professor, MHEd, PhD, 2015 until now	Dr, 2009	Higher Education /Art	15/04/2022	x	7937473129	28	0	21	
3	Anchit Bijalwan	Z5968952	Dr, 2016	Dr, 2016	Computer Science and Engineering	13/05/2022	x	0132059089	15	0	24	

4	Jason Alexander MacVaugh	563376605	Assoc. Professor Jason MacVaugh, 2014 until now	Dr, 2009	Knowledge Management	30/01/2023	x	0132338097	19	0	13
5	Maren Viol	C4KPGPL3L	Dr, 2016	Dr, 2016	Tourism and Events	30/01/2023	x	0128175579	12	0	3
6	Michael George Perkins	536578269	Dr, 2013	Dr., UK, 2013	Management	03/09/2013	x	0128175566	10	0	10
7	Jyotsna Ghildiyal Bijalwan, 18/11/1983	Z3636990	Dr, 2013	Dr., India, 2013	Management/ Business Management	13/05/2022	x	0132059096	15	0	8
8	Adrian Wee Tiong Weng, 27/04/1968	A54886757	Dr, 2016	Dr., Australia, 2016	Business Management	01/04/2020	x	7937473045	24	0	5

## LIST OF LECTURERS TO OPERATE AND IMPLEMENT THE TRAINING PROGRAMME

(As per Form No.2, Appendix 3, Circular 02/2022/TT-BGDĐT)

No. (1)	Full name (2)	Modules (3)	Semester and Year (4)	Number of credits				Leading lecturer, tenure lecturer, etc. (9)
				Compulsory		Optional		
				On Campus (5)	Online (6)	On Campus (5)	Online (6)	
1	Raymond Daniel Gordon	Business Thinking	Year 1	4				Leading lecturer
		Project Managementt	Year 1	4				
		Leadership & Strategic Management	Year 2	5				
		Strategic Marketing Management	Year 1	5				
2	Rick Bennett	Leadership & Strategic Management	Year 2	5				
		Strategic Marketing Management	Year 1	5				
		Marketing Innovations	Year 1	5				
3	Anchit Bijalwan	Risk Management	Year 2	5				
		Marketing Innovations	Year 1	5				
4	Jason Alexander MacVaugh	Cross Culture & International HRM	Year 1	4				
		Risk Management	Year 2	5				
		Performing in Organisations	Year 2	5				



		Project	Year 2	8				
		Financial Concepts Practice	Year 1	5				
5	Maren Viol	English: Reading	Year 1	0				
		English: Speaking	Year 1	0				
		English: Listening	Year 1	0				
		International Business	Year 2	5				
		Performing in Organisations	Year 2	5				
6	Michael George Perkins	Business Thinking	Year 1	4				
		Managing People & Organisations	Year 1	5				
		Financial Concepts Practice	Year 1	5				
		Project Managementt	Year 1	4				
7	Adrian Wee Tiong Weng	English: Writing	Year 1	0				
		English: Reading	Year 1	0				
		English: Speaking	Year 1	0				
		English: Listening	Year 1	0				
		International Business	Year 2	5				
8	Jyotsna Ghildiyal Bijalwan	English: Writing	Year 1	0				
		Cross Culture & International HRM	Year 1	4				
		Managing People & Organisations	Year 1	5				
		Project	Year 2	8				

## LIST OF MANAGERS

(As per Form No.3, Appendix 3, Circular 02/2022/TT-BGDĐT)

No.	Full name, DOB, position	Education, year	Discipline	Note
1	Jason MacVaugh, 16 February 1978, Dean (Higher Education)	PhD University of Gloucestershire, 2009	Knowledge Management	
2	Joao Fialho, 11 July 1979, Head of Post Graduate Centre	Phd, University of Évora, Portugal	Mathematics; Differential Equations, Functional Analysis	Discipline Lead
3	Tony Summers, 14 July 1954, University Registrar	Master, Kingston University - London, 2005	MBA	
4	Tran Duc Trung, 25 February, 1989, Deputy University Registrar	Master, Royal Melbourne Institute of Technology, Melbourne, Australia, 2019	MBA	
5	Hoang Phuong Yen, 12 September, 1988, Course Office Manager	Master, University of Adelaide, 2018	International Trade & Development	

## SCIENTIFIC RESEARCH TOPICS OF THE INSTITUTE, LECTURERS AND SCIENTISTS RELATED TO THE DISCIPLINE

(As per Form No.4, Appendix 3, Circular 02/2022/TT-BGDĐT)

No.	Code	Research Topic Level	Research Topic	Lead Author	Reviewed by	Received Date	Review Results, Date	Names of contributing authors	Remarks
1	HECA-01/2021-AJAY	Institutional	An Empirical Study on Teacher's Attitudes towards Curriculum Innovation in Vietnam	Ajay Kumar Pillai	BUV Human Ethics Subcommittee	4/1/2021	Satisfactorily, 10/1/2021	N/a	
2	HECA-08/2021-SHASHI	Institutional	Utilisation of remittance income in Nepal	Dr. Shashi Kant Prasad Chaudhary	BUV Human Ethics Subcommittee	2/8/2021	Satisfactorily, 8/8/2021	N/a	
3	HECA-03/2021-MIKE	Institutional	The impact of training on the identification of the use of Online Paraphrasing Tools	Dr Mike Perkins	BUV Human Ethics Subcommittee	24/08/2021	Satisfactorily, 1/9/2021	N/a	
4	HECA-01/2022-MAREN	Institutional	Ethical consumers post-COVID-19: Sustainable travel	Dr. Maren Viol	BUV Human Ethics Subcommittee	12/10/2022	Satisfactorily, 2/11/2021	N/a	

			behaviours of young Vietnamese tourists						
5	HECA-02/2022-MAREN	Institutional	Decolonising the tourism curriculum - experiences of faculty in Asian transnational education contexts	Dr. Maren Viol	BUV Human Ethics Subcommittee	12/10/2022	Satisfactory, 2/11/2021	N/a	
6	HECA-04/2023-MIKE	Institutional	Robustness testing of assessments to GPT4	Dr Mike Perkins	BUV Human Ethics Subcommittee	28/03/2023	Satisfactory, 5/4/2023	N/a	

## PUBLISHED SCIENTIFIC WORKS OF LECTURERS AND SCIENTISTS RELATED TO THE DISCIPLINE

(As per Form No.5, Appendix 3, Circular 02/2022/TT-BGDĐT)

No.	Publications	Remarks
1	Chaudhary, S. K., and Nguyen, K.V. ( 2018 ), ' <i>An Empirical Analysis of Export-led Growth of Vietnam: Trade in Value Added (TiVA) Approach</i> ', <i>The Journal of Business and Management</i> , 5(1), p.1-15.	
2	J. Fialho (2018), ' <i>A biomechanical model for the idiopathic scoliosis using spinal traction devices</i> ', <i>Journal of Physics: Conference Series</i> , 1141, p.012022.	
3	Kais Mejri, Jason Alexander MacVaugh, Dimitrios Tsagdis (2018), ' <i>Knowledge configurations of small and medium-sized knowledge-intensive firms in a developing economy: A knowledge-based view of business-to-business internationalization</i> ', <i>Industrial Marketing Management</i> , 71, p.160-170.	
4	Perkins, M., Gezgin, U. B., & Roe, J. (2018), ' <i>Understanding the Relationship between Language Ability and Plagiarism in Non-native English Speaking Business Students</i> ', <i>Journal of Academic Ethics</i> , 16(4), p.317-328.	
5	Viol, M., Todd, L., Theodoraki, E. & Anastasiadou, C. (2018), ' <i>The role of iconic-historic commemorative events in event tourism: Insights from the 20th and 25th anniversaries of the fall of the Berlin Wall</i> ', <i>Tourism Management</i> , 69, p.246-262.	
6	Yam, L., Raybold, M, Gordon, R.D. (2018), ' <i>What Makes People Stay? An investigation of job embeddedness construct, and the exploration of the effects of on-the-job and off-the-job embeddedness on voluntary turnover in the hospitality industry</i> ', <i>Journal of Human Resources in Hospitality and Tourism</i> , 17(4).	
7	Chaudhary, S. K., and Nguyen, K.V. (2019), ' <i>Assessing Position of Vietnam in Global Value Chain (Vietnamese)</i> ', <i>VNU Journal of Humanities and Social Sciences</i> , 5(3), p.292-313.	

8	Chaudhary, S. K., and Nguyen, K.V. (2019), 'Re-assessing the export competitiveness of Vietnam', <i>VNU Journal of Social Sciences and Humanities</i> , 5(5), p.539-549.	
9	Chaudhary, S. K., and Pandit, K. R. (2019), 'Price Elasticity of Sectoral Lending in Nepal', <i>NRB Economic Review</i> , 31(2), p.1-24.	
10	F. Minhós, J. Fialho (Eds.), (2019), <i>New Trends in Differential and Difference Equations and Applications</i> , MDPI, Switzerland.	
11	Fialho, J and Minhós, F. (2019), 'Existence results for functional first order coupled systems and applications', <i>Mathematical Methods in the Applied Sciences</i> , 42(7), p.2398-2403.	
12	Fialho, J and Minhós, F. (2019), 'First order coupled systems with functional and periodic boundary conditions: existence results and application to SIRS models', <i>Axioms</i> , 8(1), p.23.	
13	J. Fialho, F. Minhós (2019), 'Existence results for functional first-order coupled systems and applications', <i>Mathematical Methods in the Applied Sciences</i> , 42(7), p.2398-2403.	
14	Jyotsna Bijalwan (2019), 'Corporate Governance System in India', <i>International Journal of Management</i> , 3(2), p.260-269.	
15	Jyotsna Ghildiyal, RC Joshi (2019), <i>Business Ethics and Corporate Governance</i> , , McGraw Hill, US.	
16	Nguyen, K. V., and Chaudhary, S. K. (2019), [in] Nguyen, T., and Nguyen. N. (Eds.), <i>Vietnam National Economic Report 2019: On the Doorstep to the Digital Economy</i> (Chapter 4), Vietnam Institute for Economic and Policy Research, Hanoi.	
17	Nguyen, K.V., Phan, H.T.T., and Chaudhary, S. K. (2019), 'Small and Medium Enterprises' Participations in Global Value Chains (Vietnamese)', <i>Review of the World Economic and Political Issues</i> , 4(276), p.23-35.	
18	Perkins, Gezgin & Gordon (2019), 'Plagiarism in higher education: classification, causes and controls', <i>Pan-Pacific Management Science</i> , 2, p.3-21.	

19	Pillai, A.K (2019), 'Modelling Cost Allocation Adoption as an Endogenous Consequences of Senior Executives' Characteristics', <i>Journal of Business, Sciences and Technology</i> , 2(1), p.1-47.	
20	Roe, J., Perkins, M. (2019), 'Learner Autonomy and English Learning in the Vietnamese HE Context: A Literature Review', <i>Asian Journal of University Education</i> , 16(1), p.13-21.	
21	F. Minhos, J. Fialho, R. Souza, (2020), 'Periodic n dimensional first order coupled systems and periodic schizophrenia phenomena', <i>Journal of Mathematical Analysis and Applications</i> , 492(2), p.124482.	
22	Malhotra R.K., Jyotsna Bijalwan, Thapliyal B.L. (2020), 'Corporate governance in emerging economies : An Indian Insight', <i>International Journal of Management</i> , 11(9), p.663-670.	
23	Pang, J.M. and Wee, A.T.W. (2020), 'Corporate Social Responsibility Reporting in Locally Owned Hotel Chains in Singapore', <i>ASEAN Journal on Hospitality and Tourism</i> , 18(1), p.43-57.	
24	Perkins, M., Gezgin, U., & Roe, J. (2020), 'Reducing plagiarism through academic misconduct education', <i>International Journal For Educational Integrity</i> , 16(3).	
25	Perkins, M., Gezgin, U.B, Gordon, R. (2020), 'Plagiarism in higher education: classification, causes and controls', <i>PanPacific Management Science</i> , 2.	
26	Perkins, M., Roe, J., Gordon, R (2020), 'Management Versus Measurement: A Renewed Categorization of Performance Terminology', <i>Pan Pacific Management Science</i> , 3, p.3-16.	
27	Pillai, A.K., Tan, K.C., and Teo, Z.X.H (2020), 'Key Influences of Cost Allocation Adoption: The Role of Managerial Characteristics, Personality Traits, Behavioural Intention and Decision Styles', <i>Journal of Business, Sciences and Technology</i> , 2(1), p.10-47.	
28	Benjamin Chiao, Jason MacVaugh (2021), 'Open innovation and organizational features: An experimental investigation', <i>European Management Journal</i> , 39(3), p.376-389.	

29	Chaudhary, S. K. (2021), ' <i>Assessing Participation and Position of Vietnam in Global Value Chains</i> ', <i>Journal of Nepalese Business Studies</i> , 14(1), p.29-39.	
30	Dana Alshwayat, Jason Alexander MacVaugh, Hammad Akbar (2021), ' <i>A multi-level perspective on trust, collaboration and knowledge sharing cultures in a highly formalized organization</i> ', <i>Journal of Knowledge Management</i> , 25(9), p.2220-2244.	
31	F. Minhós, J. Fialho (Eds.), (2021), <i>Nonlinear Differential Equations and Dynamical Systems: Theory and Applications</i> , MDPI, Switzerland.	
32	F. Minhos, J. Fialho, R. Souza (2021), ' <i>On coupled systems of Lidstone-type boundary value problems</i> ', <i>Mathematical Modelling and Analysis</i> , 26(3), p.358-371.	
33	J Fialho (2021), ' <i>Key performance indicators and individual prediction models for penalty kicks</i> ', [in] <i>Recent Developments in Mathematical, Statistical and Computational Sciences</i> , 18-23 August, 2019, 137-146.	
34	Viol, M. & Southall, C. (2021), ' <i>A conceptual framework for understanding Western-centrism in transnational education in tourism</i> ', <i>Current Issues in Tourism</i> , 26(1), p.1-5.	
35	Chaudhary, S. K. (2022), [in] Dhami, N., Shrestha, D., Chhetry, T., Gurung, S., Thapa, A.(Eds.), <i>Transformation of Higher Education in Nepal: Dimensions, Dynamics and Determinants</i> (p.119-124), Pokhara University, Nepal.	
36	Chaudhary, S. K. (2022), ' <i>Remittances, Economic Growth and Investment Nexus: Evidence from Nepal</i> ', <i>NRB Economic Review</i> , 34(1), p.1-23.	
37	J. Fialho, F. Minhos (Eds.), (2022), <i>Advances in Nonlinear Boundary Value Problems: Theory and Applications</i> , MDPI, Switzerland.	
38	Jasper Roe & Mike Perkins (2022), ' <i>What are Automated Paraphrasing Tools and how do we address them? A review of a growing threat to academic integrity</i> ', <i>International Journal for Educational Integrity</i> , 18(1).	



39	Jyotsna G Bijalwan, Anchit Bijalwan (2022), ' <i>Multivariate Analysis for Overcoming Complexities of Corporate Governance and Managerial Dilemma using Data Mining Technique</i> ', <i>Discrete Dynamics in Nature and Society</i> , 2022, p.1-12.	
40	Nguyen, B. L. and Viol, M. (2022), [in] Stylidis, D., Kim, S., & Kim, J., (editors), <i>Tourism Marketing in Southeast and East Asia</i> (p.22-38), CABL.	
41	Nguyen, K. V., and Chaudhary, S. K. (2022), ' <i>Position of Vietnam in global value chains: an empirical approach</i> ', <i>International Journal of Value Chain Management</i> , 13(4), p.383-394.	
42	Pillai, A.K. (2022), 'Using Decomposed Theory of Planned Behavior (DTPB) to examine educators' behavioural intention towards TPACK', [in] <i>Redesigning Pedagogy International Conference 2022: Transforming education &amp; strengthening society: Conference proceedings</i> , Singapore, 30 May - 1 June, 2022, National Institute of Education, Nanyang Technological University (NIE NTU), Singapore.	
43	Pillai, A.K., Pereira, M., Luong K.H., & Roe J. (2022) (2022), ' <i>Curriculum Innovation in Vietnam: A Study on Teachers' Attitudes Using the Dimensions of ACB (Affective, Cognitive and Behavioral) Model</i> ', <i>Vietnam Journal of Education</i> , 6(1), p.20-30.	
44	Pillai, A.K., Pereira, M., Luong K.H., & Roe J. (2022) (2022), ' <i>Implementing Curriculum Innovation in Vietnam: Exploring Four Teachers Narrative Experiences</i> ', <i>Journal of Business, Sciences and Technology</i> , 4(1), p.7-21.	
45	Fialho, J. and Diep, N. (2023), ' <i>Brand equity and purchase intention for ecommerce platforms in Vietnam</i> ', [in] <i>Proceedings of the International Conference on Application of AI and Statistical Decision Making for the Business World, ICASDMBW 2022</i> , Rukmini Devi Institute of Advanced Studies, 16-17 December 2022, EAI, Delhi.	
46	Mike Perkins (2023), ' <i>Academic Integrity considerations of AI Large Language Models in the post-pandemic era: ChatGPT and beyond</i> ', <i>Journal of University Teaching &amp; Learning Practice</i> , 20(2).	

47	Jyotsna G. Bijalwan, Malhotra R.K (), ' <i>Corporate Governance Policies and Practices: With Special Reference to Private Sector Firms in Ethiopia</i> ', Shodh Sarita.	
----	---	--

## FACILITIES AND EQUIPMENT FOR THE TRAINING PROGRAMME AT UNDERGRADUATE LEVEL

(As per Form No.6, Appendix 3, Circular 02/2022/TT-BGDĐT)

<b>Order</b>	<b>Category</b>	<b>No.</b>	<b>Total Area (m<sup>2</sup>)</b>	<b>Module</b>	<b>Usage Schedule (Semester, Academic year)</b>	<b>Remarks</b>
1	Lecture Halls, classrooms, discussion rooms multimedia rooms, multi-purposes rooms, faculty rooms	45	2651			
1.1	Learning Theatres, Halls, Classrooms with over 200 pax	1	464			
1.2	Classrooms with 100-200 pax	1	370			
1.3	Classrooms with 50-100 pax	1	84			
1.4	Classroom with less than 50 pax	19	966	Managing People & Organisations	Year 1	
				Leadership & Strategic Management	Year 2	
				Financial Concepts & Practice	Year 1	
				Risk Management	Year 2	

				Strategic Marketing Management	Year 1	
				Performing in Organisations	Year 2	
				International Business	Year 2	
				Marketing Innovations	Year 1	
				Project	Year 2	
1.5	Multipurpose Rooms	6	608			
1.6	Discussion Rooms	15	159			
1.7	Faculty Rooms	2	258,5			
2	Libraries/Learning Resources Centres	1	1230,1			
3	Research centre, laboratories, practical rooms	12	1121			

## COURSE BOOKS, BOOKS, REFERENCE MATERIALS

(As per Form No.7, Appendix 3, Circular 02/2022/TT-BGDĐT)

<b>No.</b>	<b>Name of books or journals</b>	<b>Author</b>	<b>Publisher</b>	<b>Quantity</b>	<b>Module that uses</b>	<b>Module Code</b>	<b>Time of use</b>
1	Human Resource Management: Theory and Practice 6E	Bratton, J. and Gold, G.	Macmillan International Higher Education, 2017	20	Managing People & Organisations	HRMG70054	Year 1
2	Contemporary Strategy Analysis: 11E	Robert M. Grant	Wiley, 2021	15	Leadership & Strategic Management	STRA70184	Year 2
3	Exploring Strategy, Text and Cases, 12th Edition	Gerry Johnson	Pearson, 2019	15	Leadership & Strategic Management	STRA70184	Year 2
4	ACCA F9 Financial Management - Study Text	BPP Learning Media	BPP Learning Media, 2017	20	Financial Concepts & Practice	STRA70184	Year 1
5	Contemporary Issues in Accounting 2E	Michaela Rankin, Patricia Stanton, Susan McGowan, Kimberly Ferlauto	Wiley, 2018	20	Financial Concepts & Practice	STRA70184	Year 1

6	Risk Management and Financial Institutions, 5E	John C. Hull	Wiley, 2018	15	Risk Management	ECONO70143	Year 2
7	Marketing Management, An Asian Perspective, 7E	Kotler, Philip/Keller, Kevin Lane/Ang, Swee Hoon	Pearson, 2017	20	Strategic Marketing Management	MKTG70307	Year 1
8	Psychology in organizations: The social identity approach	S. Alexander Haslam	Sage, 2004	15	Performing in Organizations	SPOR70921	Year 2
9	International Business Strategy: Rethinking the Foundations of Global Corporate Success, 3E	Alain Verbeke	Cambridge University Press, 2021	15	International Business	IBUS70001	Year 2
10	Innovation Management and New Product Development GE	Paul Trott	Pearson, 2021	20	Marketing Innovations	MKTG70224	Year 1

11	Statistics for Business and Economics, Global Edition 10E	Newbold, Paul/Carlson, William L./Thorne, Betty	Pearson, 2022	14	Project	MBAS01	Year 2
12	Research methods for business students 8E	Prof Mark N. K. Saunders; Adrian Thornhill; Dr Philip Lewis	Pearson, 2019	14	Project	MBAS01	Year 2

## RESEARCH CENTRES, LABORATORIES, AND PRACTICE FACILITIES

### FOR THE DISCIPLINE

(As per Form No.8, Annex 3, Circular 02/2022/TT-BGDĐT)

<b>List of Equipment</b>					<b>Module</b>	<b>Time of use</b>	<b>No. of user/unit</b>
<b>Order</b>	<b>Name of Equipment, Product Code, Usage Purposes</b>	<b>Country of Origin, Model Year</b>	<b>Number</b>	<b>Unit</b>			
<b>Computer Lab 1-4</b>					All modules	All academic year	
1	PC Computer (Gigabyte Workstation W281-G40 )	China / 2021	31	pcs			1
2	Monitor Gigabyte 27-inch Gaming monitor	China / 2021	62	pcs			1
3	Wacom tablet						1
<b>Digital Lab 2-4</b>							
4	Apple iMac 27 inch	2019	16	pcs			1
5	Color printer Epson SC-P807	2019	1	pcs			1
6	Scanner Epson Perfection V600	2019	6	pcs			1
<b>LRC Computer Lab</b>							
7	PC Computer (HP Elitedesk 800 G3 )	2018	24	pcs	1		
8	Monitor HP Z24i G2	2018	24	pcs	1		



## RECIPIENTS

- Senior Leadership Team
- Learning and Teaching Committee
- Vice Chancellor Executive
- Senate
- Archived

## SENDER



---

PROF. DR. RAYMOND DANIEL GORDON  
**VICE CHANCELLOR & PRESIDENT**

# **APPENDIX II**

No: 1004E/2023/NQ-BUV

*Hung Yen, 10 April 2023*

**RESOLUTION**

**On Implementation of the Frame Principles of  
Master of Business Administration Discipline**

**UNIVERSITY COUNCIL OF BRITISH UNIVERSITY VIETNAM**

*Pursuant to:*

- *Law on Higher Education No. 08/2012/QH13 dated 18 June 2012 and amendments to the Law on Higher Education No. 34/2018/QH14 dated 19 November 2018;*
- *Circular 17/2021/TT-BGDDT of the Ministry of Education and Training dated 22 June 2021 providing for standards and formulation, appraisal and promulgation of training programmes of higher education;*
- *Circular 02/2022/TT-BGDDT of the Ministry of Education and Training dated 18 January 2022 regulating conditions and procedures for opening disciplines, as well as suspending operations of disciplines at the bachelor's, master's, and doctoral levels;*
- *Circular 09/2022/TT-BGDDDT of the Ministry of Education and Training dated 06 June 2022 on the statistical list of educational disciplines in higher education;*
- *Policy on Discipline Opening and Programme Issuance attached to the Decision of 0304/2023/QD-BUV of the Vice Chancellor & President of British University Vietnam dated 03 April 2023;*
- *Meeting Minutes of the University Council of British University Vietnam No. 002/2023/BB-HDT dated 10 April 2023.*

**DECIDES**

**Article 1.** Approving the Implementation of the Frame Principles of Master of Business Administration having its discipline code of 8340101.

**Article 2.** This Resolution takes effect from its signing date.

**Article 3.** Vice Chancellor & President, the Senate and other relevant departments and individuals are responsible for implementing this Resolution.

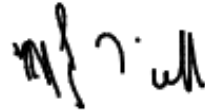
***Recipients:***

-Per Article 3;

-Uni Council (for reporting purposes);

-Archived.

ON BEHALF OF THE UNIVERSITY COUNCIL OF  
BRITISH UNIVERSITY VIETNAM



---

PROF. MICHAEL DRISCOLL

**CHAIRMAN**

# **APPENDIX I**

Hung Yen, 05 April 2023

## FRAME PRINCIPLES FOR OPENING A DISCIPLINE

- Discipline Title: Business Administration
- Academic Level: Master
- Mode of Study: Part-time
- Code: 8340101

### 1. THE NECESSITY TO OPEN THE DISCIPLINE

#### 1.1. Suitability for local, regional and national development of the human resources

Following the Decision No. 579/QĐ-TTg dated 19/4/2011 of the Prime Minister on the Strategy for Human Resource Development of Vietnam in the period 2011-2020, the general objective of development of Vietnamese human resources in the 2011-2020 period is to make Vietnamese human resources a foundation and the most important advantage for the country's sustainable development, international integration and social stability, raising the competitiveness of Vietnamese human resources to a level corresponding to those in advanced regional countries and reaching in certain lengths those of developed countries around the world. One of the specific objectives is to build a system of educational institutions which is advanced, modern and diversified, with a synchronous, multi-level and dynamic sectoral structure which is articulated between different levels and sectors nationally and internationally, widely distributed across the country, contributing to the establishment of a learning society, and meeting the life-long learning demands of citizens. By 2020 the number of workers who have a bachelor's degree will reach 5 million, with 300,000 people holding postgraduate degrees. The country will have 2.5 - 3 million entrepreneurs, 80% of entrepreneurs will have graduate or postgraduate qualifications.

Decision No. 711/QĐ-TTg dated 13/06/2012 of the Prime Minister on the Strategy for Education Development of Vietnam in the period 2011-2020 stated that the objective of Education Development in Vietnam to 2020 is to "complete the structure of higher education; to adjust the structure of training disciplines and occupations and training levels, to improve training quality to meet human resource requirements of socio-economic development; to train persons with

creative ability, independent thinking, civic responsibility, professional ethics and skills, foreign language proficiency, a sense of labour discipline, industrious working style, with self-employment capacity and ability to adapt to labour market changes, with a segment of them being regionally and internationally competitive.”

## **1.2 Suitability for the human resource needs in the discipline-related industry**

Considered the most popular post-graduate programme worldwide, an MBA not only helps participants improve business skills, gain leadership knowledge, gain management skills and strategic, but also helps broaden their network and build up relationships with influential figures in different industries.

In the context of an increasingly competitive and globally integrated business environment, entrepreneurs and C-level managers have experienced difficulty in their day-to-day management due to their inexperience in senior management. Because of the scarcity of high-level personnel in the country, most senior positions are still occupied by foreigners. Recent reports also suggest that level of competition is likely to be even more acute when the law allows ASEAN Economic Community workers (AEC) to work in Vietnam without a permit. It is a common fact that there is still significant mismatch within the senior labour market, and candidates with international MBA degrees are very much sought after by recruitment agencies.

Globally, 86 percent of companies plan to hire recent MBA graduates in 2017, up from 79 percent that hired them in 2016. Demand for recent MBA graduates is strongest in the United States and Asia-Pacific, where 9 in 10 respondents plan to hire MBA graduates in 2017. More than half of employers (52%) report they will increase starting salaries for new MBA hires in 2017 at or above the inflation rate.

Over the last recent years, Vietnam has gained many strong development steps against regional economies. Accordingly, a series of policies on foreign trade and human resources for the region will create a new step for countries with potential in people, resources and foreign investment, including Vietnam. According to Tran Anh Tuan - Deputy Director of Centre for Forecasting Demand for Human Resources and Labour Market Information in Ho Chi Minh City, in the period

of 2020 to 2025, in Ho Chi Minh City alone, each year, the City needs about 270,000 jobs in business administration.

In the general economic development of each country, the human resources with Business Administration expertise and experience is considered the centre of the economy. Graduating in this field, students can become specialists in marketing, sales, planning, or opening their own business. Those who obtain post-graduate degrees can hold leadership and operating roles in the company. According to Google, there are about 40,500 searches per month for MBA-related keywords from Vietnam. This means that almost every minute Vietnamese people look for MBA information. The number of MBA searches is nearly double the number of searches for the second most searched course.

### **1.3 Suitability for the University's missions & development strategy**

There is a strong focus at BUV on the use of digital tools to help prepare students for future 4IR modes of work, and this supports strategic objective 4: 'Deliver cutting-edge British pedagogical models, teaching methods and education technologies. BUV has invested heavily in digital learning resources and this investment has enabled BUV to continue to deliver its high-quality programmes despite the challenges Covid-19 has presented.

Located within the BUV Ecopark campus which holds a total investment of up to \$70 million for its three phases, the newly inaugurated learning area, including specialised practice rooms such as Computer Lab, Motion Capture Studio, Digital Lab, Computer Games Design Lab & Cyber Security Lab for Computer Science discipline is fully equipped with the world's most advanced computer systems and equipment. The area offers students high-quality learning spaces to encourage creative conversation between students and faculty, inspire students to explore and improve their capacity for impactful study and research. The beautiful architecture embedded in the modern and inspirational design of the BUV campus is further developed within this expanded campus area.

## **2. FULFILLMENT OF CONDITIONS FOR OPENING THE DISCIPLINE**

Regarding the capacity of the training institution, the below report analyse and explain about how BUV meet requirements as specified in Circular 02/2022/TT-BGDDT for the proposed discipline



and training level, including academic staff, facilities, technology and learning resources, training program, scientific research, business cooperation and international cooperation.

## 2.1. Conditions on lecturing staff

BUV offers 100% international faculty. We will arrange 5 full-time lecturers with Doctor of Philosophy (PhD) degree to be in charge of the Computer Science discipline. All lecturers will have to be in the same or close to the registered course, and who must go through a careful interview and selection based on their qualifications and relevant teaching experience. One Doctor of Philosophy (PhD) will take charge and administer the training curriculum and is held accountable for training quality.

No.	Full name	Position	Degree
1	Raymond Gordon	Discipline Lead Full-time Lecturer 1	Professor. Dr., Business Management
2	Joao Manuel Ferrao Fialho	Full-time Lecturer 2	Dr., Application Math
3	Shashi Kant Prasad Chaudhary	Full-time Lecturer 3	Dr., International Economics
4	Adrian Wee Tiong Weng	Full-time Lecturer 4	Dr., Business Administration
5	Jyotsna Ghildiyal Bijalwan	Full-time Lecturer 5	Dr., Management

## 2.2. Conditions on facilities

Infrastructure and facility: The area of Campus in Ecopark is 6,5ha. The timeline for construction of new Campus consists of 3 phases: Phase 1- 2,84ha and Phase 2 and 3 - 3,66ha. Phase 1 was completed and the current facilities in Ecopark Campus includes:

Order	Category	Number	Total area (m2)
1	Library	01	1.230,1
2	Classrooms	23	1.947,5
3	Lecture hall	02	851,4
4	Teacher office	02	258,5
5	Research area	06	490,4
6	Sport area	03	654,7
7	Canteen	02	4,096

Order	Category	Number	Total area (m2)
8	Others		4.887,8
Total			14.416,4

The library building is designed in a contemporary style, which includes Library area, 24-hour study area, specialised discussion rooms for students and computer access.

Classrooms: 23 classrooms with open design and flexible to serve various needs. These rooms can accommodate 30-45 students and are fully equipped modern teaching auxiliaries, projectors, LCD screens, high-quality audio system, air conditionings, standard light system.

02 large lecture halls: with an average area of 425 m2 accommodating 250 students per lecture hall, 6m high, equipped with smart board, projector, LCD screen, high quality sound system, air conditioning, system Standard lighting system. In addition, large lecture halls also have an online system that allows students to sit anywhere in or outside the Ecopark Campus to participate in interactive lectures through online tools.

The construction of the BUV campus Phase 2 at Ecopark started in August 2022, with an investment of 33 million USD, and is expected to be completed in early 2025.

Specifically, BUV invested in building a new canteen with a total floor area of 4,096m2, a sports complex including basketball and badminton courts, and a new academic building. The indoor and outdoor spaces are arranged in harmony in an open, green landscape. The iconic minimalist and liberal architectural style indicative of 4IR reflects the educational approach at BUV.

## 2.3. Conditions on the technology of learning resources

### 2.3.1 Libraries

BUV recognises the important role of literacy in all walks of modern professional life, including technical, creative and critical thinking. Therefore, alongside providing adequate access to technology to complete assignments, BUV works closely with industry partners to ensure that students have valuable experience in the hardware and software typically used in their industries, and to anticipate future needs. BUV understands the value of rich content in student engagement

and the value of on demand learning that gives student access to specialised information beyond the core deliverables of a semester.

BUV understands that technology is not just defined by digital, or even electronic technology. BUV will invest in specialised spaces and teaching facilities geared to its portfolio of courses and activities.

Alongside a well-resourced physical library and breakout workspace (designated in the Learning Resource Centre), BUV provides students and lecturers access to Kortext, a specialist digital platform delivering over 2 million digital textbooks and other learning content to universities. Additionally, a tablet is provided to each student upon entry to the University allowing them to access digital textbooks with ease anywhere, at any time.

BUV provides open access of 24 PCs and 13 iMacs for students in the LRC's Lab & shared space. To ensure that students could easily access all digital learning resources, all students entering degree programmes from April 2019 were issued Apple iPads.

Students can loan 1,494 titles of print books from LRC with a maximum of 5 books each time for 14 days in total. LRC users have access to a range of digital databases and online resources including e-books, journals, articles, case studies, and reports, which are available 24 hours, 7 days/a week on and off campus.

During operation hours between 8.30 am and 6.30 pm from Monday to Friday, there are 13 discussion rooms with a capacity of 4-6 people/room & 26 classrooms with a capacity of 30 people/rooms available for students to book. Students can book rooms with Student Information Office 1 day in advance at the earliest. Each student can use rooms for at most 1 hour per booking & at most 2 hours per week.

The LRC opens from 8.00 to 18:30 from Monday to Friday; and from 9.00 to 16.00 on Saturday during the teaching & non-teaching period. The LRC also includes a 24-Hour Study Room. This facility is open 24 hours per day, 7 days per week.

Outside operation hours of between 8.30 am and 6.30 pm from Monday to Friday, BUV provides a range of Out-of-hours campus access facilities including the 24/7 Study Area, 6 normal

classrooms & 8 functional classrooms for students to book. Students can request Out-of-hours campus access to 24/7 Study Area and classrooms with Student Information Office by 4 pm from Monday to Friday.

### 2.3.2 Online libraries

Title	Type	Quantity
ACM Digital Library	Article	117500
Arts & Humanities Database	Journal	7818
	eBooks	21515
	Newspaper	2176
BMJ Journals Online	Journal	70
Ebook Central (formerly known as ebrary)	eBooks	100000
eBooks on EBSCOhost	eBooks	2400000
Emerald Management ejournal collection	Journal	100
Internurse.com (off-campus access	Article	700
JSTOR	Article	1150
Newspapers - Global Newsstream	Newspaper	2800
Performing Arts Database	Journal	100
RCN Journals (Royal College of Nursing)	Journal	11
ScienceDirect - Elsevier	Journal	4603
	eBooks	32662
Scopus	Journal	2960
	eBooks	48300
VLeBooks	eBooks	7667
Wiley Online Library	eBooks	20000
	Journal	1600
<b>TOTAL</b>	<b>eBooks</b>	<b>2630144</b>
	<b>Journal</b>	<b>141588</b>

### 2.3.3 Academic databases in use

No.	Titles	Publisher	Description
1	Academic Search Ultimate	EBSCO	<b>Academic Search Ultimate</b> offers students an unprecedented collection of <b>peer-reviewed, full-text journals, including many journals indexed in leading citation indexes indexed</b> in leading citation indexes to meet the increasing demands of scholarly research.
2	ProQuest ABI/Inform Global	ProQuest	<b>The database</b> features thousands of <b>full-text journals, dissertations, working papers, key business, and economics periodicals</b> such as the Economist, country-and industry-focused reports, and downloadable data. Its international coverage gives researchers a complete picture of companies and business trends around the world.

3	Euromonitor	Euromonitor	<b>This online market research tool</b> monitors industry trends and gives you <b>strategic analysis and market size and market share database</b> for all your products across all key countries.
4	Emerald Market Case Studies Collection 2022	Emerald	<b>Emerald Market Case Studies Front List Collection 2022</b> offers over <b>600 cases</b> is the product to encourage entrepreneurial thinking and critical exploration. Each case is accompanied by <b>complimentary teaching notes</b> that have been compiled by teaching faculty at some of the world's best business schools.
5	Emerald eBooks Business, Management & Economics & Social Sciences collection	Emerald	<b>Emerald eBooks Business, Management &amp; Economics Collection</b> offers over <b>1,600 eBook titles (1991-2022)</b> broken into 7 subject collections, highlighted below. As well as via the individual collections content from the portfolio can be accessed in full on a rental basis: Accounting, <b>Finance &amp; Economics; Business, Management &amp; Strategy; Marketing; HR &amp; Organization Studies; Public Policy &amp; Environmental Management; Library &amp; Information Sciences; Tourism &amp; Hospitality Management.</b>
<b>Emerald eBooks Social Sciences collection</b> offers over <b>1,000 eBook titles (1999-2022)</b> broken into two subject collections, <b>Education &amp; Sociology.</b>			
6	PressReader Annual Subscription	Emerald	<b>Multidisciplinary e-Journal suite</b> , including more than <b>7,000 articles from magazines</b> such as The Washington Post, The Guardian, and The Globe and Mail, to Forbes, Vogue, Bloomberg Businessweek, Elle, and GQ.

### 2.3.4 Technologies

Room		Details of ICT infrastructure					
Floor 1	Computer Lab 1-4	33 PCs	66 Monitors	1 Projector 1 Projection screen	Audio system	Cisco Lab Kit	1 wireless display system
Floor 2	Computer Games Design & Programming	28 PCs	57 Monitors	2 Projector	Audio system		
	Digital Lab 2-4	16 iMacs	1 Epson Printer	1 Projector	Audio system	10 Wacom Tablets	10 Scanners
	Cyber Security 2-7	15 PC's	35 Monitors	1 Projector	Audio system	Cisco Lab Kit	
Floor 3	LRC Computer Lab	31 PC's	31 Monitors	1 Projector	Audio system		

## 2.4. Conditions on the training programme

The MBA offered by BUV provides a roadmap for developing your leadership skills, renewing your mindset and improving your ability in management. It is a qualification that will help you accelerate your passion and broaden your horizons through practical learning strategies and discussions on real-world business issues, ensuring that you will learn how to quickly adapt to the current fast-paced economy, and the development of the 4IR (The Fourth Industrial Revolution).

Our programme will allow you to learn from one another as well as from experienced faculty members, exposing you to unique insights from every corner of the globe. The underpinning approach and philosophy of this course is problem-based learning which refers to contemporary business issues and challenges. This part-time MBA is designed for senior professionals and middle-level managers, requiring regular attendance at weekends and on weekday evenings.

## 2.5. Conditions on Scientific research

Whilst BUV is still primarily a teaching university, we encourage all faculty members to continuously develop and update their research and professional practice. This can be done both formally and informally through scholarly research, practice-based research, and engagement with scholarly and professional networks.

The introduction of the BUV Academic and Teaching Classifications and Standards of faculty and promotion policies being developed will also serve to encourage and drive research activities and outputs within BUV. The Faculty Research Activity shows some of the recent research activities that BUV faculty have engaged in, ranging from local conference presentations, through to publications in top-tier international journals. We recognise that not all faculty are engaged on contracts which involve research expectations, and therefore encourage scholarly activity across the entire range of activities discussed in the Scholarly Activity Encouragement Policy.

To enhance BUV's ability to produce high-quality research, BUV provides the following support to faculty:

- Condensed teaching periods to allow for block research time.
- Funding opportunities to present at conferences.
- Workload allowances for faculty actively engaged in research.
- Encouraging faculty members to be fully engaged in professional and academic networks.
- Developmental opportunities for faculty members to present at BUV internal conferences.
- Ad-hoc funding support for research projects.
- Student Research Assistants (SRAs) to support faculty with research activities. The introduction of SRAs has been agreed (see 243 Teaching and Research Assistantship Policy) and recruitment of these positions has begun and will be scaled up from the beginning of the 2023 academic year.

Beyond traditional scholarly activity outputs, BUV recognises the value of faculty maintaining broad external networks to help support both research and teaching practices. The list of Faculty Engagement with Professional and Academic Networks below shows how faculty members are involved with, and engaging actively with other institutions, and both academic and professional networks. This engagement allows faculty members to remain current in their professional and academic practices, provides scope for collaboration on a range of professional or research projects, and enables them to continue to develop and improve their teaching practices.

No.	Faculty	Network / body	Role	Description/Note if not clear
1.	<b>Kostas Tsonetos</b>	Advance HE ( <a href="https://www.advance-he.ac.uk/">https://www.advance-he.ac.uk/</a> )	Fellow (FHEA)	British Higher Education professional membership scheme promoting excellence in higher education.
2.	<b>Kostas Tsonetos</b>	International Board of Certified Trainers Rotterdam - THE NETHERLANDS ( <a href="https://www.ibct-global.com/">https://www.ibct-global.com/</a> )	Member	IBCT is the world's first not-for-profit certification body in the field of corporate training and workplace learning industry. Promoting excellence and sustainability in training and HRD.
3.	<b>Kostas Tsonetos</b>	Greek Economic Chamber ( <a href="https://oe-e.gr/en/the-economic-chamber/">https://oe-e.gr/en/the-economic-chamber/</a> )		Holds the role of the scientific advisor for the state and the society. Responsible for institutionalizing the profession of the economist.
4.	<b>Kostas Tsonetos</b>	Harvard Business Review Advisory Council	Member	
5.	<b>Shashi Chaudhary</b>	Advance HE	Senior Fellow (SFHEA)	Advance HE is a member-led, sector-owned charity that works with institutions and higher education across the world to improve higher education for staff, students and society.
6.	<b>Shashi Chaudhary</b>	Nepal Policy Institute (NPI)	Member	NPI is a think-tank and a knowledge-platform dedicated to the people-centred and sustainable development of Nepal and Nepali people, including diaspora Nepali.
7.	<b>Adrian Weng</b>	Malaysian business chamber	Member	It's a body to facilitate Malaysian businesses in Vietnam
8.	<b>Mike Perkins</b>	Vietnam National Academy of Education Management	Member of the editorial board of the Journal of Education	National body in Vietnam for enhancing and promoting educational management and training



No.	Faculty	Network / body	Role	Description/Note if not clear
			Management	
9.	<b>Mike Perkins</b>	Vietnam Business Forum Education and Training Working group	Member	A sub-group of the Vietnam Business Forum working to further the interests of organisations involved in the fields of education and training in Vietnam.
10.	<b>Mike Perkins</b>	Vietnam Business Forum Governance and Integrity working group	Member	A sub-group of the Vietnam Business Forum working to promote integrity and governance issues within Vietnam.
11.	<b>Mike Perkins</b>	Advance HE	Senior Fellow (SFHEA)	British Higher Education professional membership scheme promoting excellence in higher education.
12.	<b>Joao Fialho</b>	CIMA UE - Research Center in Mathematics and Applications - University of Evora	Research member of the Differential Equations research group	Research Center in Applications and Mathematics. Counts with over 40 researchers from different countries and affiliation.
13.	<b>Joao Fialho</b>	Forum Oceano	Member - research consultant (Ignosi/Dat auris)	Portuguese government sponsored institution that manages the Portuguese Sea cluster and Sea Economy
14.	<b>Joao Fialho</b>	Portuguese Mathematics Society (SPM)	Member	Main Portuguese Mathematics society. It includes faculty and researchers connected to field of Mathematics.
15.	<b>Joao Fialho</b>	Axioms - Special Issue "Advances in Nonlinear Boundary Value Problems: Theory and Applications"	Editor-in-chief (joint with Prof Feliz Minhos)	Special issue of the indexed journal - Axioms (Q3 journal)
16.	<b>Joao Fialho</b>	- Boundary Value Problems (Springer) - Journal of Function Spaces and	Editorial Board	Member of editorial boards

No.	Faculty	Network / body	Role	Description/Note if not clear
		Applications (Hindawi) - Mathematical Reviews (AIMS) - Journal of Mathematics Research (Canadian Center of Science and Education) - Abstract and Applied Analysis (Hindawi) - Advances in Difference Equations - International Journal of Differential Equations - Biology And more		
17.	<b>Joao Fialho</b>	INFORMS - Certified Analytics Professional	Member - certification in progress	Institution certifying in the field of data analytics, linked to Institute for Operations Research and the management sciences, USA
18.	<b>Joao Fialho</b>	Advance HE	Senior Fellow (SFHEA)	British Higher Education professional membership scheme promoting excellence in higher education.
19.	<b>Joao Fialho</b>	CIMA - UE (Research center in Mathematics - Universty Evora - Portugal)	Research member	
20.	<b>Sandra Natalie Schneiderman</b>	Victorian Institute of Teaching	Member	The Victorian Institute of Teaching (VIT) is an independent statutory authority for the teaching profession, whose primary function is to regulate members of the teaching profession
21.	<b>Sandra Natalie Schneiderman</b>	ACARA Australian Curriculum and Reporting Authority	Member	ACARA is an independent statutory authority with a key focus on raising the teaching and reporting standards and curriculum in Australia.
22.	<b>Ajay Pillai</b>	Journal of Financial Reporting and Accounting (EMERALD)	Reviewer for the Journal	Reviewing articles for Journal of Financial Reporting and

No.	Faculty	Network / body	Role	Description/Note if not clear
				Accounting (Emerald Insight) since 2015
23.	<b>Ajay Pillai</b>	Advance HE	Joined for Fellowship in November 2021	British Higher Education professional membership scheme promoting excellence in higher education.
24.	<b>Ray Gordon</b>	Australian Chamber of Commerce Vietnam	Former Director of Board	This role involved meeting Australian and international Government and business delegates to establish networks and mutually beneficial business and trade opportunities.
25.	<b>Ray Gordon</b>	Australian Academy of Business Management (AABM)	President and Chair of Board	AABM is an academy made up of a network of academics and practitioners from Asia Pacific and South East Asia region. It offers Australian nationally recognised vocational education and training programs at Diploma and Certificate levels. These programs provide pathways for international student into Australian, British and US Universities. AABM offers a range of executive education programs primarily in the field of leadership and management, more recently - innovation processes (leading ideation processes). AABM also run international conferences and seminars.
26.	<b>Ray Gordon</b>	International Counsel of Business and Management (ICBM)	Vice President and member of the board	ICBM is a network of academics from countries throughout Asia, Australia, America, Canada and Europe. The network facilitates research collaboration that addresses the Asian Region's Business and Management challenges. ICBM produces

No.	Faculty	Network / body	Role	Description/Note if not clear
				two peer reviewed journals and I am the chief editor of one of these journals
27.	<b>Ray Gordon</b>	Association to Advance Collegiate Schools of Business (AACSB) International	Mentor	AACSB Mentors serve as a key resource in advising AACSB eligible business schools on the association's self-assessment process and the development of the school's initial self-assessment report (iSER). A Mentor guides and stimulates the school to define its processes, activities and outcomes, as well as present various options to help develop a better understanding of the AACSB standards and what they mean. Mentors are required to visit the schools they assigned and report on the progress the school is making toward the development of its Initial Self Evaluation report. This report is essentially a gap analysis between the school's existing strategic management, financial management, operating, staff sufficiency and assurance of learning procedures and the requirements of the AACSB standards. These standards represent a blue print of best practice leadership and management systems for high quality business schools and Universities
28.	<b>Ray Gordon</b>	Queensland Chamber of Commerce	Member	This involved meeting State and international Government and business delegates to establish

No.	Faculty	Network / body	Role	Description/Note if not clear
				networks and mutually beneficial business and trade opportunities.
29.	<b>Ray Gordon</b>	QTS Education Solutions, Australia, Vietnam	President and Chair of Board	QTS is an Australian Registered Training Organisation (RTO) offering Australian nationally recognised business programs to Australian, Vietnamese and other international students.
30.	<b>Ray Gordon</b>	Australian Institute of Management	Fellow	Australian education provider offering courses include business, management and leadership.
31.	<b>Ray Gordon</b>	CPA Australia	Chartered Accountant	Australian professional accounting body
32.	<b>Ray Gordon</b>	Australian Business Deans Council	Former member	Body fostering the global impact of Australian business education and research.
33.	<b>Ray Gordon</b>	Business Academics Research Directors' Network	Former member	Joint body of ABDC and ANZAM providing a learning platform for the people who have line responsibility for administering research in business faculties and schools.
34.	<b>Ray Gordon</b>	International Political Science Association	Member	International scholarly association founded under UNESCO devoted to the advancement of political science in all parts of the world.
35.	<b>Ray Gordon</b>	Australian and New Zealand Academy of Management.	Member	Professional body representing management educators, practitioners, and researchers in Australia and New Zealand
36.	<b>Ray Gordon</b>	Academy of Management. (American Academy of Management)	Member	Professional association for scholars of management and organizations
37.	<b>Ray Gordon</b>	European Group of Organizational Studies	Member	Scholarly association which aims to further the theoretical

No.	Faculty	Network / body	Role	Description/Note if not clear
				and/or empirical advancement of knowledge about organizations, organizing and the contexts in which organizations operate.
38.	<b>Ray Gordon</b>	International Sociological Association	Member	Non-profit organization dedicated to scientific purposes in the field of sociology and social sciences.
39.	<b>Chris Jeffery</b>	British Chamber of Commerce Vietnam (BritCham Vietnam)	Chair	Played an active leadership role in the development of BritCham, both locally in Hanoi and at the national level as well as the name change and rebranding, development of business centre, fundraising and sponsorship
40.	<b>Chris Jeffery</b>	British Corporate Advocacy Council (BCAC)	Board Member	High Level UK Corporate and Government body discussing policy and corporate developments in the relationship between the two countries
41.	<b>Chris Jeffery</b>	Vietnam Business Forum	Board Member	The national consultative body of Vietnamese and International Business in Vietnam, lobbying for policy changes and supporting the Vietnamese drive to become a 4IR Economy, liaising with Prime Minister, Ministers and Heads of Civil Service Departments
42.	<b>Chris Jeffery</b>	UNIS Hanoi	Advisory Board Member	Advising the trustees and Principal on the development operation and strategy of the School
43.	<b>Chris Jeffery</b>	BEBG British Education Business Group	Founding Chair	A group of British Educational and education service providers representing the interests of the group, the largest

No.	Faculty	Network / body	Role	Description/Note if not clear
				country group within the education sector
44.	<b>Chris Jeffery</b>	Operation Smile	Advisory Board Member	Involved in the Operation and Fundraising for Operation Smile Vietnam, the international medical charity that has provided hundreds of thousands of free surgeries for children and young adults in developing countries who are born with cleft lip, cleft palate, or other facial deformities. It is one of the oldest and largest volunteer-based organizations dedicated to improving the health and lives of children worldwide through access to surgical care.
45.	<b>Chris Jeffery</b>	Bett Asia	Advisory Board Member	Act as a sounding board member for the plans and ideas for Bett Asia, as well as helping Bett Asia shape the programmes to ensure they are meeting the needs of their visitors and exhibitors.
46.	<b>Chris Jeffery</b>	EMASI	Advisory Board Member	Involved in EMASI which is a group of international bilingual schools with American standard facilities that delivers Vietnamese national curriculum adopting modern teaching methods from developed countries.
47.	<b>Stewart Utley</b>	CARDE (Critical Applied Research in Digital Education)	Member of research group	<a href="https://research.tuni.fi/carde/affiliated-wildcards/">https://research.tuni.fi/carde/affiliated-wildcards/</a> A research group based at Tampere University (Finland) looking into critical application of digital education and its impact on education.

No.	Faculty	Network / body	Role	Description/Note if not clear
48.	<b>Stewart Utley</b>	HANDLE (Humour Affordances in Digital Learning Environments)	Member of research group	<a href="https://www.tuni.fi/en/research/humour-affordances-digital-learning-environments-handle">https://www.tuni.fi/en/research/humour-affordances-digital-learning-environments-handle</a> A research group based at Tampere University focused on utilisation of humour in various forms and its impact and application in digital learning environments.
49.	<b>Don Hickerson</b>	The Qualitatives	Member	A qualitative research based think-tank.
50.	<b>Don Hickerson</b>	Advance HE	Participant/ Candidate	British Higher Education professional membership scheme promoting excellence in higher education.

## 2.6. Conditions on Industrial partnership

The Careers, Industrial Relations, and Alumni Office (CIRAO) works between students, faculty, alumni, and external partners to enhance the opportunities for external involvement with learning in BUV. This team provides support to students in obtaining internships and organising a wide range of employability events and activities throughout each semester. They also support faculty in obtaining guest speakers and arranging guest lectures, and alumni by providing continued support.

Items	Figures
Working and Own a business/ Family Business	325
Higher education (abroad) + Planning to study abroad	19
NA (not able to contact or share information)	47
<b>Grand Total</b>	<b>391</b>
% of BUV students employed or in full-time education after graduation (Graduate 2018-2021)	<b>100%</b>



We believe that the support provided by the CIRAO enables our students to maximise the opportunities provided to them at BUV, and this is demonstrated by the fact that 100% of our graduates from 2018-2021 were employed or in full-time education within three months following graduation. BUV is extremely proud of this figure which we have maintained since our first graduating cohort in 2013, and this is a testament to the ongoing support that we provide to our students.

The CIRAO can use their close relationship with employers to support students in obtaining internships in the semester breaks. Internships are not only available to all students who want one (see 253 Internship Summary), but students are required to complete at least one internship to obtain the Career Readiness Certificate. The CIRAO work with a diverse range of industries, and both local and international firms, so that students can explore the widest range of potential careers opportunities. The updated list of over 400 industrial partners is as below:

No.	Partner	Status
1	2 Idea	Active
2	40HRS Hr Consultant Service	Active
3	A Ra là Thế!	Active
4	AASC	Active
5	AB InBev	Active
6	Abbott	Active
7	Absolute Internship	Active
8	ACCA	Active
9	Accenture Malaysia	Active
10	ActionAid	Active
11	Adecco Vietnam	Active
12	Admicro	Active
13	Advantage Real Estate Service	Active
14	Advesa Digital Solutions Inc	Active
15	AHT TECH JSC	Active
16	AIESEC in Vietnam	Active
17	AIM Academy	Active
18	akaBOT	Active
19	Allied Pickfords Vietnam	Active

No.	Partner	Status
20	Alma Resort	Active
21	Aloha Consulting Group	Active
22	Alpha Books	Active
23	American Edu-Sports Academy (ASA)	Active
24	American Stem	Active
25	American Study	Active
26	Amica Travel	Active
27	ANIMVERSE	Active
28	ANT Housing Design	Active
29	Anymind Group	Active
30	APEC Group	Active
31	Apollo English	Active
32	Appota	Active
33	Ascott International Management (Vietnam)	Active
34	ASEAN Foundation	Active
35	Asia DMC	Active
36	Asian Tigers Transpo International (Vietnam)	Active
37	Aspire Vietnam	Active
38	Australian Embassy	Active
39	Avana Retreat Resort	Active
40	AVG Technologies (AVG)	Active
41	Avior Airlines	Active
42	Aviva Vietnam Life Insurance Company Limited	Active
43	AZA Travel	Active
44	Back Stage Event	Active
45	Backpack Hostel	Active
46	Bamboo Airways	Active
47	Bao Kim	Active
48	BareFoot Ventures	Active
49	Bay Global Strategies	Active
50	Betanam	Active

No.	Partner	Status
51	Better Work Vietnam	Active
52	Bhaya Cruises	Active
53	BIDV Securities Company (BSC)	Active
54	BIDV-SuMi TRUST LEASING	Active
55	BIM Group	Active
56	BVIS- British Vietnamese International School Hanoi	Active
57	Blue Dragon Children's Foundation	Active
58	BMBSoft VietNam Company Limited	Active
59	BOO	Active
60	BOSCH	Active
61	BR24 Vietnam	Active
62	Bravestars Games	Active
63	BRG Chairwoman	Active
64	BritCham	Active
65	British Council	Active
66	British Embassy Hanoi	Active
67	British International School Hanoi	Active
68	British Vietnamese International School Hanoi (BVIS Hanoi)	Active
69	ByteDance	Active
70	CAAY Creative Agency	Active
71	Cafebiz	Active
72	California Fitness & Yoga	Active
73	Cam Anh Ng Illustration	Active
74	Canifa	Active
75	Capella Hanoi Hotel	Active
76	CareerBuilder	Active
77	Carlsberg Vietnam	Active
78	Castrol BP Petco Ltd.	Active
79	CBRE	Active
80	CBRE Vietnam	Active
81	CCI France Vietnam (CCIFV)	Active

No.	Partner	Status
82	CCTT Global	Active
83	CCTT Global Company Limited	Active
84	Central and Eastern European Chamber of Commerce in Vietnam (CEEC) - Hanoi Office	Active
85	Central Retail Group	Active
86	CFA Community (Chartered Financial Analyst)	Active
87	Chau Bach Group	Active
88	Childfund Vietnam	Active
89	Chinh Dai	Active
90	Christina Noble Children's Foundation	Active
91	Chubb Vietnam	Active
92	Chula Fashion	Active
93	CIBER-CMC Joint Venture Corporation	Active
94	CIMB BANK	Active
95	CircleK Vietnam	Active
96	Circletime Studio	Active
97	CJ CGV	Active
98	CleverGroup	Active
99	Clickable Vietnam	Active
100	CMC Technology & Solution	Active
101	Coats Phong Phu	Active
102	Coc Coc	Active
103	Cocacola Vietnam	Active
104	Complex 01	Active
105	Concordia International School Hanoi	Active
106	Cộng đồng Hộ Chiếu Xanh Đi Quanh Thế giới (HCX)	Active
107	CPA Australia	Active
108	Crown Worldwire Ltd	Active
109	Crowne Plaza Vinh Yen City Centre	Active
110	Crunchy Frog	Active
111	CSKM GLOBAL INSTITUTE	Active

No.	Partner	Status
112	CTCP Ứng dụng Khoa học Tâm lý Hồn Việt (Vietnam Insight)	Active
113	Cty TNHH Sản Xuất và Thương mại KJ VINA (Paperlab)	Active
114	Cyfeer	Active
115	D4E Media	Active
116	Dai Viet Group	Active
117	Davines Vietnam	Active
118	DCs Pizza	Active
119	Decathlon	Active
120	Dee Dee Animation Studio	Active
121	Deloitte Vietnam	Active
122	DETECHbio	Active
123	DHC	Active
124	Diageo Vietnam	Active
125	Digiworld	Active
126	Discova	Active
127	Dolce by Wyndham Hanoi Golden Lake	Active
128	Dragon Capital Group Limited	Active
129	Dreamplex1	Active
130	Easia Travel	Active
131	Ecomobi	Active
132	Ecopark Vihajico	Active
133	Ecotek	Active
134	Edso Labs	Active
135	Eduviet	Active
136	Edspace	Active
137	Edward Vu Business Consulting & Training	Active
138	Elite Fitness	Active
139	ELS Performance Golf Academy	Active
140	EMASI International Bilingual Schools	Active
141	Embassy of Australia	Active
142	Employment Vietnam	Active

No.	Partner	Status
143	EONMIX	Active
144	Ernst & Young	Active
145	Esoft	Active
146	eSpace	Active
147	EuroCham	Active
148	Evergreen	Active
149	EY Parthenon	Active
150	F.Learning Studio	Active
151	F88	Active
152	FarEast Vacation	Active
153	Fika	Active
154	First Alliances	Active
155	First Recruitment Asia	Active
156	First Trust ACPA Vietnam	Active
157	FLC Group	Active
158	Foody	Active
159	Forhe Vietnam	Active
160	FOREO	Active
161	FPT Securities	Active
162	FPT Software	Active
163	FPT Telecom	Active
164	FrieslandCampina Vietnam	Active
165	FUNIX (FPT)	Active
166	Fusion Original Saigon Centre	Active
167	Galaxy Mipec Long Bien	Active
168	Gameloft	Active
169	Garena	Active
170	G-College	Active
171	GIA Restaurant	Active
172	Gimasys	Active
173	Gimo	Active

No.	Partner	Status
174	Global Study Partners	Active
175	Globalways Global Consulting	Active
176	GM Vietnam	Active
177	Golden Gate	Active
178	Golden Path Academics Vietnam	Active
179	GPA Camps	Active
180	GPA Vietnam	Active
181	Grant Thornton Vietnam	Active
182	Green House Cooperatives	Active
183	Growth Catalyst Vietnam	Active
184	Gruppo Trentino Di Volontariato	Active
185	GTE Localize	Active
186	H2 Global Travel	Active
187	Hanoi International School	Active
188	Happynest	Active
189	Hawee Group	Active
190	HCC	Active
191	Heineken Hanoi Brewery Company	Active
192	HILTON HANOI OPERA	Active
193	Hilton Hotels & Resorts	Active
194	HILTON WORDWIDE	Active
195	Hitachi Vanta	Active
196	Hong Ngoc Hospital	Active
197	Hongkong Land	Active
198	Hotel Nikko Hanoi	Active
199	HR1 Vietnam	Active
200	HSBC	Active
201	Hướng Nghiệp Sông An	Active
202	Hyatt Regency West Hanoi	Active
203	ICAD Vietnam	Active
204	ICAEW	Active

No.	Partner	Status
205	ICL72	Active
206	IDG Vietnam	Active
207	IDP Education	Active
208	IEC Group	Active
209	Impactus	Active
210	In Camedia	Active
211	Indochina Land	Active
212	InterContinental Hanoi Landmark 72	Active
213	InterContinental Hanoi Westlake	Active
214	InterContinental Saigon	Active
215	International College of Arts (ICA)	Active
216	International Finance Corporation (IFC)	Active
217	Interspace Vietnam	Active
218	Intrinsic Garden	Active
219	IPH- Indochina Plaza Hanoi	Active
220	IPP Education	Active
221	iPrice Group	Active
222	Japan Business Association in Vietnam (JBAV)	Active
223	Jardine Matheson Group	Active
224	Jessica Minh Anh (JMA)	Active
225	JLL Vietnam	Active
226	JMM - J Model Management	Active
227	Job Hoppin	Active
228	JW Marriott Hanoi	Active
229	Katalon	Active
230	Kinder World	Active
231	KKDay	Active
232	KMM Film Studio	Active
233	KMS Solution	Active
234	Knowmads	Active
235	KORCHAM HANOI	Active



No.	Partner	Status
236	KPMG	Active
237	KTO Logistics	Active
238	LadiPage Vietnam	Active
239	Lalamove	Active
240	Le Bros	Active
241	Lead The Change	Active
242	Lian Lian Global	Active
243	Linagora	Active
244	LittleLives Vietnam	Active
245	L'OREAL	Active
246	LOTTE Hotels Vietnam	Active
247	LOTTE Shopping Plaza Vietnam	Active
248	Lotus Quality Assurance	Active
249	Malta Land	Active
250	Management Consulting Prep (MCP)	Active
251	ManpowerGroup Vietnam	Active
252	MarCom Mate	Active
253	Maritime Bank	Active
254	Markus	Active
255	Martin Mulligan Marketing Ltd.	Active
256	Marubeni	Active
257	Masan Group	Active
258	Marvelous Hotel	Active
259	Mazars Vietnam	Active
260	McKinsey & Company	Active
261	MDF Training & Consultancy	Active
262	MEC (Modern Education Community)	Active
263	Mekong Capital Hanoi	Active
264	MELIÁ HANOI	Active
265	Migo Travel	Active
266	Minh Anh Trading and Consultancy (MATC)	Active

No.	Partner	Status
267	Ministry of Construction Academy of Managers for Construction and Cities	Active
268	Mirae Asset Securities	Active
269	Misa JSC	Active
270	MOMO	Active
271	Movenpick Hotel Hanoi	Active
272	Ms Hannah GrapeSEED	Active
273	Nakagawa	Active
274	Navigos Group Vietnam JSC	Active
275	Navii Dental Care	Active
276	Nest	Active
277	Nest by AIA Hanoi - AIA Life Insurance (Vietnam)	Active
278	Nestle	Active
279	Next Solution	Active
280	Nexus FrontierTech	Active
281	Nexus Group	Active
282	Ngân hàng TMCP Sài Gòn - Hà Nội (SHB)	Active
283	NGO Recruitment	Active
284	NhaF	Active
285	Nielsen Vietnam	Active
286	Novotel Hanoi Thai Ha	Active
287	Novotel Suites Hanoi	Active
288	Nshape Fitness	Active
289	NTQ Solution JSC	Active
290	Oakwood Group	Active
291	One Arrow Consulting (OAC) - Vietnam	Active
292	ONE DENTAL CLINIC VIETNAM	Active
293	One Mount Group	Active
294	Openasia Group	Active
295	Operation Smile Vietnam	Active
296	OPES	Active

No.	Partner	Status
297	ORACLE	Active
298	Oriental Hospitality Group- OHG	Active
299	Outward Bound Vietnam	Active
300	Oxalis Adventure	Active
301	Oxfam	Active
302	OYO Rooms	Active
303	PACE Institution of Management	Active
304	Pacific Land Vietnam	Active
305	Pan Pacific Hanoi	Active
306	Panasonic Vietnam	Active
307	Paradise Hotels & Cruises	Active
308	Park Hyatt Saigon	Active
309	Pasona Tech Vietnam	Active
310	PATH	Active
311	Pegasus International College	Active
312	PersolKelly	Active
313	PG Bank	Active
314	PHAM DTRAN BRAND CONSULTANCY	Active
315	PHH Group	Active
316	Phoenix Holding	Active
317	Piaggio Vietnam	Active
318	Pioneer International Consulting	Active
319	Pizza 4Ps	Active
320	Pizza Vietnam Limited	Active
321	PizzaHut	Active
322	Play All Day	Active
323	Point Avenue	Active
324	PowerGate Software	Active
325	Premier Village Phu Quoc Resort	Active
326	Prime Group	Active
327	Prime Quality Training Limited (Singapore Office)	Active

No.	Partner	Status
328	Pullman Hanoi Hotel	Active
329	PWC (PricewaterhouseCoopers Vietnam Limited)	Active
330	PYS Travel	Active
331	Raconteur Vietnam	Active
332	RAFFLES MEDICAL VIETNAM	Active
333	Rakuna	Active
334	Reactor School	Active
335	Ready to Lead	Active
336	Rice Creative	Active
337	RMIT University	Active
338	Rouse Legal Vietnam	Active
339	Royal Lotus Halong Resort & Villas	Active
340	RSM VIETNAM	Active
341	Salt'n'Lime Restaurant	Active
342	Sang Software JSC	Active
343	SAOKHUE CONSULTING	Active
344	SAPP Academy	Active
345	Savills Vietnam	Active
346	SEA Group	Active
347	Senix Health Group	Active
348	SGC in Thailand	Active
349	Sheraton Hanoi Hotel	Active
350	Shopee	Active
351	Silk Path Hotel Hanoi	Active
352	Skilio	Active
353	Skilledup	Active
354	Sofitel Legend Metropole Hanoi	Active
355	Sol by Meliá Phu Quoc	Active
356	Sotane1t	Active
357	Spore Labs	Active
358	SSI Securities Corporation	Active

No.	Partner	Status
359	Standard Chartered Bank	Active
360	Startuppreneur	Active
361	Stavian Group	Active
362	STEAM for Vietnam	Active
363	Student Life Care	Active
364	Sun Group	Active
365	Sun Symphony Orchestra	Active
366	Sunhouse Group	Active
367	Sunset Beach Resort & Spa	Active
368	Sunshine Holding	Active
369	Sutunam	Active
370	Systems Little House International Kindergarten	Active
371	Systems Little House International Kindergarten	Active
372	T&A Ogilvy	Active
373	T&C Vietnam	Active
374	Talent Basket	Active
375	Talentnet	Active
376	TalentPool Vietnam	Active
377	Talentvis Vietnam	Active
378	TAYLOR'S UNIVERSITY	Active
379	Team Chouchou - Châu Bùi	Active
380	Techcom Securities	Active
381	Techcombank	Active
382	Television Advertising and Services Center (TVAD)	Active
383	Telio	Active
384	TH SCHOOLS	Active
385	Thang Long Acedemy Kindergarten	Active
386	THANG LONG WARRIORS (Tram Anh Sport Co., Ltd. ) (TLWA)	Active
387	The American Chamber of Commerce in Hanoi (AmCham)	Active
388	The Five Hospitality	Active
389	The Global Citizen Education	Active

No.	Partner	Status
390	The Hanoi Bicycle Collective	Active
391	The Hongkong and Shanghai Bank (HSBC)	Active
392	THE LONDON COLLEGE FOR DESIGN & FASHION	Active
393	The Solidarity Centre	Active
394	Thien Minh Group - TMG	Active
395	Threeland Travel	Active
396	Thu Cuc Hospital	Active
397	Tibco	Active
398	TikTok	Active
399	Timo Bank	Active
400	TinhVan Group	Active
401	TMF Group	Active
402	TMS Group	Active
403	TNT Express Worldwide (Vietnam)	Active
404	Tổng Công ty Bảo Hiểm Bảo Việt	Active
405	Tonkin Media	Active
406	Toong Coworking Space	Active
407	TopCV	Active
408	TPBank	Active
409	Tram Anh Sport	Active
410	TransPerfect DataForce	Active
411	Travel Hub	Active
412	Travellive	Active
413	Travellive Magazine - Hoa & Le Communications	Active
414	TRG International	Active
415	True North School	Active
416	Tư vấn Giáo dục ASCI - ASCI Group	Active
417	Ubisoft	Active
418	UHY Auditing and Consulting	Active
419	UNIQLO	Active
420	UNIS HANOI (United Nations International School of Hanoi)	Active

No.	Partner	Status
421	United Nations Development Programme-UNDP	Active
422	Urban Youth Academy	Active
423	US Embassy	Active
424	VCCI	Active
425	VCCorp	Active
426	VCS Express	Active
427	Vietcetera	Active
428	Vietnam Airlines	Active
429	Vietnam Backpacker Hostels	Active
430	Vietnam Business Forum (VBF)	Active
431	Vietnam Climate Innovation Center	Active
432	Vietnam Education Consultant - VEC	Active
433	Vietnam Education Consultant (VEC)	Active
434	Vietnam Hotel Association	Active
435	Vietnam International Commercial Joint Stock Bank (VIB)	Active
436	Vietnam Maritime Commercial Joint Stock Bank (MSB)	Active
437	Vietnam Startup Insider	Active
438	Vietnamobile	Active
439	Viettonkin	Active
440	VIGroup	Active
441	Vimepharco	Active
442	Vinhomes	Active
443	Vinmec	Active
444	Vinpearl Luxury	Active
445	VIRAC	Active
446	Virtual Internship	Active
447	Vivaland	Active
448	VNAT	Active
449	VNDirect	Active
450	VNG CORPORATION	Active
451	VNGGroup	Active

No.	Partner	Status
452	VNP Group	Active
453	VOCO Center	Active
454	VPBank	Active
455	VPBank Finance	Active
456	VPBank Securities	Active
457	VPS	Active
458	VSHR Pro Academy	Active
459	Wanderlust Tips Magazine	Active
460	WeCreate	Active
461	WeTransform	Active
462	WINDSOFT	Active
463	Wine Agency	Active
464	World Vision	Active
465	Yeah1TV	Active
466	YEN OF LONDON COMPANY LIMITED (NEW WORLD FASHION)	Active
467	ZIM School of English and Test Preparation	Active
468	Zitga Studio	Active
469	CMSO	Active
470	Kowil Fashion - Phu Thai Holdings	Active
471	VOCO	Active
472	AZA Travel,	Active
473	Backstage Event, Turner	Active
474	Cooked	Active
475	Wetransformed.vn	Active
476	Transperfect	Active
477	Oxalis	Active
478	Hai Vuong Group	Active
479	FlowerStore Group; BRG;	Active



## 2.7. Conditions on International partnership

BUV's active engagement in establishing these external domestic and international relationships affords students and staff with many potential benefits. Some of these benefits include demonstrating BUV's commitment to the Bologna expectations for students, focused on international mobility, by granting them the opportunities to pursue further studies (e.g., Bond, Oxford, and Essex), or to take overseas classes for one semester which are then recognised for credit bearing purposes (e.g. Taylor's University). In addition, these agreements facilitate students and faculty members' participation in student and staff exchanges, research collaboration opportunities, and jointly offered training programmes. These partnerships assist BUV in achieving several of BUV's strategic objectives and allow for external input to be considered in our academic programmes. This demonstrates BUV's ability and willingness to provide mutual recognition of qualifications and learning periods that can be completed abroad at other universities.

#	Name of organisation	Type of agreement	Date signed	Scope of engagement
1	<b>University of London (UoL), United Kingdom</b>	Validating higher education institution: Recognised Teaching Centre Agreement	October 2019	<b>Key BUV responsibilities:</b> <ul style="list-style-type: none"> <li>• Marketing and recruitment of students</li> <li>• Providing teaching and academic support to students</li> <li>• Employment, development, and deployment of academic staff.</li> <li>• Partial production of learning materials</li> <li>• Ensuring the learning environment is of a satisfactory quality.</li> </ul>
2	<b>Staffordshire University, United Kingdom</b>	Validating higher education institution: Collaborative Academic Partnership Agreement	January 2018	<b>Key BUV responsibilities:</b> <ul style="list-style-type: none"> <li>• Marketing and recruitment of students</li> <li>• Providing teaching and academic support to students</li> <li>• Employment, development, and deployment of academic staff.</li> <li>• Full production of learning materials</li> <li>• Assessment creation and management</li> <li>• Marking of assessments in line with Staffordshire University's regulations and standards.</li> <li>• Ensuring the learning environment is of a satisfactory quality.</li> </ul>

3	<b>Heilbronn University of Applied Sciences, Germany</b>	Exchange agreement	2019	<p>*The agreement provides the framework for areas of potential cooperation, especially the exchange of students, teaching staff and researchers in order to increase the quality of teaching process and research activities.</p> <p>*The agreeent also provides framework for areas of other potential cooperation of mutual interest by both Institutions.</p>
4	<b>University of Essex, United Kingdom</b>	Minute of Understanding (MOU)	2020	<p>The admission of suitably qualified studies from BUV to relevant degree courses at Essex;</p> <p>* Collaboration on research projects of mutual interest;</p> <p>* The mobility of students and/or members of academic staff as agreed between the Parties and as appropriate to the circumstances of each Party, and;</p> <p>* Such additional activities as may be identified and agreed in writing by the Parties</p>
5	<b>University of Huddersfield, United Kingdom</b>	Minute of Understanding (MOU)	2021	<p>This agreement confirms mutual interests of both Institutions to cooperate in the below areas:</p> <p>* Articulation;</p> <p>* Exchange of teaching staff and researchers;</p> <p>* Joint development of research projects;</p> <p>* Joint organisation of scientific and cultural events;</p> <p>* Exchange of students;</p> <p>* Shared courses and subjects;</p> <p>* Dual degrees...</p>
6	<b>Oxford Brookes University, United Kingdom</b>	Progression agreement	2021	<p>* Progression agreement to offer progression routes for BUV students from : Bachelor in International Hospitality Management and Bachelor in Tourism Management to transfer to OBU's degrees and post-graduate programmes</p>
7	<b>Taylor's University, Malaysia</b>	Exchange agreement	2021	<p>*The agreement confirms mutual interest of both Institutions to cooperate in student mobility in annual basis</p>

8	<b>Australian Catholic University, Australia</b>	Minute of Understanding (MOU)	2021	<p>Scope of cooperation between both Institutions cover but not limited to below areas:</p> <ul style="list-style-type: none"> <li>* Affiliation for the purpose of unilateral or bilateral Study Abroad programmes;</li> <li>* Student/ Staff exchange</li> <li>* Collaborative curriculum development to facilitate the implementation of Student Mobility programmes;</li> <li>* Other forms of academic collaboration including research, development and delivery of joint courses;</li> <li>* Non-academic collaboration activities</li> </ul>
9	<b>Bond University, Australia</b>	Articulation Agreement, MOU	2021	<p>This agreement confirms mutual interests of both Institutions to cooperate in the below areas:</p> <ul style="list-style-type: none"> <li>* Articulation;</li> <li>* Exchange of teaching staff and researchers;</li> <li>* Joint development of research projects;</li> <li>* Joint organisation of scientific and cultural events;</li> <li>* Exchange of students;</li> <li>* Shared courses and subjects;</li> <li>* Dual degrees...</li> </ul>
10	<b>Victoria University of Wellington, New Zealand</b>	Minute of Understanding (MOU)	2021	<p>Both Institutions seek to work together in areas of mutual interest and to identify opportunities:</p> <ul style="list-style-type: none"> <li>(a) for student and staff exchanges;</li> <li>(b) to establish joint programmes;</li> <li>(c) to provide for visits by officials from each party to further collaborative relations;</li> <li>(d) for collaborative teaching;</li> <li>(e) to offer professional advice and support;</li> <li>(f) to identify other areas of potential collaboration;</li> </ul> <p>and to work collaboratively and collegially with each other.</p>
11	<b>Birmingham City University, United Kingdom</b>	Minute of Understanding (MOU)	2021	<p>In furtherance of this purpose the Parties agree to develop the following activities in below collaboration areas :</p> <ul style="list-style-type: none"> <li>* Exchanges of academic and administrative staff and mutual visits to pursue research and to lecture</li> <li>* Exchanges of students and/or study abroad programmes and other enhancements to the student experience</li> </ul>

				<ul style="list-style-type: none"> <li>* Identifying opportunities for conducting collaborative research and development</li> <li>* Identifying opportunities for conducting lectures and seminars and organising symposia and conferences</li> <li>* Exchanges of academic information and materials</li> <li>2.6 Promoting collaboration in fields of mutual interest</li> <li>* Promoting other academic co-operation and collaboration as mutually agreed.</li> </ul>
12	<b>Rukmini Devi Institute of Advanced Studies, India</b>	Minute of Understanding (MOU)	2021	<ul style="list-style-type: none"> <li>* Student/Staff mobility</li> <li>* Student-added value activities such as seminars, lectures, conferences, competitions...ect..</li> <li>* Research collaboration at mutual interest</li> <li>* Faculty-added value activities such as joint seminars, joint international conferences, joint FDPs, ect..</li> <li>* Other forms of cooperation (of mutual interest)</li> </ul>
13	<b>University of Sussex, United Kingdom</b>	Minute of Understanding (MOU)	2022	<p>Collaboration between both Institutions cover the below areas:</p> <ul style="list-style-type: none"> <li>*Academic cooperation;</li> <li>*The facilitation of staff exchanges;</li> <li>*The exchange of information between both teaching faculty;</li> <li>* other activities viewed to be mutually beneficial</li> </ul>
14	<b>University of Stirling, United Kingdom</b>	Minute of Understanding (MOU)	2022	<p>The scope of collaborations included in this Agreement encompasses the following categories:</p> <ul style="list-style-type: none"> <li>* Development of reciprocal international mobility programmes;</li> <li>* Development of articulation arrangements;</li> <li>* Development of transnational education programmes for delivery at BUV;</li> <li>* Joint development of other projects of shared interests.</li> </ul>

15	<b>De Montfort University, United Kingdom</b>	Progression agreement	2022	*The agreement is to confirm progression options for BUV students from Bachelor of International Hospitality Management and Bachelor of Finance and Economics programmes can be transferred to DMU's degrees both at undergraduate and post-graduate levels
16	<b>University of Bristol, United Kingdom</b>	Minute of Understanding (MOU)	2022	<p>BUV and UoB have identified and will further explore the following areas for potential bilateral collaboration and cooperation:</p> <ul style="list-style-type: none"> <li>* Academic collaborations such as articulation, progression in both undergraduate and post-graduate level;</li> <li>* Student mobility: including student exchange (credit-bearing or non-credit bearing), study tours/ International internships in Vietnam;</li> <li>* Promotion of short course offerings at mutual benefit and interest for both Parties;</li> <li>* Student-added value activities such as seminars, lectures, conferences, competitions.</li> <li>* Scholarship offerings on exchange for BUV or UoB students if applying to the other Institutions;</li> </ul> <p>3.6 Research collaboration of mutual interest</p>
17	<b>Bournemouth University, United Kingdom</b>	Letter of Intent	2022	<p>The letter provides a basis on which the Parties may explore potential future collaboration in:</p> <ul style="list-style-type: none"> <li>- Progression programmes;</li> <li>- Joint research projects;</li> <li>- Student mobility;</li> <li>- Non-academic collaboration activities</li> <li>- Shared courses and subjects</li> </ul>
18	<b>Ecole De Savignac, France</b>	Minute of Understanding (MOU)	2022	<ul style="list-style-type: none"> <li>* Academic collaborations such as articulation, dual-degrees in both undergraduate and post-graduate levels;</li> <li>* Student/Staff mobility</li> <li>* Joint design of short-course offerings at mutual benefit and interest for both Parties;</li> <li>* Student-added value activities such as seminars, lecturers, conferences, competitions...ect..</li> </ul>

19	<b>Lyon International Business School, France</b>	Minute of Understanding (MOU)	2022	The exchange agreement confirms mutual interest of both Institutions to collaborate in the area of student & staff exchange on annual basis.
20	<b>Brenda University of Applied Sciences</b>	Minute of Understanding (MOU)	2022	<p>BUV and BUAS have identified and will further explore the following areas for potential bilateral collaboration and cooperation:</p> <ul style="list-style-type: none"> <li>* Academic collaborations such as articulation, dual degrees in both undergraduate and post-graduate level.</li> <li>* Student/Staff mobility: including student exchange (credit-bearing), staff exchange / study tours/ International internships in Vietnam.</li> <li>* Joint research projects at mutual benefit and interest for both Parties.</li> <li>* Student-added value activities such as seminars, lectures, conferences, competitions, etcetera.</li> </ul>
21	<b>Woxsen University, India</b>	Minute of Understanding (MOU)	2022	<p>BUV and WU have identified and will further explore the following areas for potential bilateral collaboration and cooperation:</p> <ul style="list-style-type: none"> <li>* Student/Faculty mobility: including student/faculty exchange, study tours;</li> <li>* Student-added value activities such as seminars, lectures, conferences, etc</li> <li>* Research collaboration projects;</li> <li>* Short-course programme offerings;</li> </ul>
22	<b>Nottingham Trent University, United Kingdom</b>	Minute of Understanding (MOU)	2022	<p>The MOU explores potential collaboration in the following areas:</p> <ul style="list-style-type: none"> <li>* Development of progression routes from courses of BUV to courses leading to awards of NTU;</li> <li>* Exchange of staff and students;</li> <li>* Development of joint research projects; conferences and seminars;</li> <li>* Any other areas which may promote the academic interests of the Parties in research and/or teaching</li> </ul>

### 3. DEVELOPMENT GOALS FOR THE DISCIPLINE

- Pursuant to Circular No. 02/2022/TT-BGDĐT dated 18 January 2022 on conditions for opening training disciplines at master's degree;

- Pursuant to BUV's Policy on discipline opening and programme issuance which was enclosed with the Decision No. 0304/2023/BUV-QD;

The New Programme Committee of the British University Vietnam herewith proposes the Frame Principles to open the Business Administration discipline at the bachelor's level for the 2023/2024 academic year. The details are as follows:

- Expected date to open the discipline: April 2023
- Expected date to start the training programme: September 2023

- Training objectives: The aim of the MBA is to enable students to deal with real world issues of management & leadership within the intellectual and challenging environment of the University. It will enable you to develop key competencies providing the ability to apply contemporary techniques for decision making in complex situations faced by managers & leaders across a wide range of industry & business sectors.

- *Entry requirements:*

There are two pathways for students to enroll on the MBA. Option A, and Option B.

Option A is for students who are not yet fully confident to immediately begin a postgraduate programme studied fully in English. These students will study the first three modules of the MBA in Vietnamese, whilst at the same time, studying English language programmes to help them gain confidence in their English skills before entering the main programme. The entry requirements for students choosing Option A are as follows:

- Hold a bachelor's degree from a recognised Higher Education Institution
- At least 1 year full-time working experience
- IELTS 5.5 (no sub - score less than 5.0 or equivalent)
- Application essay (\*)
- Supporting references from suitable sources
- Admission Interview

(\*) Essay questions to be considered:

- How do you feel an MBA will help your career and why? How has your work experience shaped this belief?
- Discuss the greatest opportunities and threats that are affecting your business sector globally and specifically related to Vietnam.

- Please give an example of when you have demonstrated leadership skills and/or a significant contribution to a team. Specifically highlight what your role was in the situation.
- Looking at your particular skill set which areas do you feel need to be developed to support your career development?
- Describe one occurrence that has exemplified you as an individual.

Option B is for students who are already confident in beginning their postgraduate study in English.

The entry requirements for students choosing Option B are as follows:

- Hold a bachelor's degree from a recognised Higher Education Institution
- At least 1 year full-time working experience
- IELTS 6.5 (no sub - score less than 6.0) or equivalent
- Application essay (\*)
- Supporting references from suitable sources
- Admission Interview

(\*) Essay questions to be considered:

- How do you feel an MBA will help your career and why? How has your work experience shaped this belief?
- Discuss the greatest opportunities and threats that are affecting your business sector globally and specifically related to Vietnam.
- Please give an example of when you have demonstrated leadership skills and/or a significant contribution to a team. Specifically highlight what your role was in the situation.
- Looking at your particular skill set which areas do you feel need to be developed to support your career development?
- Describe one occurrence that has exemplified you as an individual.

After completing the initial programme of study for either Option A or Option B, all students continue to study the remainder of the MBA programme together, in English.

- Students recruitment plan:



We plan to start recruiting students for the Business Administration discipline from the 2023/2024 academic year with a recruitment target of 20 students.

Within the first 03 years, we plan to enroll students through entrance evaluation.

The recruitment targets are as follows:

- o 2023/2024 academic year: 20 students
- o 2024/2025 academic year: 20 students
- o 2025/2026 academic year: 25 students

The training scale in the next 05 to 10 years is expected to reach:

- o By 2028: 35 students
  - o By 2033: 60 students
- Training scale for the discipline in the next 5-10 years: 60 students

## 4. SOLUTIONS AND IMPLEMENTATION ROADMAP

### 4.1. Roadmap for the development of the detailed scheme and the training programmes for the discipline

No.	Tasks	PIC	Timeline
1	Step 1: Vice Chancellor establishes the New Programmes Committee. New Programmes Committee prioritise programme expansion plan.	Legal	
2	Step 2: Vice Chancellor requests Market Research for a designated new programme.	ACA	
3	Step 3: New Programmes Committee assesses research and makes a recommendation.	ACA	
4	Step 4: Vice Chancellor requests all relevant department to form Frame Principal document	Legal	
5	Step 4a: VC directs and organizes the formulation the Frame Principle of opening a program.	Legal	
6	Step 4b: Senate appraises and draw conclusion on the Frame Principle. Senate issues the Minutes of evaluation of the Frame Principle.	ACA	5 April 2023
7	Step 5: Final Frame Principle is sent to Vice-Chancellor's Executive for approval	ACA	6 April 2023
8	Step 6: Final Frame Principle is sent to University Council for approval	Legal	6 April 2023
9	Step 7: Vice Chancellor decides to form Programme Drafting Committee to form academic plan of programme.	Legal	7 April 2023
10	Step 7a: VC issues the decision to set up the Programme Drafting Committee	Legal	7 April 2023
11	Step 7b: Program drafting Committee builds up the new programme	ACA	7 April 2023

No.	Tasks	PIC	Timeline
12	Step 8: Vice Chancellor decides to form External Programme Appraisal Committee to assess the plan and write minutes.	Legal	8 April 2023
13	Step 8a: VC issues the decision to set up the External Programme Appraisal Committee. Member of External Program Appraisal Committee must not be members of Program drafting Committee, follow conditions as stated in article 18 of circular 17/2021/TT-BGDĐT.	Legal	8 April 2023
14	Step 8b: External Program Appraisal Committee appraises the new programme	ACA	13 April 2023
15	Step 8c: Senate endorses the new programme	ACA	20 April 2023
16	Step 9: Based on minute of the External Programme Appraisal Committee and endorsement Senate, Vice Chancellor makes final decision to open new programme.	Legal	20 April 2023
17	Step 9a: VC issues the decision to approve the new programme	Legal	20 April 2023
18	Step 9b: VC directs and organizes the formulation of the Detailed Scheme	Legal	20 April 2023
19	Step 10: Academic School forms Curriculum Design Group to work on Detailed Scheme	ACA	21 April 2023
20	Step 11: Final Detail Scheme is sent to Learning & Teaching Committee for approval	ACA	21 April 2023
21	Step 12: Learning and Teaching Committee submits the final Detail Scheme to Senate for appraisal	ACA	21 April 2023
22	Step 13a: Senate approves the discipline opening detail scheme.	ACA	28 April 2023
23	Step 13b: Based on Senate appraisal, Vice Chancellor signs final approval and announces decision to open new programme/discipline.	Legal	28 April 2023
24	Step 14: Legal department forms statement and documents to submit to MOET for reporting.	Legal	5 May 2023

#### 4.2 Needs and investment plan for facilities, technology, and learning resources

Facilities are frequently reviewed by the Asset Management department to determine whether they meet the needs of all users. The Facilities Maintenance Policy and Procedure Manual summarises the proactive approach taken by the Asset Management department in reviewing and maintaining BUV facilities to ensure that the BUV community can learn, work, or teach in a safe and healthy environment that is fully operational. This approach allows for the development

of action plans to address any facility-related concerns appropriately, and within identified timelines. An example of this is shown in Facilities Action Plan Example.

The Asset Management team work together with the Course Office to carry out space utilisation audits and monitor the conditions of the teaching facilities. These audits are presented to the University Council to **ensure that effective use is being made of the resources that are available at BUV.**

#	Action/Targets	How to measure/ Strategies	Status	% Completed
1	Regular update, amend and develop all operational activities procedures and policies to ensure program delivery quality standard; matching all academic requirements and operating regulations.	Build up the policies and procedures to show up proactive management	On-going	70
2	System for planning, maintenance, evaluation, and upgrading facilities and infrastructure such as teaching and learning facilities, laboratories, equipment and tools to meet training needs.	- Daily check list - Proactive maintenance - Periodic maintenance	On-going	-
3	Bookstore renovation	Working with contractor for the renovation of bookstore area as approved design	Completed	100
4	Protect and enhance BUV's key USP that is the Campus - it must continue to demonstrate the highest quality and professionalism that BUV stands for - 1. Landscape	Weekly review and report to be logged for compliance on quality of campus landscape maintenance	Completed weekly; On-going	100
5	Protect and enhance BUV's key USP that is the Campus - it must continue to demonstrate the highest quality and professionalism that BUV stands for - 2. Customer services	Training on customer service conducted yearly and ideation sessions on how to enhance customer service to be conducted on a monthly basis (report needs to be	Completed weekly; On-going	100

		tabled on the outcome of ideation sessions)		
6	Protect and enhance BUV's key USP that is the Campus - it must continue to demonstrate the highest quality and professionalism that BUV stands for - 3. Cleaning services	Weekly inspection and report to be logged for compliance purpose on cleaning quality including the litter on campus grounds	Completed weekly; On-going	100
7	Protect and enhance BUV's key USP that is the Campus - it must continue to demonstrate the highest quality and professionalism that BUV stands for - 4. Security services	Weekly review and report to be logged for compliance purpose on security for full 6.5 Hectors of campus (no misuse of campus by outside parties e.g. dumping of rubbish, trucks speeding etc.)	Completed weekly; On-going	100
8	Protect and enhance BUV's key USP that is the Campus - it must continue to demonstrate the highest quality and professionalism that BUV stands for - 5. Technical services	Weekly review and report on performance and maintenance for compliance purposes on technical services	Completed weekly; On-going	100
9	Protect and enhance BUV's key USP that is the Campus - it must continue to demonstrate the highest quality and professionalism that BUV stands for - 6. Catering services	Weekly review and report on performance and maintenance for compliance purposes on Catering services	Completed weekly; On-going	100
10	Protect and enhance BUV's key USP that is the Campus - it must continue to demonstrate the highest quality and professionalism that BUV stands for - 7. Internal services	Weekly review and report on performance and maintenance for compliance purposes on internal services	Completed weekly; On-going	100

11	Complete detailed preparation planning across all AM management portfolios to ensure the smooth operation of student cohorts return to campus each semester - "Back to campus" activities.	<ul style="list-style-type: none"> <li>- Securities team check in for student with all requirement as validation list, temperature, commitment... at all gates.</li> <li>- Cleaning clean all classrooms, set up the disinfectant bottle...</li> <li>- Technical team check all M&amp;E system, fix all defect in classroom.</li> <li>- Campus service team supervise ADEN team to make sure every equipment run smoothly, support Medical staff to do the testing for staff and student...</li> </ul>	Completed weekly; On-going	100
12	Working with Evergreen to explore supervised accommodation service for students and develop written report to Vice-Chancellor's Office (VCO)	Working to develop more extra service for accommodation as laundry, cleaning, F&B delivery...	Completed weekly; On-going	100
13	Complete canteen expansion	Complete canteen expansion	In progress	40
14	Ensure preparation for phase 2 construction is completed on time as per Chief Operating Officer (COO)'s instructions	Ensure preparation for phase 2 construction is completed on time as per COO's instructions	In progress	20
15	Repaint facade - indoor	Ensure at all times there is consistency in the color and texture of surface, especially during maintenance. Ideal timing to start will be during Christmas	Not yet started	0

		Holiday, as there will be no classes.		
16	Office expansion: develop strategy and written report for the immediate and ongoing office expansion needs	Working with suppliers to expand workspace for Marketing & Communication's Team.	Completed	100

### 4.3 Needs and plan for the lecturing staff recruitment and training to meet the conditions for opening the training

BUV offers 100% international faculty. We will arrange 5 full-time lecturers with Doctor of Philosophy (PhD) degree. All lecturers will have to be in the same or close to the Computer Science field, and who must go through a careful interview and selection basing on their qualifications and relevant teaching experience. One Doctor of Philosophy (PhD) will take charge and administer the training curriculum and is held accountable for training quality.

BUV aims to recruit faculty with cross-cultural experiences from a diverse range of countries that have recognised educational systems, and who are able to provide students with a quality of education that meets or exceeds the standards set for teaching staff within BUV. To enable this, we have clear recruitment policies and processes, which are regularly reviewed considering evolving organisational and industry situations and are managed by the Human Resources Department.

The BUV academic leadership team is responsible for ensuring compliance with all teaching standards, as well as assessment modes and techniques. As BUV grows as an institution, the brand

and reputational elements are a key driver for the next stage, so research as well as teaching will be prioritised in recruitment.

BUV observes the laws of the Vietnamese government and complies with all applicable laws and regulations of MOET and other Ministries. However, recruiting international teaching faculty within these constraints can be a challenge, especially regarding laws related to the number of years of experience that are legally required before a work permit for a foreign employee can be issued. The BUV Recruitment Policy is used to support BUV's recruitment and appointment of faculty members and support staff.

To enhance the attractiveness of academic and teaching staff positions for candidates both in the region, and internationally BUV have adjusted and formalised the range of positions available within the university to match the commonwealth system of A-E bands for academic levels as shown in BUV Academic & Teaching Classifications and Standards of faculty. These have been developed alongside reconfigured salary bands which were benchmarked across a range of commonwealth institutions to ensure competitiveness on a regional and international scale.

Once faculty are selected, and begin employment at BUV, they have an onboarding process led by HR, are given key training by the Dean and Head Academic Quality, and then begin their teaching role. Following feedback received during the survey of assessment policies and processes, several of the issues raised by faculty seemed to have their basis in the time between employment and the commencement of teaching activities.

To ensure the quality of the delivery of our programmes by faculty, BUV has a system in place to monitor and assess the quality of teaching, and therefore support the overall student experience. This system integrates student feedback on taught modules, peer observation groups, and formal teaching evaluations.

BUV supports all faculty to engage in Continuous Professional Development (CPD), whether through formal education, development and accreditation of their teaching practices, or skills development. All faculty are provided with an annual hour's allocation for CPD in their overall

workload calculations and this can be used in a variety of ways based on identified training needs by either faculty or line managers.

Faculty members are encouraged and supported to gain accreditation for their teaching practices through obtaining Fellowships and Senior Fellowships with Advance HE. This is carried out in conjunction with SU. For example, five BUV faculty members have recently gained accreditation through Advance HE as either Fellows or Senior Fellows through our collaborative partnership with SU. A senior faculty member is an SU trained mentor for this scheme and is currently guiding several other faculty members through this process.

The above elements demonstrate BUV's commitment to supporting teaching staff in their professional development, but we also wish to be able to support faculty to continue to grow in their academic careers. Although several members of faculty have been promoted within BUV, the system for how this is carried out was previously not formalized.

#### 4.4 Plan for the assessment and appraisal of the training programme





Following our success in securing the internationally recognised QS 5-star quality rating in 2022, BUV has been quality reviewed during 17- 19 October 2022 before being granted with university-wide accreditation from the Higher Education Quality Assurance Agency (QAA) for period 12/12/2022 - 11/12/2017.

The British University Vietnam (BUV) has become the first university in Vietnam to be awarded global quality accreditation by QAA after successfully completing its International Quality Review (IQR). IQR is a rigorous process which benchmarks global higher education institutions against international quality assurance standards set out in Part 1 of the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG).

The review was performed between 17 and 19 October 2022 by three independent reviewers appointed by QAA who found that BUV had met all of the 10 ESG Standards and Guidelines. As part of the review, QAA identified the following areas of good practice at BUV:

- Significant employer engagement and connections with civic society is actively facilitated by all internal stakeholders, including students. It is fundamental to enabling BUV to deliver its mission.
- Opportunities and support for students in preparing for, identifying, and participating in work placements and internships, as formal components of programmes and as extracurricular activities, greatly enhances job readiness and employability.
- Certified and comprehensive Personal Development Programme of activities and modules that enhance students' broader knowledge and personal development, help to define graduate attributes.

BUV has now set new records in Vietnam and the international education sector including:

- The first and only university in Vietnam awarded QAA university-wide accreditation.
- Being one of only 22 universities outside the UK to achieve QAA university-wide accreditation.
- The first university the in ASEAN region to be granted QAA university-wide accreditation.

Sharing his appraisal and congratulations with BUV, Mr. Chris Bland, QAA's Head of Accreditation and Consultancy, said: 'It is with great pleasure we announce that the British

University Vietnam has successfully completed our International Quality Review. It is to their credit that they become the first university in Vietnam to achieve this recognition. I hope this is the beginning of a deep relationship with BUV and that we can work together on other activities.'

BUV's IQR accreditation will be valid for five years and subject to a satisfactory mid-cycle review in 2025.

In addition, training programs will be reviewed, assessed, and revised regularly to make timely amendments and improvements. We will ensure that the assessment and appraisal of the training programme align with both the regulations of the Ministry of Education (as per Circular 17/2021/TT-BGDĐT) and the BUV Academic Monitoring Policy and Procedure (accredited by QAA on 08 February 2023). The academic monitoring process used in BUV includes Module Monitoring Reports (MMRs), Programme Monitoring Reports (PMRs), and Annual Monitoring Reports (AMRs), linked together with School level Academic Action Plans (AAPs). This process operates in addition to the usual practices regarding the rapid resolution of any identified operational teaching matters so that the student experience is not impacted.

## **5. PLANS FOR PREVENTION AND HANDLING OF RISKS**

### **5.1 Analysis, explanations, and forecasts of potential risks and preventive and remedial measures**

- Potential Risk 1: There may be some elements of the program (regarding the structure and/ or content) that are not suitable with the needs of society because this is the first time we implement and recruit students for the training programme.
  - Preventive measures: before developing the training programme, we must consider the results of surveys of enterprises or organisations that employ labour, and conduct investigations into trends in the industry and job opportunities to know the demands for labor. From there, we must prepare facilities and teaching staff, and develop training programmes to ensure the quality of appropriate human resources. We must also update and modify the training program periodically to perfect the training program over time.

- Potential Risk 2: Information about the new discipline may not be widely disseminated to parents and students, so the target students do not consider registering, hence falling short of the recruitment target.
  - Preventive measures: actively promote the discipline and the recruitment scheme, and invest in human resources and finance to ensure information about the discipline reach the target audience. Examples of the information channels include the press, BUV's Fan Page, printed brochures, and direct consultation. It is necessary to carefully invest in the content of lectures, facilities, and human resources to inspire and interest current students so that they will convey information about the discipline to prospective students and others.
- Potential Risk 3: Possible challenges in secure jobs for students upon graduation.
  - Preventive measures: we develop high-quality training programmes and invest in qualified lecturers and appropriate modern facilities to ensure that our graduates meet the demands of prospective employers.

## **5.2 Analysis report on the risk handling solutions in case the training institution is suspended from running the training discipline**

- Potential risks: BUV will be suspended from running the discipline if one of the conditions for opening the discipline is not satisfied as prescribed in Circular 02/2022/TT-BGDĐT, or failing to meet the recruitment target due to the challenges as described above.
- Preventive measures: the faculty and relevant departments must ensure the fulfillment of all provisions for opening a discipline and the compliance with the procedures as per Circular 02/2022/TT-BGDĐT.
- Corrective measures: The faculty in charge and relevant departments within BUV must discuss to identify the possible misalignments or challenges in recruiting students. Next, the faculty and relevant department must improve all aspects and thoroughly solve the causes of the suspension and report to the Ministry of Education and Training to ask for permission to continue enrolling students in accordance with current regulations.

## RECIPIENTS

- Senior Leadership Team
- Learning and Teaching Committee
- Vice Chancellor Executive
- Senate
- Archived

## SENDER



---

PROF. DR. RAYMOND DANIEL GORDON  
**VICE CHANCELLOR & PRESIDENT**

# **APPENDIX IV**

05 April 2023

## PROGRAMME CONTENT

**Discipline Title: Business Administration**

**Level: Master**

**Code: 8340101**

**Type: Part-time**

1. OBJECTIVES OF TRAINING PROGRAMME.....	2
1.1. OVERALL OBJECTIVES.....	2
1.2. SPECIFIC OBJECTIVES .....	2
2. EXPECTED LEARNING OUTCOMES OF THE PROGRAMME.....	2
2.1. KNOWLEDGE .....	2
2.2. SKILLS.....	3
2.3. AUTONOMY AND RESPONSIBILITIES.....	3
2.4. LEARNERS' CAREER PROSPECTS AFTER GRADUATION .....	3
2.5. LEARNER'S ABILITY TO LEARN AND DEVELOP AFTER GRADUATION .....	4
3. ADMISSION REQUIREMENTS.....	4
4. ACADEMIC LOAD .....	6
5. STRUCTURE AND CONTENT OF TRAINING PROGRAMS .....	6
6. TEACHING METHODS AND ACADEMIC PERFORMANCE ASSESSMENT .....	16
7. LECTURERS AND SUPPORT PERSONNEL.....	16
8. FACILITIES, TECHNOLOGY AND EDUCATIONAL RESOURCES.....	20
9. EVIDENCE ATTACHED TO THE PROGRAMME CONTENT .....	21

## 1. OBJECTIVES OF TRAINING PROGRAMME

### 1.1. OVERALL OBJECTIVES

The aim of the MBA is to enable students to deal with real world issues of management & leadership within the intellectual and challenging environment of the University. It will enable you to develop key competencies providing the ability to apply contemporary techniques for decision making in complex situations faced by managers & leaders across a wide range of industry & business sectors.

### 1.2. SPECIFIC OBJECTIVES

The following MBA programme aims seek to establish a solid basis for career advancement or for those seeking new employment opportunities:

- Provide an advanced course of study in management & leadership within rapidly changing business environments where teaching seeks to explore contemporary approaches to business practice.
- Develop defined management & leadership competencies in high capability individuals who can apply their knowledge to address contemporary business challenges.
- Based on problem, practice learning, develop an understanding of critical evaluation methodologies appropriate to address contemporary challenges in business.
- Develop an overall capacity for independent, critical and creative thinking.
- Develop critical skills to assess & evaluate academic literature and other forms of research output to inform business practice in the context of management & leadership.
- Prepare you for career advancement or new employment opportunities or continued employment with a diverse range of key & clearly defined management & leadership competencies.

## 2. EXPECTED LEARNING OUTCOMES OF THE PROGRAMME

### 2.1. KNOWLEDGE

#### **Knowledge & Understanding**

Demonstrate a systematic awareness, understanding and knowledge of contemporary management and leadership issues in both a local and global context.

#### **Learning**

Demonstrate the ability to learn and to take responsibility for continuing career contextualise, analyse and learn from experience or simulated environments taking both local and global perspective on contemporary developments and research in management and leadership.

## 2.2. SKILLS

### **Enquiry**

Devise and apply valid problem/practice-based evaluation and investigative techniques to interpret complex business challenges and propose solutions. Demonstrate understanding of selected investigative techniques within contemporary business paradigms.

### **Analysis**

Demonstrate a conceptual understanding and critical awareness of contemporary developments in management and leadership. Evaluate the rigour and validity of evaluation and relevance to contemporary issues in management and leadership.

### **Communication**

Articulate complex business information, situations and scenarios based on critical awareness and knowledge, adapting to different audiences, circumstances and feedback using a variety of communication tools and approaches.

## 2.3. AUTONOMY AND RESPONSIBILITIES

### **Problem Solving**

Generate innovative and enterprising approaches and solutions to management and leadership challenges which inform decision making in effective business risk management.

### **Application**

Demonstrate intellectual and entrepreneurial skills in the problem/practice-based application of management and leadership, together with a practical understanding of how established management and leadership techniques are applied in contemporary business applications.

### **Reflection**

Reflect on and demonstrate development of the underpinning management and leadership competencies to enhance employability and/or career advancement in positions of management and leadership.

## 2.4. LEARNERS' CAREER PROSPECTS AFTER GRADUATION

The MBA offered by BUV is designed to develop you into business leaders of the future. Not only does it hone the critical skills you need, but it also gives your career plans the direction and momentum to get where you want to be. We help you succeed in your career by preparing you to enter blue-chip businesses at an advanced level or equipping them with the knowledge they need to start their own successful business.

Our MBA graduates are well prepared with the ability to solve complex business problems, adapt to changes and manage diverse workforces.



- **Increase your edge:** Our MBA provides you with the skills, real-life experience and industry acknowledged qualification you will need to stand out from the crowd in a competitive world.
- **Career-focused personal tutors:** Helps you channel your new-found skills and experience, through one-to-one support, into a complete employability package, support you to develop an outstanding CV, extensive interview training and career planning skills.
- **360-degree perspective on business:** Our MBA focus is on providing our students a 360-degree perspective on business and operations. The target for an MBA student is to achieve managerial positions, having core knowledge on Finance, Marketing and Risk will provide our students with sufficient knowledge to embrace the business in its full dimension.
- **Networking:** Our MBA allows you to build contacts outside your own alumni group, and benefit from the expertise of high-quality industry speakers, respected faculty and staff, and – most importantly – potential employers.
- **Corporate partnerships:** Our national and regional renowned partners play a crucial role in framing our MBA strategy, ensuring a real-world focus to our activity, as well as establishing a formal link between our students and the leaders of industry.

## 2.5. LEARNER'S ABILITY TO LEARN AND DEVELOP AFTER GRADUATION

The programme brings together global business knowledge. Course participants exchange and learn from one another as well as from the faculty, sharing valuable insights from their part of the world. We focus on personal development, supporting participants in achieving their own plans for the future. Our approach emphasises proactive studying, utilising personal working experience as a foundation for building new knowledge. Rather than opt for traditional, passive learning methods, our MBA is a tour de force in active learning and high-level problem solving.

MBA graduates will be well prepared for high level management roles, with the ability to solve problems, apply theory and demonstrate a unique and deep understanding of management skills and leadership. The detailed syllabus has been fully developed to ensure the objectives of the program and the output standards, to ensure the organisation of the training.

## 3. ENTRY REQUIREMENTS

### 3.1. ACADEMIC REQUIREMENTS

There are two pathways for students to enroll on the MBA. Option A, and Option B. Option A is for students who are not yet fully confident to immediately begin a postgraduate programme studied fully in English. These students will study the first three modules of the MBA in Vietnamese, whilst at the same time, studying English language programmes to help them gain confidence in their English skills before entering the main programme. The entry requirements for students choosing Option A are as follows:

- Hold a bachelor's degree from a recognised Higher Education Institution

- At least 1 year full-time working experience
- IELTS 5.5 (no sub - score less than 5.0 or equivalent)
- Application essay (\*)
- Supporting references from suitable sources
- Admission Interview

(\*) Essay questions to be considered:

- How do you feel an MBA will help your career and why? How has your work experience shaped this belief?
- Discuss the greatest opportunities and threats that are affecting your business sector globally and specifically related to Vietnam.
- Please give an example of when you have demonstrated leadership skills and/or a significant contribution to a team. Specifically highlight what your role was in the situation.
- Looking at your particular skill set which areas do you feel need to be developed to support your career development?
- Describe one occurrence that has exemplified you as an individual.

Option B is for students who are already confident in beginning their postgraduate study in English.

The entry requirements for students choosing Option B are as follows:

- Hold a bachelor's degree from a recognised Higher Education Institution
- At least 1 year full-time working experience
- IELTS 6.5 (no sub - score less than 6.0) or equivalent
- Application essay (\*)
- Supporting references from suitable sources
- Admission Interview

(\*) Essay questions to be considered:

- How do you feel an MBA will help your career and why? How has your work experience shaped this belief?
- Discuss the greatest opportunities and threats that are affecting your business sector globally and specifically related to Vietnam.

- Please give an example of when you have demonstrated leadership skills and/or a significant contribution to a team. Specifically highlight what your role was in the situation.
- Looking at your particular skill set which areas do you feel need to be developed to support your career development?
- Describe one occurrence that has exemplified you as an individual.

After completing the initial programme of study for either Option A or Option B, all students continue to study the remainder of the MBA programme together, in English.

### 3.2. ENGLISH LANGUAGE REQUIREMENTS

Option A: IELTS 5.5 (no sub – score less than 5.0 or equivalent)

Option B: IELTS 6.5 (no sub – score less than 6.0) or equivalent

### 4. ACADEMIC LOAD

BUV Master of Business Administration is a course that has a modular structure and each module has a credit rating with a total of 60 credits. The course is part-time and 18-months long. We will also integrate additional activities throughout our course, including regular workshops, company visits, and guest lectures on campus in order that students benefit from outside viewpoints and perspectives. When students graduate, they will have developed a deep level of knowledge and accompanying practical skills to find employment and achieve in the working world of the business administration discipline, or to undertake further study at a doctorate level.

### 5. STRUCTURE AND CONTENT OF TRAINING PROGRAMMES

**Dual Stream Entry Programme: Students may either take Option A or Option B.**

**Option A (All Academic courses taught in Vietnamese)**

<b>Academic Programme</b>	Business Thinking 4 Credits	Cross Cultural and International HRM 4 Credits	Project Management 4 Credits	NA
<b>English Programme</b>	English: Writing	English: Reading	English: Speaking	English: Listening

All English modules are compulsory but non-credit bearing for students taking Option A.

### Option B (All Academic courses taught in English)

<b>Academic Programme</b>	Business Thinking 4 Credits	Cross Cultural and International HRM 4 Credits	Project Management 4 Credits

Following the completion of the Option A or Option B stream, the remainder of the course is studied in English by all students. Students will study the following modules sequentially on a month by month basis:

Module	Number of credits
Managing People & Organisations	5
Leadership & Strategic Management	5
Financial Concepts & Practice	5
Risk Management	5
Strategic Marketing Management	5
Performing in Organisations	5
International Business	5
Marketing Innovations	5
Project	8
Optional Module	Number of credits
Decision Analytics	5

No.	Module	Aim at the end of the course (summary)	Module code	Total credits/ hours	Note
1.	General compulsory courses				
1	English Listening	This course is designed to improve students' English listening skills for the academic environment. Students will develop their abilities listening for	BUVBS101	86 hours 0 Credits	For students taking

		<p>context by understanding what people are saying in different situations. They will also develop the ability to listen for information.</p> <p>Students will learn specific techniques for following lectures and effective note-taking.</p>			Option A only
2	English Reading	<p>Students will develop necessary university level reading skills by developing vocabulary, literal and inferential comprehension, textbook reading techniques, and by fostering reading for pleasure. Students may become more efficient readers by learning to vary rate and comprehension depending upon purpose for reading.</p>	BUVBS102	86 hours 0 Credits	For students taking Option A only
3	English Speaking	<p>This course develops students' speaking skills in order to help them succeed in an academic English-speaking environment, including lecturers, tutorials, internships and seminars. Students are guided in practical ways to learn how to exchange personal ideas and give presentations for both formal and informal settings.</p>	BUVBS104	86 hours 0 Credits	For students taking Option A only
4	English Writing	<p>This course develops the academic writing abilities of students in order to succeed in university. Students will be guided to mastery of paragraph construction, sentence construction, grammar, punctuation and correct spelling. Students will also develop essay writing abilities using various essay writing forms including descriptive, comparative, argumentative and expository essays. All of these skills are required components of a degree.</p>	BUVBS103	86 hours 0 Credits	For students taking Option A only
2.	Specialised courses				
2.1.	<i>Foundation knowledge of the programme</i>				

1	Business Thinking	Students will also be required to consider what psychological techniques are most appropriate and how they should best be applied to a range of business scenarios (e.g. enhancing confidence, helping a team deal with pressure).	MBAF01	200 Hours 4 Credits	
2	Cross Cultural and International HRM	<p>Understanding the progress and implication of the internationalization of HRM</p> <p>Understand and critically evaluating the key debates of contemporary international talent management and development</p> <p>Evaluating the impact of intercultural competencies on successful cross cultural management development</p> <p>Recognising the potential contribution of international and comparative HRM to enhancing organisational competitive advantage</p> <p>The module integrated practical element, as guest speakers from industry, in the area of Human Resource Management, will share their insights and real-life situations. The interactions will be used to integrate both the theoretical knowledge, but also to direct the assignment to a student-centred, problem-solving application of knowledge.</p>	MBAF02	200 Hours 4 Credits	
3	Project Management	<p>The module covers the following areas:</p> <ol style="list-style-type: none"> <li>1. The role that projects play in an organisational context.</li> <li>2. Project evaluation techniques.</li> <li>3. Project Lifecycle concepts.</li> <li>4. The role of the project manager.</li> <li>5. Project management methodologies.</li> <li>6. People processes.</li> <li>7. A critical awareness of project</li> </ol>	MBAF03	200 Hours 4 Credits	

		<p>planning (including, but not limited to, developing a work breakdown structure, scheduling, costs and benefits, stakeholder management and risk management).</p> <p>8. Project monitoring control.</p> <p>9. Effective project closure.</p>			
2.2.	<i>Knowledge of the programme</i>				
4	Managing People & Organisations	<ul style="list-style-type: none"> <li>• Historical developments in managerial approaches to the coordination and performance of the workforce.</li> <li>• The influence of the external and global business environment and the implications for the management of people.</li> <li>• The influence of the internal organisational context including organisation design, job design, the nature of the business, nature of the workforce and general workplace culture.</li> <li>• The contribution of leadership, including qualities such as emotional intelligence for effective people management.</li> <li>• The 'dark side' of organisations including issues of power, authority and political tactics, dealing with bullying, discrimination and victimisation.</li> <li>• The nature of the 'human resource' and the challenges it presents to managers, including the problems of motivation, engagement and the management of conflict in the workplace.</li> <li>• The pursuit of creativity and knowledge sharing, including</li> </ul>	HRMG70054	250 Hours 5 Credits	

		the importance of facilitating employee voice, participation and involvement practices.			
5	Leadership & Strategic Management	<p>Learning</p> <ul style="list-style-type: none"> <li>• Conceptual thinking and evaluation of the subject area. Challenging assumptions.</li> <li>• Characterising contemporary strategic challenges, assessment &amp; evaluation.</li> </ul> <p>Practice</p> <ul style="list-style-type: none"> <li>• Identifying &amp; developing individual strategic &amp; organisational agility competency in management &amp; leadership roles.</li> </ul> <p>Evaluating the implications through analysis of problem/practice-based evaluation of case examples.</p>	STRA701 84	250 Hours 5 Credits	
6	Financial Concepts & Practice	<p>On completion of this module, students will be able to:</p> <p>Understand &amp; appreciate the regulatory framework and the conceptual framework governed by the International Financial Reporting Standards (IFRS) Foundation.</p> <p>Apply knowledge on issues impacting the recognition and measurement of financial assets and liabilities.</p> <p>Evaluate key financial statements of a wide range of business types (public, private, not for profit, various size and structure) and be aware of current problems and/or new insights in financial and non-financial concepts and practices.</p> <p>Reflect on and demonstrate development of associated underpinning strategic agility and drive for results competencies to enhance employability and/or career</p>	STRA701 84	250 Hours 5 Credits	



		advancement in positions of management & leadership.			
7	Risk Management	<p>Defining risk and uncertainty and gaining an appreciation for the random nature of business events from a broadly multi-disciplinary approach such as economics, finance and accounting.</p> <p>Evaluations of contemporary risk management:</p> <ul style="list-style-type: none"> <li>• The purpose of insurance</li> <li>• The purpose of hedging</li> <li>• The purpose of forecasting</li> </ul> <p>The dynamic nature of dealing with the future will be central to the analytical nature of this module including how to incorporate these aspects in to business decisions such investment, borrowing and lending.</p>	ECONO70143	250 Hours 5 Credits	
8	Strategic Marketing Management	<ul style="list-style-type: none"> <li>• The relationship between Corporate strategy and Strategic Market Management</li> <li>• Strategic Analysis: External and internal audits including scenario planning.</li> <li>• Strategy formulation: levels of marketing strategy, creating advantage (generic strategies), Market-led strategic change and achieving a market-orientation</li> <li>• Brand strategy</li> <li>• Segmentation, target marketing and positioning</li> <li>• Impact of digital marketing.</li> </ul> <p>Design of an appropriate contemporary marketing mix i.e. 8 P's</p> <ul style="list-style-type: none"> <li>• Implementation issues, including: leadership and planning, measuring market performance</li> </ul>	MKTG70307	250 Hours 5 Credits	

		Evaluating emerging themes such as sustainability/CSR, digital and social media marketing; value co-creation within marketing; governance and risk.			
9	Performing in Organisations	<p>Exploring development of organisational agility via enhancement of personal performance and well-being along with the performance and well-being of the wider team.</p> <p>Explores a range of concepts including:</p> <ul style="list-style-type: none"> <li>• How to understand, manage, and respond positively to stress.</li> <li>• How we think and view demands helps an individual &amp; team to perform more effectively.</li> <li>• The social identity approach to leadership: considering 3 stages (Reflection, Representation, Realisation)</li> </ul> <p>Considers how individuals time (e.g., when should cognitively demanding tasks be completed), and habits (e.g., sleep, email activity) and that of the organisation can be structured most effectively to enhance performance and well-being.</p>	SPOR709 21	250 Hours 5 Credits	
10	International Business	<p>Defining patterns &amp; dynamics of international business and hence global economy</p> <p>Evaluations of contemporary patterns of the global economy:</p> <ul style="list-style-type: none"> <li>• The role of the TRIAD</li> <li>• Impact of emerging economies on TRIAD dynamics</li> <li>• Implications of emerging economies on the global economy</li> </ul>	IBUS7000 1	250 Hours 5 Credits	

		<p>Future dynamics of international business</p> <ul style="list-style-type: none"> <li>• Globalisation</li> <li>• Factors likely to impact patterns of economic growth</li> <li>• Implications for emerging economies and future growth of the global economy</li> </ul>			
11	Marketing Innovations	<p>The module will focus on the marketing management of innovative new products within the context of small entrepreneurial firms and large established global companies. The module will also explore the challenges faced by marketers, entrepreneurs and consultants in bringing an innovative product to the market.</p> <p>The module will also examine the drivers of market adoption and evaluate marketing strategies for successful launch of innovative new products.</p> <p>The module integrated practical element, as guest speakers from industry, in the area of Marketing, will share their insights and real-life situations. The interactions will be used to integrate both the theoretical knowledge, but also to direct the assignment to a student-centred, problem-solving application of knowledge</p>	MKTG70 224	250 Hours 5 Credits	
12	Decision Analytics	<p>This module looks at Machine Learning Algorithms, Data Mining and Big Data Analytics in the context of decision making.</p> <p>The content includes:</p> <ul style="list-style-type: none"> <li>• The nature of Knowledge Discovery, and the role and contribution of Machine Learning, Data Mining, Organisational</li> </ul>	MBAS01	250 Hours 5 Credits	Optional

		<p>Decision Making and Data Science.</p> <ul style="list-style-type: none"> <li>• Data Quality and ethics in machine learning and Big Data Analytics</li> <li>• The nature of Big Data and Big Data Analytics and the selection of analysis strategies</li> <li>• Professional issues and obligations in relation to data analysis</li> <li>• Machine Learning and Data Mining algorithms using the Weka environment or optionally the R statistical software package, including: <ul style="list-style-type: none"> <li>○ Classification</li> <li>○ Clustering</li> <li>○ Association Rules</li> </ul> </li> <li>• Visualisation and communication of the results of analysis</li> </ul>			
2.3					
13	Project	<p>The final Project study phase will commence with a series of 2x3 hours/week intensive seminars over an initial 6 week period (36 hours total) on problem/practice based approaches to complex case study evaluation &amp; research methodology. The aim is to prepare fully all students for this final independent &amp; autonomous phase of the MBA study. The outcome of this first phase will be a final Project proposal.</p> <p>Definition and preparation of a problem/practice based Project proposal to be assessed by appropriate 2 x academic staff.</p> <p>An individual presentation of the proposal against established benchmark criteria to a panel of 3academic staff for critical evaluation.</p>	STRA701 72	400 Hours 8 Credits	

		<p>Submission of a successful Project proposal is followed by a final Project study on an approved topic. This must incorporate:</p> <ul style="list-style-type: none"> <li>• Critical evaluation underpinned by a range of relevant &amp; contemporary theories &amp; frameworks leading to reasoned conclusions which address the final Project benchmark criteria.</li> <li>• Reflect critically on the underpinning management &amp; leadership competencies as they relate to the Project topic.</li> </ul> <p>In the event an appropriate Project topic is not identified/offered by the student, an approved Project topic/subject area will be provided by nominated academic staff.</p>			
--	--	--	--	--	--

## 6. TEACHING METHODS AND ACADEMIC PERFORMANCE ASSESSMENT

### 6.1 Learning & Teaching methodologies

#### **Problem Practice Based Learning (PPBL)**

The underpinning approach and hence philosophy throughout the MBA is Problem Practice Based Learning (PPBL).

The aim of the MBA is to enable students to deal with real world issues within an intellectual and challenging environment in this dynamic area of management and leadership. It will enable you to develop key competencies providing the ability to apply contemporary techniques for decision making in complex situations faced by managers and leaders across a wide range of industry and business sectors.

The principal approach to learning is centred on Problem Practice Based Learning (PPBL). All MBA students will work collaboratively with each other and with teaching staff tackling real world or authentic problems allowing development of skills and hence application as management and leadership competencies. Focus on PPBL will lead students to be capable independent learners, who understand the key issues relevant to business and their respective professions.

MBA teaching staff will utilise their wide experiences to create valid and challenging learning experiences throughout all MBA teaching and learning. MBA students come from a wide range of backgrounds and hence possess a wide range of skills and competencies plus expectations at

the start of their study. The aim is to work in partnership with MBA students to ensure all students are continuously challenged whilst being provided with the required support to enable success.

### **Learning to Learn**

All our students will engage in 'learning to learn' and become increasingly reflective learners through adoption of the PPBL philosophy and hence development of key management and leadership competencies.

Employers will recognise that our students are better equipped to enter the world of work, or will make a greater contribution to their current roles.

Learning activities are tailored to this approach by engaging with authentic and challenging real problems, allowing you to evolve understanding, and analytical skills; hence facilitating development of the 5x key management and leadership competencies.

The focus will therefore be on 'active' learning. Active learning is centred on communication, discussion which replaces more traditional teacher led classroom engagement. Class sessions will therefore be an opportunity for teaching staff to demonstrate their expertise and enthusiasm of the subject and hence facilitate your learning most effectively.

Many approaches to PPBL will be innovative and novel - pushing the boundaries of learning and knowledge in the MBA subject areas. MBA class sessions aim to be dynamic where participants are valued contributors to constructive, collaborative and technology-based learning. The PPBL philosophy aims to set in context the latest theories, models and frameworks throughout all modules so participants can see where to apply their new skills as competencies in management and leadership roles.

The methods of teaching and learning used will vary according to the nature of the subject matter but will have a wide diversity from formal lectures to more student centred activities including tutorials, seminars, case studies, management simulation/exercises, group work, workshops, project work, role play plus virtual learning environments in addition to independent study and desk based/empirical research activity. In all classes, much emphasis will be placed on active, experiential learning which encourages preparatory work for full class participation. Come prepared to both learn and participate.

Directed independent and work-based study will also be utilised to support and build on knowledge, skills and competencies to provide a fuller understanding and context to each module. Both personal and module tutors will be available to provide 1:1 support students where it is required.

Students must meet the overall university requirements in order to graduate.

## Teaching quality

The quality of teaching at BUV is closely monitored to ensure any problems arising are swiftly dealt with. In order to ensure quality teaching standards, BUV carries out the following activities:

- Formal and informal student feedback to ensure that the student voice is taken into account through:
  - Staff-Student Liaison meetings where any broad concerns that students have about BUV is discussed (see Student Feedback below)
  - End of module final feedback
- Teaching assessments conducted by the Staffordshire University Partnerships team: Our teaching quality is also monitored by Staffordshire University during regular visits by our programme Link Tutors. These visits allow our partner to observe multiple teaching sessions and gain an understanding of any areas of concern, both on an individual and overall basis.
- Regular faculty performance reviews are carried out including reviews of concerns raised during formal student feedback. All student feedback forms part of individual faculty members' Key Performance Indicators and regular discussions are held between faculty and their line managers to ensure standards are maintained.
- Faculty training on the standards of teaching, assessment and marking is regularly performed within BUV to ensure a common understanding of quality standards. Additional training is provided on an ad-hoc basis when requested by individuals or when standards are not being met.

## Student Feedback

A comprehensive system of feedback is used to listen, understand and act upon the student voice. At the mid-point of each set of two modules, a Student Staff Liaison Committee meeting is held with two elected student representatives present from each student cohort. Student representatives collect and summarise student feedback from their cohort which is aired and addressed in the SSLC meeting chaired by the Chief Academic Officer, with Deputy CAO, Programme Leaders, Head of Academic Services and Student Experience Manager present. At the end of each module more specific and comprehensive feedback is taken and this is analysed by the Academic Management team, fed into the Module Monitoring Report as discussed above and, where beneficial, discussed with individual faculty with the objective of professional development.

## Improving Compliance

In order to improve the oversight and accountability of key decisions made in the university, BUV has a University Senate committee which meets four times per year, as well as sub-committees which meet more frequently and as required. This additional structure of governance acts as an independent check and balance on strategic academic decisions being made. BUV also has an academic management position of Head of Quality and Academic Development whose role is to ensure that quality is being maintained and enhanced across all programmes offered at the university. To further enhance our quality and compliance in 2019, we have created a new role of

Academic Compliance Manager/Officer to ensure that BUV is compliant to all requirements of both MOET and our external partners as well as the QAA.

## **6.2 Assessment method**

The modules on all programmes are assessed in a variety of ways and many of them by more than one method. The exact mixture of different methods depends on the nature of the module. The assessment methods may include class tests, essay assignments, projects, presentations and examinations.

### **Internal Quality**

#### **Assessment creation and marking**

We have a rigorous system in place to ensure that assessments are created which are free from error, are suitable for the level that the student is studying at and which accurately assess the learning outcomes of the modules at the correct level. For all Staffordshire University MBA modules within BUV, the module leader creates the assessment and an internal moderator checks it for subject level accuracy. The programme leader then evaluates the assessments against the overall requirements of the programme, and the assessment is approved to be sent for further checks by Staffordshire University. In cases where there are new modules being delivered, or new faculty members are delivering the module, the Head of Quality performs one final check of the assessment before it is sent to Staffordshire.

Staffordshire University lecturers then further check the assessment against their own guidelines, ensuring the level is identical as for those studying at Staffordshire University. Once this has been approved by Staffordshire University External Examiner, this is approved for release to students at BUV.

A similar process is followed for the marking of assessments, with the module leader carrying out the grading, the moderator confirming this, and the programme leader or the Head of Quality carrying out a final quality check to ensure compliance with our standards. There are also multiple checks carried out by the BUV Examination office to ensure compliance with marking procedures, and accuracy of grade inputted to computer systems. All non-quantitative assignments are checked for plagiarism using the Turnitin software package, and BUV has introduced a system of checking for the use of ghost-writers by maintaining a record of student writing samples which can be compared against submitted assessments for any differences in language proficiency/style.

Module Monitoring Reports are created for every module delivered in collaboration with Staffordshire University, and these are used internally and externally to record any suggestions for improvements which could be made to modules for the following delivery.

### **External Quality**



As described above, BUV has a rigorous process of monitoring its own quality, but further checks are also made by our external partners. In March 2018, BUV was successful in passing its first completed Partnership and Periodic review with Staffordshire University. This was a major exercise with our collaborative partner which praised BUV for its delivery of the Staffordshire University programmes.

BUV are required to submit annual monitoring reports to both of its collaborative partners. These reports highlight the challenges which we have faced as a university and discuss the improvements which BUV have made, or plan to make in order to continue to enhance the delivery of our programmes.

## 7. LECTURERS AND SUPPORT PERSONNEL

BUV offers 100% international faculty. We will arrange 5 full-time lecturers with Doctor of Philosophy (PhD) degrees to be in charge of the [Discipline Title] discipline. All lecturers will have to be in the same or close to the registered course, and who must go through a careful interview and selection basing on their qualifications and relevant teaching experience. One Doctor of Philosophy (PhD) will take charge and administer the training curriculum and is held accountable for training quality.

No.	Full name	Position	Degree
1	Raymond Gordon	Discipline Lead Full-time Lecturer 1	Professor. Dr., Business Management
2	Joao Manuel Ferrao Fialho	Full-time Lecturer 2	Dr., Application Math
2	Michael George Perkins	Full-time Lecturer 3	Dr., Management
3	Shashi Kant Prasad Chaudhary	Full-time Lecturer 4	Dr., International Economics
4	Adrian Wee Tiong Weng	Full-time Lecturer 5	Dr., Business Administration
5	Jyotsna Ghildiyal Bijalwan	Lecturer	Dr., Management
6	John Mark Patrick Harris	Lecturer	Master, Economics
7	Konstantinos Tsontos	Lecturer	Master, Operational Research
8	Ajaykumar Pillai	Lecturer	Master, Business Administration
9	Francesco Meca	Lecturer	Master, Business Administration

## 8. FACILITIES, TECHNOLOGY AND EDUCATIONAL RESOURCES

Infrastructure and facility: The area of Campus in Ecopark is 6,5ha. The timeline for construction of new Campus consists of 3 phases: Phase 1- 2,84ha and Phase 2 and 3 - 3,66ha. Phase 1 was completed and the current facilities in Ecopark Campus includes:

Order	Category	Number	Total area (m2)
1	Library	01	1.230,1
2	Classrooms	23	1.947,5
3	Lecture hall	02	851,4
4	Teacher office	02	258,5
5	Research area	06	490,4
6	Sport area	03	654,7
7	Canteen	02	4,096
8	Others		4.887,8
<b>Total</b>			14.416,4

The library building is designed in a contemporary style, which includes Library area, 24-hour study area, specialised discussion rooms for students and computer access.

Classrooms: 23 classrooms with open design and flexible to serve the various needs. These room can accommodate 30-45 students and are fully equipped modern teaching auxiliaries, projectors, LCD screens, high-quality audio system, air conditionings, standard light system.

02 large lecture halls: with an average area of 425 m2 accommodating 250 students per lecture hall, 6m high, equipped with smart board, projector, LCD screen, high quality sound system, air conditioning, system Standard lighting system. In addition, large lecture halls also have an online system that allows students to sit anywhere in or outside the Ecopark Campus to participate in interactive lectures through online tools.

The construction of the BUV campus Phase 2 at Ecopark started in August 2022, with an investment of 33 million USD, and is expected to be completed in early 2025.

Specifically, BUV invested in building a new canteen with a total floor area of 4,096m2, a sports complex including basketball and badminton courts, and a new academic building. The indoor and outdoor spaces are arranged in harmony in an open, green landscape. The iconic minimalist and liberal architectural style indicative of 4IR reflects the educational approach at BUV.

## 9. EVIDENCE ATTACHED TO THE PROGRAMME CONTENT

### LIST OF DOCUMENTS

<b>No.</b>	<b>Documents</b>
1	Module Descriptors
2	Module Handbooks
3	Programme Handbooks

## **RECIPIENTS**

- Programme Appraisal Committee
- Senate
- Senior Leadership Team
- Learning and Teaching Committee
- Vice Chancellor Executive
- Archived

## **SENDER**



Jason MacVaugh

**Dean (Higher Education)**



## POSTGRADUATE PROGRAMME SPECIFICATION

<b>Programme Title:</b>	Master of Business Administration
<b>Awarding Body:</b>	Staffordshire University
<b>Teaching Institution:</b>	Staffordshire University British University Vietnam Asia Pacific Institute of Information Technology – Sri Lanka (Colombo & Kandy)
<b>Final Awards:</b>	MBA
<b>Intermediate Early Exit Awards:</b>	Postgraduate Certificate in Business Administration Postgraduate Diploma in Business Administration
<b>Mode of Study:</b>	Full-time/Part-time
<b>UCAS Codes:</b>	N/A
<b>QAA Subject Benchmarks:</b>	Business and Management Masters (2015)
<b>Professional/Statutory Body:</b>	N/A
<b>Date of Production:</b>	Updated version September 2020
<b>Entry Year:</b>	2021/22

If you require this document in a larger text or a different medium please contact us.

## EDUCATIONAL AIMS OF THE PROGRAMME

The aim of the MBA is to enable students to deal with real world issues of management & leadership within the intellectual and challenging environment of Staffordshire University Business School. It will enable you to develop key competencies providing the ability to apply contemporary techniques for decision making in complex situations faced by managers & leaders across a wide range of industry & business sectors.

The principle approach to learning is centred on Problem and Practice Based Learning (PPBL). All MBA students will work collaboratively with each other and with teaching staff tackling real world or authentic problems allowing development of skills and hence application as management & leadership competencies. Focus on PPBL will lead you to be capable independent learners, who understand the key issues relevant to business and your respective professions.

MBA teaching staff will utilise their wide experiences of both research & professional practice to create authentic, valid and challenging learning experiences throughout all MBA teaching & learning. MBA students come from a wide range of backgrounds and hence possess a wide range of skills & competencies plus expectations at the start of their study. The aim is to work in partnership with MBA students to ensure all students are continuously challenged whilst being provided with the required support to enable success (School Teaching & Learning strategy).

All our students will engage in 'learning to learn' and become increasingly reflective learners through adoption of the PPBL philosophy and hence development of key management & leadership competencies.

Employers will recognise that our students are better equipped to enter the world of work, or to make a greater contribution to their current roles.

The aims of this award have been derived from and mapped against the National Benchmark Standards for Postgraduate Business and Management awards which were developed taking into consideration guidelines and position papers at the master's level produced by EQUAL (the European QUALity link). Detailed learning outcomes for all modules are given in the module descriptors.

The following MBA programme aims seek to establish a solid basis for career advancement or for those seeking new employment opportunities:

- Provide an advanced course of study in management & leadership within rapidly changing business environments where teaching seeks to explore contemporary approaches to business practice.
- Develop defined management & leadership competencies in high capability individuals who can apply their knowledge to address contemporary business challenges.
- Based on problem, practice learning, develop an understanding of critical evaluation methodologies appropriate to address contemporary challenges in business.

- Develop an overall capacity for independent, critical and creative thinking.
- Develop critical skills to assess & evaluate academic literature and other forms of research output to inform business practice in the context of management & leadership.
- Prepare you for career advancement or new employment opportunities or continued employment with a diverse range of key & clearly defined management & leadership competencies.

### **What is distinctive about this programme?**

Challenges facing managers & leaders have and continue to undergo significant change such that key associated competencies are required to support continued career development in an increasingly competitive environment.

It is not sufficient to understand the theory & techniques alone. Critically, successful managers & leaders must possess the required competencies together with an understanding of contemporary business issues & risks to succeed. This postgraduate award has been designed to offer those either in or embarking on careers in management or leadership the opportunity to succeed.

The flexible nature of the award allows the opportunity to explore specific aspects of business to tailor the overall award to individual career plans. A combined theory & practitioner approach to teaching & learning supports the shaping of an MBA curriculum that embeds the desired professional and practitioner ethos, focussing on employability and continuing professional development in the field of management & leadership.

The key distinctive features of the MBA are:

- A single MBA award which offers a comprehensive suite of core management & leadership topics with the ability to select from a wide range of option topics affording the flexibility to tailor teaching & learning to suit individual career plans.
- A vocational ethos aimed at delivering the competencies for agile management & leadership with an attitude & confidence to embrace & manage risk inherent in business.
- Options to study in a number of different ways - either full time, part time, Blended Learning or more intensive and flexible delivery & timescales to suit individual requirements.
- Critically aimed at developing key management & leadership competencies in strategic agility, organisational agility, customer focus, drive for results and career ambition.

- An underpinning PPBL philosophy which combines a theory & practice informed approach to teaching & learning based on contemporary business issues & challenges
- Incorporating a wide range of approaches to assessment designed to incorporate the philosophy of PPBL that reflects contemporary business contexts.
- A final Project to demonstrate & contextualise overall award learning outcomes on a subject relevant to individual employment experience.
- Timetabling will be sympathetic to part time MBA students and will involve afternoon, evening and in some cases weekend class-room sessions.

## PROGRAMME OUTCOMES

What will this programme enable me to do?

At the end of your studies you should be able to:

On completion of the MBA participants will be able to demonstrate the following learning outcomes.

- Demonstrate a systematic awareness, understanding and knowledge of contemporary management & leadership issues in both a local & global context **(Knowledge and Understanding)**
- Demonstrate intellectual and entrepreneurial skills in the problem/practice based application of management & leadership competencies, together with a practical understanding of how established management & leadership techniques are applied in contemporary business applications **(Application)**
- Demonstrate the ability to learn and to take responsibility for continuing career development. Contextualise, analyse and learn from experience or simulated environments taking both local & global perspective on contemporary developments and research in management & leadership. **(Learning)**
- Generate innovative and enterprising approaches & solutions to management & leadership challenges which inform decision making in effective business risk management. **(Problem Solving)**
- Devise and apply valid problem/practice based evaluation and investigative techniques to interpret complex business challenges and propose solutions. Demonstrate understanding of selected investigative techniques within contemporary business paradigms. **(Enquiry)**
- Demonstrate a conceptual understanding and critical awareness of contemporary developments in management & leadership. Evaluate the rigour and validity of evaluation and relevance to contemporary issues in management & leadership. **(Analysis)**
- Articulate complex business information, situations & scenarios based on critical awareness & knowledge, adapting to different audiences, circumstances & feedback using a variety of communication tools & approaches. **(Communication)**
- Reflect on and demonstrate development of the underpinning management & leadership competencies to enhance employability and/or career advancement in positions of management & leadership. **(Reflection)**



## PROGRAMME STRUCTURE, MODULES AND CREDITS

Programme Title: MBA (Master of Business Administration)

Full Time - September Intake (12 months) + opportunity for placement

### 60 Credits

<b>L E V E L  7</b>	Teaching Block 1	<a href="#"><u>HRMG70054</u></a>  <b>Managing People &amp; Organisations</b>  <i>(15 credits)</i>	<a href="#"><u>STRA70184</u></a>  <b>Strategic Management</b>  <i>(15 credits)</i>	<a href="#"><u>ECON70143</u></a>  <b>Risk Management</b>  <i>(15 credits)</i>	<a href="#"><u>SPOR70921</u></a>  <b>Performing in Organisations</b>  <i>(15 credits)</i>

### 120 Credits

<b>L E V E L  7</b>	Teaching Block 2	<a href="#"><u>MKTG70307</u></a>  <b>Strategic Marketing Management</b>  <i>(15 credits)</i>	<b>Option</b>  <i>(15 credits)</i>	<b>Option</b>  <i>(15 credits)</i>	<b>Option</b>  <i>(15 credits)</i>

### 180 Credits

<b>L E V E L  7</b>	Teaching Block 3	<a href="#"><u>STRA70172</u></a>  <b>Project</b>  <i>(60 credits)</i>

The FT MBA will still offer opportunity for all students to undertake industrial placement. This is not however guaranteed and will remain each student's responsibility to arrange.

## PROGRAMME STRUCTURE, MODULES AND CREDITS

**Programme Title: MBA (Master of Business Administration)**  
**Part Time - September Intake (24 months)**

Year (Sept. start)	Teaching block 1	Teaching block 2	Teaching block 3* (Summer)
Year 1 (90 credits)	<p style="text-align: center;"><a href="#"><u>HRMG70054</u></a></p> <p style="text-align: center;"><b>Managing People and Organisations</b> (15 credits)</p> <p style="text-align: center;"><a href="#"><u>STRA70184</u></a></p> <p style="text-align: center;"><b>Strategic Management</b> (15 credits)</p>	<p style="text-align: center;"><a href="#"><u>MKTG70307</u></a></p> <p style="text-align: center;"><b>Strategic Marketing Management</b> (15 credits)</p> <p style="text-align: center;"><b>Option, e.g. Change Leadership</b> (15 credits)</p>	<p style="text-align: center;"><b>Option**, e.g. Entrepreneurship</b> (15 credits)</p> <p style="text-align: center;"><b>Or</b></p> <p style="text-align: center;"><b>Option**, e.g. Project Management</b> (15 credits)</p> <p style="text-align: center;"><b>Option**, e.g. Financial Concepts and Practice</b> (15 credits)</p>
Year 2 (180 credits)	<p style="text-align: center;"><a href="#"><u>ECON70143</u></a></p> <p style="text-align: center;"><b>Risk Management</b> (15 credits)</p> <p style="text-align: center;"><a href="#"><u>SPOR70921</u></a></p> <p style="text-align: center;"><b>Performing in Organisations</b> (15 credits)</p>	<p style="text-align: center;"><a href="#"><u>STRA70172</u></a></p> <p style="text-align: center;"><b>Project</b> (60 credits)</p>	

\*TB3 in Year 1 will be taught along with the MBA Blended Programme and will have a Blended Delivery with both F2F and online sessions

## PROGRAMME STRUCTURE, MODULES AND CREDITS

**Programme Title: MBA Blended (Master of Business Administration) as part of Senior Leader Master's Degree Apprenticeship  
Part Time - September Intake (24 months)**

Year (Sept. start)	Teaching block 1	Teaching block 2	Teaching block 3 (Summer)
Year 1 (90 credits)	<p style="text-align: center;"><a href="#"><u>HRMG70076</u></a></p> <p style="text-align: center;"><b>Managing People and Organisations</b> (15 credits)</p> <p style="text-align: center;"><a href="#"><u>STRA70185</u></a></p> <p style="text-align: center;"><b>Strategic Management</b> (15 credits)</p>	<p style="text-align: center;"><a href="#"><u>MKTG70353</u></a></p> <p style="text-align: center;"><b>Strategic Marketing Management</b> (15 credits)</p> <p style="text-align: center;">Option, e.g. HRMG70077</p> <p style="text-align: center;"><b>Change Leadership</b> (15 credits)</p>	<p style="text-align: center;">Option**, e.g. <b>ENTP70087</b> Entrepreneurship (15 credits)</p> <p style="text-align: center;">Or</p> <p style="text-align: center;">Option**, eg. <b>OPSM70022</b> Project Management</p> <p style="text-align: center;">Option**, e.g. <b>ACCT70317</b> Financial Concepts and Practice (15 credits)</p>
Year 2 (180 credits)	<p style="text-align: center;"><a href="#"><u>ECON70148</u></a></p> <p style="text-align: center;"><b>Risk Management</b> (15 credits)</p> <p style="text-align: center;"><a href="#"><u>SPOR70923</u></a></p> <p style="text-align: center;"><b>Performing in Organisations</b> (15 credits)</p>	<p style="text-align: center;"><a href="#"><u>STRA70183</u></a></p> <p style="text-align: center;"><b>Project</b> (60 credits)</p>	

**\*\*Potential Options (depending on student numbers)**

- Applied Psychology in Business
- Marketing Innovations
- Financial Concepts & Practice
- Contemporary Challenges in HRM
- Cross Cultural & International HRM
- Project Management
- Operations/SCM
- Change Leadership
- International Business
- Entrepreneurship
- Business Law

*Individual option modules available subject to student numbers.*

## PROGRAMME STRUCTURE, MODULES AND CREDITS

**Programme Title : MBA (Master of Business Administration)  
Blended Learning (in support of PT and Apprenticeship delivery)**

**Blended learning module delivery example (20/80)**

Week	Activity (covering two modules per semester)
1	Full day induction and introduction to two modules (F2F)
2	Webinar: 1 hour Module A – 30 minutes break – 1 hour Module B
3	Full day delivery (F2F) (3 hours Module A – 1 hour break – 3 hours Module B)
4	Webinar: 1 hour Module A – 30 minutes break – 1 hour Module B
5	Webinar: 1 hours Module A – 30 minutes break – 1 hour Module B
6	Webinar: 1 hours Module A – 30 minutes break – 1 hour Module B
7	Webinar: 1 hours Module A – 30 minutes break – 1 hour Module B
8	Full day delivery (F2F) focusing on assessment (3 hours Module A – 1 hour break – 3 hours Module B)
9	Webinar: 1 hours Module A – 30 minutes break – 1 hour Module B
10	Webinar: 1 hours Module A – 30 minutes break – 1 hour Module B
11	Webinar: 1 hours Module A – 30 minutes break – 1 hour Module B
12	Tutorial appointments (F2F or Skype)
13	Tutorial appointments (F2F or Skype)

The MBA can be delivered Blended Learning (BL) to part-time students, and participants of the Senior Leader Master's Degree Apprenticeship.

## PROGRESSION

In order to progress - all students must ordinarily have obtained a pass in all taught modules whether studying Full Time or Part Time & Corporate/Part Time in order to continue on to the final Project phase:

- For Full Time students, the following is necessary:
  - September intake: to obtain a Pass in all taught modules (120 credits) over the course of two teaching blocks before continuing to the Project stage.
- For Part Time students, the following is necessary:
  - September intake: to obtain a pass in all modules (90 credits in Year 1 and 30 credits by end TB1 Year 2) in order to proceed to TB2/ Year 2 final Project stage.
- For students undertaking the MBA as part of the Senior Leader Master's Degree Apprenticeship, the following is necessary:
  - September intake: to obtain a pass in all eight modules (120 credits) in Year 1 and TB1 of Year 2 in order to proceed to the Project in TB2 in Year 2.

Otherwise in all cases award specific regulations must permit compensation of a failed module or retrieval of failure at the final stage of the programme of study.

## INTERMEDIATE EARLY EXIT AWARDS

### **PG Certificate in Business Administration**

On completion of the 60 credits students can be awarded an intermediate PG Certificate in Business Administration exit award e.g. the student is not continuing further MBA study.

For FT (September intake) participants having successfully completed the following 4x15 credit modules:

- Managing People & Organisations
- Strategic Management
- Risk Management
- Performing in Organisations

For the PT (September intake) participants having successfully completed the following 4x15 credit modules:

- Managing People & Organisations
- Strategic Management
- Strategic Marketing Management
- 1xOption module

This programme serves as a foundation of learning. It allows students to broaden & deepen their professional knowledge base, skill-set and competency through a process of enquiry and critical reflection.

On completion of 60 credits, participants will demonstrate:

- Demonstrate a systematic awareness, understanding and knowledge of contemporary management & leadership issues in both a local & global context **(Knowledge and Understanding)**
- Devise and apply valid problem/practice based evaluation and investigative techniques to interpret complex business challenges and propose solutions. Demonstrate understanding of selected investigative techniques within contemporary business paradigms. **(Enquiry)**
- Reflect on and demonstrate development of the underpinning management & leadership competencies to enhance employability and/or career advancement in positions of management & leadership. **(Reflection)**

## **PG Diploma in Business Administration**

On completion of the 120 credits students can be awarded an intermediate PG Diploma in Business Administration exit award e.g. the student is not continuing further MBA study.

For FT (September intake) participants having successfully completed the modules above plus the following 4x15 credit modules:

- Strategic Marketing Management
- 3xOption modules

For the PT (September intake) participants having successfully completed the modules above plus the following 4x15 credit modules:

- Risk Management
- Performing in Organisations
- 2xOption modules

This programme serves as a basis for greater learning. It allows students to expand their professional knowledge base, skill-set and competency through a process of application, enquiry and continued critical reflection.

On completion of 120 credits, participants will demonstrate Certificate level learning outcomes plus:

- Demonstrate intellectual and entrepreneurial skills in the problem/practice based application of management & leadership competencies, together with a practical understanding of how established management & leadership techniques are applied in contemporary business applications **(Application)**
- Demonstrate a conceptual understanding and critical awareness of contemporary developments in management & leadership. Evaluate the rigour and validity of evaluation and relevance to contemporary issues in management & leadership. **(Analysis)**

## HOW WILL I BE TAUGHT AND ASSESSED?

### Teaching and Learning

The underpinning approach and hence philosophy throughout the MBA is Problem and Practice Based Learning (PPBL). Learning activities are tailored to this approach by engaging with authentic and challenging real problems, allowing students to evolve understanding, and analytical skills; hence facilitating development of key management & leadership competencies.

The focus will therefore be on active learning facilitated through face to face or distance learning. Active learning is centred on communication, discussion & hence learning based on dialectic rather than didactic learning which replaces more traditional teacher led classroom engagement. F2F class sessions will therefore be an opportunity for teaching staff to demonstrate their enthusiasm and mastery of the subject and hence engaging MBA students in learning.

Many approaches to PPBL will be innovative and novel – pushing the boundaries of learning and knowledge in the MBA subject areas. MBA class sessions aim to be dynamic where students are valued contributors to constructive, collaborative and technology based learning.

The PPBL philosophy aims to set in context the latest theories, models and frameworks throughout all modules. Each module is designed to develop five key competencies required for effective management & leadership.

These competencies are defined as:

1. Strategic Agility

The ability to perceive and implement direction at a strategic level; to evaluate the implications of setting direction and implementation

2. Organisational Agility

The ability to navigate effectively within an organisation; to understand not just wiring diagrams & structures but informal networks and organisational culture

3. Customer Focus

Understanding what a customer really wants be they internal or external and how you should operate to secure repeat business

4. Drive for Results

Making sure you can operate and deliver against key drivers of quality, cost & timescale - even when the pressure is on.

5. Career Ambition

Always take steps to know & understand your abilities & limitations plus critically what new skills & competencies do you have to plan for & develop to ensure you secure that key next step on the career ladder.



These are fully defined management & leadership competencies (Career Architect - Lombardo & Eichinger Lominger 2012) currently utilised in continuous development of both managers & leaders within a wider range of both private & public sector organisations. The combination of these competencies aims to convey an optimum mix of such competencies to enhance employability. This is fundamental to the new approach, in-line with the underpinning PPBL philosophy and designed to enhance employability whether those seeking career advancement in management or leadership roles or change to new employment.

The methods of teaching and learning used will vary according to the nature of the subject matter but will have a wide diversity from more formal lectures to more student centred activities including tutorials, seminars, case studies, management simulation/exercises, group work, workshops, project work, role play plus virtual learning environments in addition to independent study and desk based/empirical research activity.

In all classes, much emphasis will be placed on active, experiential learning which encourages preparatory work for full class participation.

Directed independent & work based study will also be utilised to support and build on the knowledge, skills & competencies learnt in F2F teaching & learning to provide a fuller understanding and context to each module. Both personal and module tutors will be available to provide 1:1 support where required.

The curriculum is structured so that both knowledge & knowledge developed within module teaching is PPBL and hence fully transferable e.g. applied and hence able to be further developed to wider/new concepts in other modules and/or the work-place.

The VLE (Blackboard and other digital media) plays a key role in ensuring communication is maintained and direction is provided to ensure a depth and breadth of learning which complements and enhances the F2F learning experience. All modules are represented on VLE. Many are adapted to facilitate online learning opportunities plus intermediate/formative assessment criteria e.g. tests, questionnaires and direction to supplementary web based learning resource.

The MBA award adopts a sympathetic approach to timetabling where for example classes may be conducted during afternoons & evenings to accommodate part time students whilst retaining the ability of all MBA students to experience the widest & most diverse learning experience.

Full time students will study 60 credits/semester and aim to complete the award over TB1/2/3 whereas part time students will study 30 credits/semester and aim to complete the award over 3 years. The Corporate/part time students also aim to study 30 credits/semester although timing of individual intensive study modules will be adjusted to suite client timescales.

## **Blended Learning**

The MBA is also delivered as Blended Learning. BL is defined as the thoughtful integration of each of the following in order to maximise student flexibility:

- Independent study (student reading/research and assessment preparation);
- Guided independent study (homework, group tasks and e-support in Blackboard);
- Online scheduled contact time (at least 10% of total contact time is online lessons where the tutor is 'present') and
- Classroom contact time.

Learning activities may include (this list is not exclusive):

- Presentation activities;
- Structured discussion activities;
- Group work activities;
- Reflection activities;
- Formative and summative assessment activities;
- Problem-based learning activities.

## **Assessment**

These are written in the light of professional-based assessment guidelines and QAA benchmark standards list "Skills for all Masters programmes". In essence, these are a demonstrable range of appropriate cognitive, critical and intellectual challenges, approaches to research in addition to relevant interpersonal competencies associated with management & leadership.

### **Assessment types**

To assure student progress, focus will be on assessment & feedback that provides guidance throughout the duration of MBA study. Developmental and formative assessment will be used throughout every module providing feedback on performance. There will be a variety of assessment methods to engage students in real-life experiences, and prepare for subsequent careers. MBA assessments will also be based on PPBL aimed at facilitating development of the key defined 5x management & leadership competencies.

As an example, assessment methods include both individual assessment & projects, individual & group reports, individual & group presentation, directed debate, case analysis and 'viva-voce' (aural) & formal closed book examinations plus final Project. Assessment methods vary between modules but the overall strategy is to have a balanced set of assessments utilising a variety of different approaches all based on the philosophy of PPBL.

All MBA students will be provided with feedback in every module at every stage of learning to enable optimum approach & preparation for final assessment.

Because the PPBL philosophy is based on engagement & dialogue as a key component of a learning organisation, it is axiomatic that student feedback will be sought both during & following each element of learning to engender an overarching MBA culture of continuous improvement.

## **ADDITIONAL INFORMATION**

### **What qualifications are required to join this programme?**

- Candidates will normally be expected to have:

A minimum 2:1 or above Honours degree (or equivalent) in any discipline plus relevant work experience to be discussed as part of interview. Applicants may be admitted to the award with advance standing either full or part on the basis of exemptions on the above minimum requirement based on significant relevant industrial experience in a management & leadership role and/or with approved alternative qualifications.

- Candidates where English is not their first language will also normally be expected to have:

Satisfactory English language qualifications. The required qualification is IELTS 6.5 overall average with a minimum 6.0 in all categories e.g. Speaking, Writing, Reading & Listening)

or

TOEFL with overall score 88 & minimum 22 Speaking, 19 Listening, 20 Reading and 19 Writing

or

Pearson with overall score 61 & minimum 56 Speaking, Listening, Reading & Writing.

At the Stoke Campus of Staffordshire University; a booster English Language pre-course to support candidates reaching the required standard will also be available.

- Suitability for all applicants will normally be made via both on-line application and a mandatory informal interview (Invited to an on-campus interview if the applicant is in the UK and conducted via Skype/Facetime if the applicant is overseas/international. All offers will be subject to successful interview which will be based on assessment of the following 4xentry level competencies:

#### 1. Presentation skills

A typical interview question would be based on such as:

"What is the difference between Leadership & Management"?

"How would you characterise both organisation structure and organisation culture"?

"Provide an example of when you were working under pressure. How did you deal with it"??

"What direction do you see your career going and why"?

2. Written communication skills

A short c.200 word narrative on one of the above topics

3. Problem solving - Case Question

An appropriate short case study for c.5 minute Q&A session

4. Ability to contribute to a team

A competency style interview question e.g. where the applicant provides an example of working in a team followed by c.5 min Q&A

- For non-standard applications - applicants may be admitted to the award with advance standing based on previous studies and or relevant industrial experience.

**Disability Statement**

Staffordshire University operates a policy of inclusive teaching and learning to ensure that all students have an equal opportunity to fulfil their educational potential. Details about how to apply to have your needs assessed can be found at:

[http://www.staffs.ac.uk/study\\_here/disabled\\_students/index.jsp](http://www.staffs.ac.uk/study_here/disabled_students/index.jsp)

**AWARD SPECIFIC INFORMATION**

**The Postgraduate Assessment Regulations for the MBA (Master of Business Administration)**

The MBA (Master of Business Administration) assessment regulations will conform to the University postgraduate regulations.

**Further information about the award can be found in the relevant Student Handbook and on the University Website. This includes information about optional modules, student support, and academic regulations.**

=====

## ADDENDUM FOR DELIVERY AT A PARTNER INSTITUTION

This section should record any matters within the programme specification which do not apply to the delivery at the partner. It should also note any differences in delivery, course content, module choice etc.

<b>Name and location of partner</b>	<b>British University Vietnam Hanoi, Vietnam</b>
<b>Partnership Context</b>	The award listed below is part of a franchise arrangement with Staffordshire University supported by the School of Business, Leadership and Economics
<b>Awards to be offered at partner</b>	Masters in Business Administration
<b>Aims / Learning Outcomes</b>	As in the Programme Specification with an Additional Educational Aim: <ul style="list-style-type: none"> <li>• To develop your understanding of the specific requirements and challenges faced by organisations operating within Asia, ASEAN and Vietnam.</li> </ul>
<b>Curricula</b>	As in the Course Handbook. Delivery will be as appropriate to the BUV academic calendar. Option modules at BUV: <ul style="list-style-type: none"> <li>• Options modules are subject to availability. Therefore, it may be the case that not all option modules are available every year.</li> </ul>
<b>Teaching and Learning</b>	As in Programme Specification
<b>Assessment</b>	As in Programme Specification

<p><b>Admissions Criteria</b></p>	<p><b>Admission Requirements:</b></p> <p>BUV welcomes applications from students with a wide variety of qualifications, skills and experiences. In fact, we lead the way in recognising alternative routes into higher education and take pride in attracting students from diverse backgrounds, and with non-traditional qualifications.</p> <p>Students will need to have graduated with a Bachelor’s degree from a recognised Higher Education Institution and must have at least 1 year’s full-time work experience.</p> <p>An application essay must be provided with any application, answering all of the following questions:</p> <ol style="list-style-type: none"> <li>1. How do you feel an MBA will help your career and why? How has your work experience shaped this belief?</li> <li>2. Discuss the greatest opportunities and threats that are affecting your business sector globally and specifically related to Vietnam.</li> <li>3. Please give an example of when you have demonstrated leadership skills and/or a significant contribution to a team. Specifically highlight what your role was in the situation.</li> <li>4. Looking at your particular skill set which areas do you feel need to be developed to support your career development?</li> <li>5. Describe one incident that has exemplified you as an individual.</li> </ol> <p>Supporting references from suitable sources will need to be provided upon request, and you will be asked to attend an admission interview.</p> <p><b>English Language requirements:</b></p> <p>Students for whom English is not the first language must have achieved a minimum IELTS score of 6.5 or equivalent with no Sub-Score below 6.0 before embarking upon the award.</p> <p><b>English as a first language:</b></p> <p>Students with English as a first language must provide evidence that they have been educated for at least four years in English, and a BUV placement test will be undertaken to confirm the standard of English.</p>
<p><b>Specific Regulations</b></p>	<p>None</p>
<p><b>Date of completion</b></p>	<p>Students will enrol part-time for 2 years, with the first cohort to graduate in September 2020</p>

# **APPENDIX V**

## Module Descriptor

# English: Listening

## BUVBS101

### Summary

This course is designed to improve students' English listening skills for the academic environment. Students will develop their abilities listening for context by understanding what people are saying in different situations. They will also develop the ability to listen for information. Students will learn specific techniques for following lectures and effective note-taking.

### Key facts

Faculty/Department: Business Administration - Postgraduate

Module Type:

Number of credits: 0

Prerequisite: None

### Contact

Module Leader: Clare Joanne Watson

Email: [clare.w@buv.edu.vn](mailto:clare.w@buv.edu.vn)

### Hours of Study

Contact hours:

Independent Study Hours:

Total Learning Hours: 86

*\* 01 contact hour = 50 minutes, as per Circular 17/2021/TT-BGDĐT*

### Module Details

#### Learning Outcomes

No.	Module Learning Outcomes	Programme Learning Outcomes
1	To be able to listen to everyday topics for gist and detail eg numbers, dates, names, addresses	Autonomy & Responsibilities



2	To be able to recognize different speakers	Knowledge
3	To be able to understand different accents	Knowledge
4	To be able to listen and understand more academic texts	Skills
5	To be able to listen to longer texts	Skills
6	To be able to listen for discourse markers	Skills
7	To be able to listen to lecture material for main ideas	Autonomy & Responsibilities
8	To be able to take notes from lectures	Autonomy & Responsibilities
9	To be able to recognize fact, opinion and bias	Knowledge

### Assessment Details

Weekly Listening Quizzes      15%

Business Report            30%

Oral Presentation        15%

Final Examination            40%

### Indicative Content

English Listening gives students the required level of English listening to survive and succeed in university and collect and comprehend information in formal and informal academic settings. Note taking abilities will be instructed and students will learn to gain strategies for managing listening for short and extended periods of time. Students will also learn how to listen critically to determine fact from opinion and bias communicated verbally.

### Learning Strategies

Recognising the diverse skills and styles of our student community places an emphasis on ensuring that a range of learning environments and media are available and enabling students to engage in learning in a variety of ways. The emphasis on practice-based learning in a professional environment creates the need for additional learning environments such as taking responsibility for hosting your own events and learning by doing to supplement the more traditional approaches of lectures, guest speakers, tutorials, workshops, seminars and VLE to complement and enhance traditional, face-to-face learning experience. Knowledge and skills will be developed through

case-studies, role-plays, simulations, presentations, projects (work-based and academic), reflective portfolios and the extended use of technology supported activities.

The curriculum will develop and evolve so that knowledge and skills learned in modules will be transferred, re-applied and developed in related modules at higher levels. You will be guided through your studies through a teaching support network of module leaders, personal tutors, award leaders and supporting academic and managers, and dedicated and involved support and pastoral staff. Learning and teaching will be an enriching experience for you that reflects the value the school places on effective, innovative and research informed teaching. Learning and teaching will foster your critical intellectual development and the business capabilities required to engage in contemporary organisations.

In your learning situations you will be acting in partnership with module deliverers and facilitators who, through a programme of study designed to develop an evolving body of knowledge and portfolio of skills will be:

- Encouraging active learning and a confidence to learn.
- Making explicit the skills to be developed through the curriculum.
- Stimulating intellectual curiosity and excitement in learning through engagement with up to-date and contemporary, well researched subjects.
- Encouraging critical reasoning about the world of business to achieve well informed judgements and conclusions.
- Challenging and shaping new learning experiences and opportunities through application of research informed pedagogy.

And you will be:

- Engaging with complex, challenging problems and real-world issues.
- Proactively using available resources, technical, digital and paper-based to

address problems, construct solutions and identify new topics for research.

- Engaging in constructive reflection on learning and new ideas.

## **Texts**

Access EAP: Foundations Course Book with audio CDs, Argent, Sue & Alexandre, Olywn 2010, Garnett Education, Reading UK.

Language Leader: Intermediate, Cotton, David, Falvey, David, Kent, Simon, Hughes, John 2008, Pearson Longman Ltd, London

## **Implementation Guidelines**

- The Faculty/Department must disseminate and explain the module descriptor to all module lecturers.
- In the first class of the module, all module lecturers must disseminate and explain the module descriptor to students.
- Module lecturers must adhere to the approved module descriptor.

## Module Descriptor

# English: Reading

## BUVBS102

### Summary

Students will develop necessary university level reading skills by developing vocabulary, literal and inferential comprehension, textbook reading techniques, and by fostering reading for pleasure. Students may become more efficient readers by learning to vary rate and comprehension depending upon purpose for reading.

### Key facts

Faculty/Department: Business Administration - Postgraduate

Module Type:

Number of credits: 0

Prerequisite: None

### Contact

Module Leader: Clare Joanne Watson

Email: [clare.w@buv.edu.vn](mailto:clare.w@buv.edu.vn)

### Hours of Study

Contact hours:

Independent Study Hours:

Total Learning Hours: 86

*\* 01 contact hour = 50 minutes, as per Circular 17/2021/TT-BGDĐT*

### Module Details

#### Learning Outcomes

No.	Module Learning Outcomes	Programme Learning Outcomes
1	To be able to read for gist and detail in everyday topics	Autonomy & Responsibilities
2	To identify different styles and register used in the different genres of texts	Autonomy & Responsibilities

3	To increase reading speed and comprehension	Knowledge
4	To understand skimming and scanning	Knowledge
5	To be able to understand unknown vocabulary from context	Skills
6	To identifying support sentences	Knowledge
7	To be able identify attitude and opinion	Skills
8	To recognize key words and ideas	Knowledge
9	To be able to predict content	Skills
10	To be able to interpret data from tables, charts and diagrams	Skills

### Assessment Details

Journal 15%

Midterm 30%

Book Report Presentation 15%

Final Examination 40%

### Indicative Content

English Reading equips students with the necessary skills and understanding for effective academic reading. Students are exposed to various texts and taught practical strategies to read and comprehend content. Students are also taught to scan, skim and read for content.

### Learning Strategies

Recognising the diverse skills and styles of our student community places an emphasis on ensuring that a range of learning environments and media are available and enabling students to engage in learning in a variety of ways. The emphasis on practice-based learning in a professional environment creates the need for additional learning environments such as taking responsibility for hosting your own events and learning by doing to supplement the more traditional approaches of lectures, guest speakers, tutorials, workshops, seminars and VLE to complement and enhance traditional, face-to-face learning experience. Knowledge and skills will be developed through case-studies, role-plays, simulations, presentations, projects (work-based and academic), reflective portfolios and the extended use of technology supported activities.

The curriculum will develop and evolve so that knowledge and skills learned in modules will be transferred, re-applied and developed in related modules at higher levels. You will be guided through your studies through a teaching support network of module leaders, personal tutors, award leaders and supporting academic and managers, and dedicated and involved support and pastoral staff. Learning and teaching will be an enriching experience for you that reflects the value the school places on effective, innovative and research informed teaching. Learning and teaching will foster your critical intellectual development and the business capabilities required to engage in contemporary organisations.

In your learning situations you will be acting in partnership with module deliverers and facilitators who, through a programme of study designed to develop an evolving body of knowledge and portfolio of skills will be:

- Encouraging active learning and a confidence to learn.
- Making explicit the skills to be developed through the curriculum.
- Stimulating intellectual curiosity and excitement in learning through engagement with up to-date and contemporary, well researched subjects.
- Encouraging critical reasoning about the world of business to achieve well informed judgements and conclusions.
- Challenging and shaping new learning experiences and opportunities through application of research informed pedagogy.

And you will be:

- Engaging with complex, challenging problems and real-world issues.
- Proactively using available resources, technical, digital and paper-based to address problems, construct solutions and identify new topics for research.

- Engaging in constructive reflection on learning and new ideas.

## **Texts**

Access EAP: Foundations Course Book with audio CDs, Argent, Sue & Alexandre, Olywn 2010, Garnett Education, Reading UK.

Language Leader: Intermediate, Cotton, David, Falvey, David, Kent, Simon, Hughes, John 2008, Pearson Longman Ltd, London

## **Implementation Guidelines**

- The Faculty/Department must disseminate and explain the module descriptor to all module lecturers.
- In the first class of the module, all module lecturers must disseminate and explain the module descriptor to students.
- Module lecturers must adhere to the approved module descriptor.

## Module Descriptor

# English: Speaking

## BUVBS104

### Summary

This course develops students' speaking skills in order to help them succeed in an academic English-speaking environment, including lecturers, tutorials, internships and seminars. Students are guided in practical ways to learn how to exchange personal ideas and give presentations for both formal and informal settings.

### Key facts

Faculty/Department: Business Administration - Postgraduate

Module Type:

Number of credits: 0

Prerequisite: None

### Contact

Module Leader: Clare Joanne Watson

Email: [clare.w@buv.edu.vn](mailto:clare.w@buv.edu.vn)

### Hours of Study

Contact hours:

Independent Study Hours:

Total Learning Hours: 86

*\* 01 contact hour = 50 minutes, as per Circular 17/2021/TT-BGDĐT*

### Module Details

#### Learning Outcomes

No.	Module Learning Outcomes	Programme Learning Outcomes
1	To be able to talk about everyday topics	Autonomy & Responsibilities
2	To be able to speak about general topics with increased fluency and accuracy	Skills
3	Body Language	Skills



4	Using academic vocabulary	Knowledge
5	Questioning and Intonation	Knowledge
6	To be able to describe charts and graphs	Skills
7	To be able to describe a process	Skills
8	To be able to express opinions and debating	Autonomy & Responsibilities
9	To be able talk about academic topics Skills	Skills
10	To be able to give presentations on academic topics or business topics	Autonomy & Responsibilities
11	To understand the function of tutorials and seminars and to participate therein	Autonomy & Responsibilities

### Assessment Details

Short Oral Presentation 15%

Debate 30%

Oral Presentation 15%

Seminar 40%

### Indicative Content

This course fosters and develops the verbal communication skills of students for the English-speaking environment. Students gain insight into participating and expressing themselves in lecturers, tutorials, internships debates and seminars. Students are guided in practical ways to learn how to exchange personal ideas and give presentations for both formal and informal settings.

### Learning Strategies

Recognising the diverse skills and styles of our student community places an emphasis on ensuring that a range of learning environments and media are available and enabling students to engage in learning in a variety of ways. The emphasis on practice-based learning in a professional environment creates the need for additional learning environments such as taking responsibility

for hosting your own events and learning by doing to supplement the more traditional approaches of lectures, guest speakers, tutorials, workshops, seminars and VLE to complement and enhance traditional, face-to-face learning experience. Knowledge and skills will be developed through case-studies, role-plays, simulations, presentations, projects (work-based and academic), reflective portfolios and the extended use of technology supported activities.

The curriculum will develop and evolve so that knowledge and skills learned in modules will be transferred, re-applied and developed in related modules at higher levels. You will be guided through your studies through a teaching support network of module leaders, personal tutors, award leaders and supporting academic and managers, and dedicated and involved support and pastoral staff. Learning and teaching will be an enriching experience for you that reflects the value the school places on effective, innovative and research informed teaching. Learning and teaching will foster your critical intellectual development and the business capabilities required to engage in contemporary organisations.

In your learning situations you will be acting in partnership with module deliverers and facilitators who, through a programme of study designed to develop an evolving body of knowledge and portfolio of skills will be:

- Encouraging active learning and a confidence to learn.
- Making explicit the skills to be developed through the curriculum.
- Stimulating intellectual curiosity and excitement in learning through engagement with up to-date and contemporary, well researched subjects.
- Encouraging critical reasoning about the world of business to achieve well informed judgements and conclusions.
- Challenging and shaping new learning experiences and opportunities through application of research informed pedagogy.

And you will be:

- Engaging with complex, challenging problems and real-world issues.
- Proactively using available resources, technical, digital and paper-based to address problems, construct solutions and identify new topics for research.
- Engaging in constructive reflection on learning and new ideas.

## **Texts**

Access EAP: Foundations Course Book with audio CDs, Argent, Sue & Alexandre, Olywn 2010, Garnett Education, Reading UK.

Language Leader: Intermediate, Cotton, David, Falvey, David, Kent, Simon, Hughes, John 2008, Pearson Longman Ltd, London

## **Implementation Guidelines**

- The Faculty/Department must disseminate and explain the module descriptor to all module lecturers.
- In the first class of the module, all module lecturers must disseminate and explain the module descriptor to students.
- Module lecturers must adhere to the approved module descriptor.

## Module Descriptor

# English:

# Writing

## BUVBS103

### Summary

This course is designed to improve students' English listening skills for the academic environment. Students will develop their abilities listening for context by understanding what people are saying in different situations. They will also develop the ability to listen for information. Students will learn specific techniques for following lectures and effective note-taking.

### Key facts

Faculty/Department: Business Administration - Postgraduate

Module Type:

Number of credits: 0

Prerequisite: None

### Contact

Module Leader: Clare Joanne Watson

Email: [clare.w@buv.edu.vn](mailto:clare.w@buv.edu.vn)

### Hours of Study

Contact hours:

Independent Study Hours:

Total Learning Hours: 86

*\* 01 contact hour = 50 minutes, as per Circular 17/2021/TT-BGDĐT*

## Module Details

### Learning Outcomes

No.	Module Learning Outcomes	Programme Learning Outcomes
1	To be able to write grammatically correct sentences	Skills
2	To be able to recognize and correct basic errors	Skills
3	To be able to write coherent and structured paragraphs	Skills
4	To understand the writing process	Knowledge
5	To know the parts of an essay	Knowledge
6	To be able to write thesis statements , introductions, body paragraphs, conclusions	Autonomy & Responsibilities
7	To be able to write compare and contrast, process, opinion, persuasive essays	Autonomy & Responsibilities
8	To have increased summarizing and note taking skills	Skills

### Assessment Details

Weekly Listening Quizzes 15%

Business Report 30%

Oral Presentation 15%

Final Examination 40%

### Indicative Content

English Listening gives students the required level of English listening to survive and succeed in university and collect and comprehend information in formal and informal academic settings. Note taking abilities will be instructed and students will learn to gain strategies for managing listening for short and extended periods of time. Students will also learn how to listen critically to determine fact from opinion and bias communicated verbally.

### Learning Strategies

Recognising the diverse skills and styles of our student community places an emphasis on ensuring that a range of learning environments and media are available and enabling students to engage in learning in a variety of ways. The emphasis on practice-based learning in a professional environment creates the need for additional learning environments such as taking responsibility for hosting your own events and learning by doing to supplement the more traditional approaches of lectures, guest speakers, tutorials, workshops, seminars and VLE to complement and enhance

traditional, face-to-face learning experience. Knowledge and skills will be developed through case-studies, role-plays, simulations, presentations, projects (work-based and academic), reflective portfolios and the extended use of technology supported activities.

The curriculum will develop and evolve so that knowledge and skills learned in modules will be transferred, re-applied and developed in related modules at higher levels. You will be guided through your studies through a teaching support network of module leaders, personal tutors, award leaders and supporting academic and managers, and dedicated and involved support and pastoral staff. Learning and teaching will be an enriching experience for you that reflects the value the school places on effective, innovative and research informed teaching. Learning and teaching will foster your critical intellectual development and the business capabilities required to engage in contemporary organisations.

In your learning situations you will be acting in partnership with module deliverers and facilitators who, through a programme of study designed to develop an evolving body of knowledge and portfolio of skills will be:

- Encouraging active learning and a confidence to learn.
- Making explicit the skills to be developed through the curriculum.
- Stimulating intellectual curiosity and excitement in learning through engagement with up to-date and contemporary, well researched subjects.
- Encouraging critical reasoning about the world of business to achieve well informed judgements and conclusions.
- Challenging and shaping new learning experiences and opportunities through application of research informed pedagogy.

And you will be:

- Engaging with complex, challenging problems and real-world issues.

- Proactively using available resources, technical, digital and paper-based to address problems, construct solutions and identify new topics for research.
- Engaging in constructive reflection on learning and new ideas.

## **Texts**

Access EAP: Foundations Course Book with audio CDs, Argent, Sue & Alexandre, Olywn 2010, Garnett Education, Reading UK.

Language Leader: Intermediate, Cotton, David, Falvey, David, Kent, Simon, Hughes, John 2008, Pearson Longman Ltd, London

## **Implementation Guidelines**

- The Faculty/Department must disseminate and explain the module descriptor to all module lecturers.
- In the first class of the module, all module lecturers must disseminate and explain the module descriptor to students.
- Module lecturers must adhere to the approved module descriptor.

## Module Descriptor

# Business Thinking

## MBAF01

### Summary

This module gleans content and structure from the book What Business can Learn from Sport Psychology. Therefore, students will consider contemporary evidence-based psychology approaches and techniques to enhance individual and group performance (e.g. Smart Thinking).

Students will also be required to consider what psychological techniques are most appropriate and how they should best be applied to a range of business scenarios (e.g. enhancing confidence, helping a team deal with pressure).

### Key facts

Faculty/Department: Business Administration - Postgraduate

Module Type:

Number of credits: 4

Prerequisite: None

### Contact

Module Leader: Ajay Kumar Pillai

Email: [ajay.p@buv.edu.vn](mailto:ajay.p@buv.edu.vn)

### Hours of Study

Contact hours: 60

Independent Study Hours: 140

Total Learning Hours: 200

*\* 01 contact hour = 50 minutes, as per Circular 17/2021/TT-BGDĐT*

## Module Details

### Learning Outcomes



No.	Module Learning Outcomes	Programme Learning Outcomes
1	Critically outline the effectiveness of selected psychological techniques used by performance psychologists.	Knowledge
2	Understand and be able to apply effective coping skills to a range of a business related-performance issues.	Autonomy & Responsibilities
3	Understand the strengths of 'Smart Thinking' for well-being and performance.	Autonomy & Responsibilities
4	Reflect on and demonstrate development of associated underpinning strategic agility and drive for results competencies to enhance employability and/or career advancement in positions of management & leadership.	Autonomy & Responsibilities

### Assessment Details

The module will comprise a single assessment consisting of two elements:

- An individual 30 minute presentation relating to a real world issue and a proposed & justified intervention plan to industry representatives addressing LO's 1&2 (50%)
- A Smart Thinking Development Plan which details the student's own psychological approach to life and work along with a plan of action to facilitate individual performance and business culture. The total word limit for this completed case study is 2,000 words addressing LO's 3&4 (50%).

### Indicative Content

#### Learning

- Understand the concept of applied psychology in the context of Smart Thinking & Performance Psychology
- The value of self-regulation
- Understand techniques to deal with work-based pressure

#### Practice

- Exercise self-awareness & 'intelligence'
- Develop coping resources & skills

- Practice effective behaviours and responses
- Reflect on problem/practice based case examples

Indicative Content

## **Learning Strategies**

Recognising the diverse skills and styles of our student community places an emphasis on ensuring that a range of learning environments and media are available and enabling students to engage in learning in a variety of ways. The emphasis on practice-based learning in a professional environment creates the need for additional learning environments such as taking responsibility for hosting your own events and learning by doing to supplement the more traditional approaches of lectures, guest speakers, tutorials, workshops, seminars and VLE to complement and enhance traditional, face-to-face learning experience. Knowledge and skills will be developed through case-studies, role-plays, simulations, presentations, projects (work-based and academic), reflective portfolios and the extended use of technology supported activities.

The curriculum will develop and evolve so that knowledge and skills learned in modules will be transferred, re-applied and developed in related modules at higher levels. You will be guided through your studies through a teaching support network of module leaders, personal tutors, award leaders and supporting academic and managers, and dedicated and involved support and pastoral staff. Learning and teaching will be an enriching experience for you that reflects the value the school places on effective, innovative and research informed teaching. Learning and teaching will foster your critical intellectual development and the business capabilities required to engage in contemporary organisations.

In your learning situations you will be acting in partnership with module deliverers and facilitators who, through a programme of study designed to develop an evolving body of knowledge and portfolio of skills will be:

- Encouraging active learning and a confidence to learn.
- Making explicit the skills to be developed through the curriculum.
- Stimulating intellectual curiosity and excitement in learning through engagement with

up to-date and contemporary, well researched subjects.

- Encouraging critical reasoning about the world of business to achieve well informed judgements and conclusions.
- Challenging and shaping new learning experiences and opportunities through application of research informed pedagogy.

And you will be:

- Engaging with complex, challenging problems and real-world issues.
- Proactively using available resources, technical, digital and paper-based to address problems, construct solutions and identify new topics for research.
- Engaging in constructive reflection on learning and new ideas.

## Texts

Psychology in organizations: The social identity approach. London: Sage, Haslam, S. A. (2004).

The new psychology of leadership: Identity, influence, and power. East Sussex: Psychology Press, Haslam, S. A., Reicher, S. D., & Platow, M. J. (2011).

Reinventing leadership, Thomas, P. (2014). UK: Cambria Books.

What business can learn from sport psychology, Turner, M., & Barker, J. B. (2014). London: Bennion Kearny:

## Resources

- Module handbooks
- VLE resource
- Selected problem/practice based case examples
- Directed texts

## Implementation Guidelines

- The Faculty/Department must disseminate and explain the module descriptor to all module lecturers.
- In the first class of the module, all module lecturers must disseminate and explain the module descriptor to students.
- Module lecturers must adhere to the approved module descriptor.

## Module Descriptor

# Cross Cultural and International HRM

## MBAF02

### Summary

The module provides knowledge that helps students on:

- Understanding the progress and implication of the internationalization of HRM
- Understand and critically evaluating the key debates of contemporary international talent management and development
- Evaluating the impact of intercultural competencies on successful cross cultural management development
- Recognising the potential contribution of international and comparative HRM to enhancing organisational competitive advantage

### Key facts

Faculty/Department: Business Administration - Postgraduate

Module Type:

Number of credits: 4

Prerequisite: None

### Contact

Module Leader: Mark Harris

Email: [mark.h@buv.edu.vn](mailto:mark.h@buv.edu.vn)

### Hours of Study

Contact hours: 60

Independent Study Hours: 140

Total Learning Hours: 200

*\* 01 contact hour = 50 minutes, as per Circular 17/2021/TT-BGDĐT*

### Module Details

## Learning Outcomes

No.	Module Learning Outcomes	Programme Learning Outcomes
1	Critically evaluate the progression and implications of the internationalisation of HRM and evaluate the impact of international talent management and development strategies	Knowledge
2	Demonstrate a critical appreciation of the consequences of national culture and internationalization on managers doing business on the global arena	Skills
3	Understand and critically analyse the imperatives of effective global talent management & development and be able to make strategically informed recommendations for implementation of a strategic international HRM initiative.	Autonomy & Responsibilities
4	Reflect on and demonstrate development of associated underpinning organisational agility and customer focus competencies to enhance employability and/or career advancement in positions of management & leadership.	Autonomy & Responsibilities

## Assessment Details

The assessment which aims to test LO's 1,2 &3 will be thoroughly underpinned by the principles of problem-based learning and will require students to engage with a topic of choice that is subject to negotiation and agreement by the group and based upon a contemporary international HRM issue that is supported by a workplace sponsor. The topic will need to focus on a critical analysis of the imperatives of effective global talent management & development and demonstrate how these impact upon strategically informed recommendations for implementation of a strategic international HRM initiative.

Assessment incorporates a group presentation (60%) to the sponsor and an individual reflection on the applied research project (40%) - this will be 3500 words equivalent. The group size will be no more than 4 people.

- A 15 minute group presentation (60%) with additional questions: group equivalent (3 - 4000 words)
- 2,500 word individual research project (40%).

The assignment will also include a 500 word minimum element which aims to test LO4 reflecting critically on the relevant underpinning organisational agility & customer focus management & leadership competencies as they relate to this module.

## Indicative Content

### Learning

- Assess the importance and scope of cross cultural management
- identify and understand the impact of contemporary analysis of cultural differences in diverse societies;

### Practice

- Demonstrating critical awareness of the consequences of new organizational forms on cultural understanding
- Developing management & leadership competency & practice in HRM through evaluation of problem/practice based case examples

## Learning Strategies

Recognising the diverse skills and styles of our student community places an emphasis on ensuring that a range of learning environments and media are available and enabling students to engage in learning in a variety of ways. The emphasis on practice-based learning in a professional environment creates the need for additional learning environments such as taking responsibility for hosting your own events and learning by doing to supplement the more traditional approaches of lectures, guest speakers, tutorials, workshops, seminars and VLE to complement and enhance traditional, face-to-face learning experience. Knowledge and skills will be developed through case-studies, role-plays, simulations, presentations, projects (work-based and academic), reflective portfolios and the extended use of technology supported activities.

The curriculum will develop and evolve so that knowledge and skills learned in modules will be transferred, re-applied and developed in related modules at higher levels. You will be guided through your studies through a teaching support network of module leaders, personal tutors, award leaders and supporting academic and managers, and dedicated and involved support and pastoral staff. Learning and teaching will be an enriching experience for you that reflects the value the school places on effective, innovative and research informed teaching. Learning and teaching will foster your critical intellectual development and the business capabilities required to engage in contemporary organisations.

In your learning situations you will be acting in partnership with module deliverers and facilitators who, through a programme of study designed to develop an evolving body of knowledge and portfolio of skills will be:

- Encouraging active learning and a confidence to learn.
- Making explicit the skills to be developed through the curriculum.
- Stimulating intellectual curiosity and excitement in learning through engagement with up to-date and contemporary, well researched subjects.
- Encouraging critical reasoning about the world of business to achieve well informed judgements and conclusions.
- Challenging and shaping new learning experiences and opportunities through application of research informed pedagogy.

And you will be:

- Engaging with complex, challenging problems and real-world issues.
- Proactively using available resources, technical, digital and paper-based to address problems, construct solutions and identify new topics for research.
- Engaging in constructive reflection on learning and new ideas.

## **Texts**

Cross Cultural Management CIPD London, French R. 3rd ed, (2015)

International Human resource, Tarique, I; Briscoe, D and Schuler, R.

Management, 5th Ed. 2016, Routledge, London

International Human Resource Management, Hollinshead, G. 2010, McGraw Hill, London



International HRM, Brewster, C; Sparrow, P; Veron, G and Houldsworth E., 2011, CIPD, London  
Journal of International HRM

## Resources

- The University Library and Learning
- Resources - books and academic journals
- The module VLE
- Electronic data bases
- Learning support materials
- Selected problem/practice based case examples

## Implementation Guidelines

- The Faculty/Department must disseminate and explain the module descriptor to all module lecturers.
- In the first class of the module, all module lecturers must disseminate and explain the module descriptor to students.
- Module lecturers must adhere to the approved module descriptor.

## Module Descriptor

# Project Management

## MBAF03

### Summary

The module covers the following areas:

1. The role that projects play in an organisational context.
2. Project evaluation techniques.
3. Project Lifecycle concepts.
4. The role of the project manager.
5. Project management methodologies.
6. People processes.
7. A critical awareness of project planning (including, but not limited to, developing a work breakdown structure, scheduling, costs and benefits, stakeholder management and risk management).
8. Project monitoring control.
9. Effective project closure.

### Key facts

Faculty/Department: Business Administration - Postgraduate

Module Type:

Number of credits: 4

Prerequisite: None

### Contact

Module Leader: Jyotsna Ghildiyal Bijalwan

Email: [jyotsna.b@buv.edu.vn](mailto:jyotsna.b@buv.edu.vn)

### Hours of Study

Contact hours: 60

Independent Study Hours: 140

Total Learning Hours: 200

\* 01 contact hour = 50 minutes, as per Circular 17/2021/TT-BGDĐT

## Module Details

### Learning Outcomes

No.	Module Learning Outcomes	Programme Learning Outcomes
1	Critically appraise the usefulness of planning, monitoring, control & closure techniques in an organisational context.	Knowledge
2	Apply project management tools & techniques throughout the project lifecycle.	Autonomy & Responsibilities
3	Critically evaluate the role that projects & project management techniques play within organisations.	Skills
4	Reflect on and demonstrate development of associated underpinning organisational agility and drive for results competencies to enhance employability and/or career advancement in positions of management & leadership.	Autonomy & Responsibilities

### Assessment Details

An individual assignment of 3,000 words weighted at 50% and testing all module LO's which is based on individual students agreeing on a current business-related project with the module team by week two and the assignment taking the form of the development of a detailed project report (including industry standard planning documents) to effectively and efficiently plan, manage and monitor the project.

The assignment will include a 500 word minimum element reflecting critically on the relevant underpinning organisational agility & drive for results management & leadership competencies as they relate to this module.

An assignment weighted at 50%

### Indicative Content

Learning

The necessity to effectively manage the development of new products and services is regarded by many as an organisations life-blood. This module concentrates on the process, management techniques and tools that are used throughout a projects life cycle to ensure effective and appropriate decision making.

## Practice

Evaluating the outcome of good project management through evaluation of selected problem/practice base.

Identifying & developing individual organisational agility and drive for results competencies in management & leadership roles.

## Learning Strategies

Recognising the diverse skills and styles of our student community places an emphasis on ensuring that a range of learning environments and media are available and enabling students to engage in learning in a variety of ways. The emphasis on practice-based learning in a professional environment creates the need for additional learning environments such as taking responsibility for hosting your own events and learning by doing to supplement the more traditional approaches of lectures, guest speakers, tutorials, workshops, seminars and VLE to complement and enhance traditional, face-to-face learning experience. Knowledge and skills will be developed through case-studies, role-plays, simulations, presentations, projects (work-based and academic), reflective portfolios and the extended use of technology supported activities.

The curriculum will develop and evolve so that knowledge and skills learned in modules will be transferred, re-applied and developed in related modules at higher levels. You will be guided through your studies through a teaching support network of module leaders, personal tutors, award leaders and supporting academic and managers, and dedicated and involved support and pastoral staff. Learning and teaching will be an enriching experience for you that reflects the value the school places on effective, innovative and research informed teaching. Learning and teaching will foster your critical intellectual development and the business capabilities required to engage in contemporary organisations.

In your learning situations you will be acting in partnership with module deliverers and facilitators who, through a programme of study designed to develop an evolving body of knowledge and portfolio of skills will be:

- Encouraging active learning and a confidence to learn.

- Making explicit the skills to be developed through the curriculum.
- Stimulating intellectual curiosity and excitement in learning through engagement with up to-date and contemporary, well researched subjects.
- Encouraging critical reasoning about the world of business to achieve well informed judgements and conclusions.
- Challenging and shaping new learning experiences and opportunities through application of research informed pedagogy.

And you will be:

- Engaging with complex, challenging problems and real-world issues.
- Proactively using available resources, technical, digital and paper-based to address problems, construct solutions and identify new topics for research.
- Engaging in constructive reflection on learning and new ideas.

## **Texts**

Project Management (Fourth Edition), Maylor, H. (2010),  
Pearson Education, Harlow, England. ISBN 978-027370432.

Recommended Texts:

Project Management: A Managerial Approach (Eighth Edition), Meredith, J. & Mantel, S. (2011),  
John Wiley & Sons. ISBN 978-0470533024

## **Resources**

- A range of resources, including, University library and IT facilities, the Internet, journals and databases.
- Selected problem/practice based case examples

## Implementation Guidelines

- The Faculty/Department must disseminate and explain the module descriptor to all module lecturers.
- In the first class of the module, all module lecturers must disseminate and explain the module descriptor to students.
- Module lecturers must adhere to the approved module descriptor.

## Module Descriptor

# Managing People & Organisations

## HRMG70054

### Summary

The module covers the following areas:

- Historical developments in managerial approaches to the coordination and performance of the workforce.
- The influence of the external and global business environment and the implications for the management of people.
- The influence of the internal organisational context including organisation design, job design, the nature of the business, nature of the workforce and general workplace culture.
- The contribution of leadership, including qualities such as emotional intelligence for effective people management.
- The 'dark side' of organisations including issues of power, authority and political tactics, dealing with bullying, discrimination and victimisation.
- The nature of the 'human resource' and the challenges it presents to managers, including the problems of motivation, engagement and the management of conflict in the workplace.
- The pursuit of creativity and knowledge sharing, including the importance of facilitating employee voice, participation and involvement practices.

### Key facts

Faculty/Department: Business Administration - Postgraduate

Module Type:

Number of credits: 5

Prerequisite: None

### Contact

Module Leader: Kostas Tsontos

Email: [kostas.t@buv.edu.vn](mailto:kostas.t@buv.edu.vn)

## Hours of Study

Contact hours: 75

Independent Study Hours: 175

Total Learning Hours: 250

\* 01 contact hour = 50 minutes, as per Circular 17/2021/TT-BGDĐT

## Module Details

### Learning Outcomes

No.	Module Learning Outcomes	Programme Learning Outcomes
1	Understand the traditional & contemporary approaches to people management within different organisational settings, systems & contexts	Autonomy & Responsibilities
2	Characterise & analyse the managerial ideologies, processes and practices that contribute to the effective management of individuals & teams	Skills
3	Critically evaluate the managerial & employee relations challenges associated with managing people in organisations	Autonomy & Responsibilities
4	Reflect on and demonstrate development of associated underpinning organisational agility and drive for results competencies supporting potential for leadership in a strategic management context.	Autonomy & Responsibilities

### Assessment Details

A 3,000 word assignment to assess LO's 1,2 & 3.

Students to choose one title from a choice of four problem/practice based example case studies.

The assignment will include a 500 word minimum element to assess LO4 reflecting critically on the relevant underpinning organisational agility & drive for results management & leadership competencies as they relate to this module.

### Indicative Content

Learning



- The role of management in developing a competitive and sustainable workforce.
- The role and function of management including differences in management styles and their underpinning ideologies, philosophies and perspectives
- The importance of managing people strategically in the pursuit of organisational results.

#### Practice

- The consequences of management and their significance for employee relations.
- Developing and evaluating the performance of individuals, teams and the organisation.
- Problem/practice based evaluation of case examples

### **Learning Strategies**

Recognising the diverse skills and styles of our student community places an emphasis on ensuring that a range of learning environments and media are available and enabling students to engage in learning in a variety of ways. The emphasis on practice-based learning in a professional environment creates the need for additional learning environments such as taking responsibility for hosting your own events and learning by doing to supplement the more traditional approaches of lectures, guest speakers, tutorials, workshops, seminars and VLE to complement and enhance traditional, face-to-face learning experience. Knowledge and skills will be developed through case-studies, role-plays, simulations, presentations, projects (work-based and academic), reflective portfolios and the extended use of technology supported activities.

The curriculum will develop and evolve so that knowledge and skills learned in modules will be transferred, re-applied and developed in related modules at higher levels. You will be guided through your studies through a teaching support network of module leaders, personal tutors, award leaders and supporting academic and managers, and dedicated and involved support and pastoral staff. Learning and teaching will be an enriching experience for you that reflects the value the school places on effective, innovative and research informed teaching. Learning and teaching will foster your critical intellectual development and the business capabilities required to engage in contemporary organisations.

In your learning situations you will be acting in partnership with module deliverers and facilitators who, through a programme of study designed to develop an evolving body of knowledge and portfolio of skills will be:

- Encouraging active learning and a confidence to learn.
- Making explicit the skills to be developed through the curriculum.
- Stimulating intellectual curiosity and excitement in learning through engagement with up to-date and contemporary, well researched subjects.
- Encouraging critical reasoning about the world of business to achieve well informed judgements and conclusions.
- Challenging and shaping new learning experiences and opportunities through application of research informed pedagogy.

And you will be:

- Engaging with complex, challenging problems and real-world issues.
- Proactively using available resources, technical, digital and paper-based to address problems, construct solutions and identify new topics for research.
- Engaging in constructive reflection on learning and new ideas.

## **Texts**

Human Resource Management: Theory and Practice 6th edition, Macmillan International Higher Education, 2017, Bratton, J. and Gold, G.,

## **Resources**

Library

VLE

Problem/practice based case examples.

### Implementation Guidelines

- The Faculty/Department must disseminate and explain the module descriptor to all module lecturers.
- In the first class of the module, all module lecturers must disseminate and explain the module descriptor to students.
- Module lecturers must adhere to the approved module descriptor.

## Module Descriptor

# Leadership & Strategic Management

## STRA70184

### Summary

The module covers the following areas:

Introduction:

Definitions and Core Beliefs in Theories and

Existing tools and approaches for analysing processes and practices

- Competitive positioning analysis, Porter's Generic Strategies (Business Level Strategy) and Strategic Groups analysis.
- Industry analysis (Porter's 5 Forces), Competition vs Cooperation, Blue Ocean Strategies, etc.
- Corporate Level Strategy and International strategies etc.

Practices

- Leadership's role in strategic management.
- Core beliefs embedded in theoretical and practice-oriented approaches.

Looking ahead and evaluating emerging trends

- Case studies on emerging Social / Cultural, Technological, Economic, Political, etc. Factors.

### Key facts

Faculty/Department: Business Administration - Postgraduate

Module Type:

Number of credits: 5

Prerequisite: None

### Contact

Module Leader: Don Hickerson

Email: don.h@buv.edu.vn

## Hours of Study

Contact hours: 75

Independent Study Hours: 175

Total Learning Hours: 250

\* 01 contact hour = 50 minutes, as per Circular 17/2021/TT-BGDĐT

## Module Details

### Learning Outcomes

No.	Module Learning Outcomes	Programme Learning Outcomes
1	Demonstrate a conceptual understanding and critical awareness of core beliefs embedded in theories and practices concerned with the role of leadership in strategic management in different types of organisations.	Knowledge
2	Critically analyse the nature and scope of challenges leaders may face when managing strategic processes and practices across different geographical boundaries from consideration of relevant problem practice based case examples.	Skills
3	Critically evaluate implications of emerging factors impacting adoption of strategic growth options to enable organisations to anticipate the future.	Skills
4	Reflect on and demonstrate development of associated underpinning strategic agility and customer focus competencies supporting potential for leadership in a strategic management context. Reflection	Autonomy & Responsibilities

### Assessment Details

A 3,000 word research project which aims to test LO's 1,2 &3:

The first section to be based on a problem, practice-based learning topic enabling students to analyse, reflect on and make recommendations about a leadership and strategic management problem of the student's choosing. This section of the submission should be c.2,500 words.

The second section to be a reflection which aims to test LO4 which links learning lessons from the module to the student's efforts to critically develop and apply organisational agility competencies for leadership in a strategic management context. This part of the submission should be c.500 words.

## Indicative Content

### Learning

- Conceptual thinking and evaluation of the subject area. Challenging assumptions.
- Characterising contemporary strategic challenges, assessment & evaluation.

### Practice

- Identifying & developing individual strategic & organisational agility competency in management & leadership roles.
- Evaluating the implications through analysis of problem/practice based evaluation of case examples.

## Learning Strategies

Recognising the diverse skills and styles of our student community places an emphasis on ensuring that a range of learning environments and media are available and enabling students to engage in learning in a variety of ways. The emphasis on practice-based learning in a professional environment creates the need for additional learning environments such as taking responsibility for hosting your own events and learning by doing to supplement the more traditional approaches of lectures, guest speakers, tutorials, workshops, seminars and VLE to complement and enhance traditional, face-to-face learning experience. Knowledge and skills will be developed through case-studies, role-plays, simulations, presentations, projects (work-based and academic), reflective portfolios and the extended use of technology supported activities.

The curriculum will develop and evolve so that knowledge and skills learned in modules will be transferred, re-applied and developed in related modules at higher levels. You will be guided through your studies through a teaching support network of module leaders, personal tutors, award leaders and supporting academic and managers, and dedicated and involved support and pastoral staff. Learning and teaching will be an enriching experience for you that reflects the value the school places on effective, innovative and research informed teaching. Learning and teaching will foster your critical intellectual development and the business capabilities required to engage in contemporary organisations.

In your learning situations you will be acting in partnership with module deliverers and facilitators who, through a programme of study designed to develop an evolving body of knowledge and portfolio of skills will be:

- Encouraging active learning and a confidence to learn.
- Making explicit the skills to be developed through the curriculum.
- Stimulating intellectual curiosity and excitement in learning through engagement with up to-date and contemporary, well researched subjects.
- Encouraging critical reasoning about the world of business to achieve well informed judgements and conclusions.
- Challenging and shaping new learning experiences and opportunities through application of research informed pedagogy.

And you will be:

- Engaging with complex, challenging problems and real-world issues.
- Proactively using available resources, technical, digital and paper-based to address problems, construct solutions and identify new topics for research.
- Engaging in constructive reflection on learning and new ideas.

## **Texts**

1. Contemporary Strategy Analysis: 11th edition, Wiley, 2021, Robert M. Grant
2. Exploring Strategy, Text and Cases, 12th Edition, Pearson, 2019, Gerry Johnson

## **Resources**

- VLE learning support material to be provided for independent / self-directed learning,

- Access to Library facilities and to a variety of digital resources supporting different learning styles,
- Module handbooks,
- Selected contemporary case studies,

### **Implementation Guidelines**

- The Faculty/Department must disseminate and explain the module descriptor to all module lecturers.
- In the first class of the module, all module lecturers must disseminate and explain the module descriptor to students.
- Module lecturers must adhere to the approved module descriptor.



## Module Descriptor

# Financial Concepts & Practice

ACCT70293

## Summary

Review of the makeup and function of the international accounting regulatory and conceptual framework, how it aims to work in the public interest and its growing impact on SME's.

Investigation into accounting concepts and practices relating to areas such as off- balance sheet financing, substance over form, revenue recognition and asset impairment.

Ratio and trend analysis linked to the evaluation of investment opportunities and risk analysis. Looking at key areas of company profitability, efficiency, short and long term liquidity and investment ratios including earnings per share (EPS).

Investigation and research into current areas of development within accounting concepts and practice, dealing with large and small businesses.

## Key facts

Faculty/Department: Business Administration - Postgraduate

Module Type:

Number of credits: 5

Prerequisite: None

## Contact

Module Leader: Ajay Kumar Pillai

Email: [ajay.p@buv.edu.vn](mailto:ajay.p@buv.edu.vn)

## Hours of Study

Contact hours: 75

Independent Study Hours: 175

Total Learning Hours: 250

\* 01 contact hour = 50 minutes, as per Circular 17/2021/TT-BGDĐT

## Module Details

### Learning Outcomes

No.	Module Learning Outcomes	Programme Learning Outcomes
1	Understand & appreciate the regulatory framework and the conceptual framework governed by the International Financial Reporting Standards (IFRS) Foundation.	Knowledge
2	Apply knowledge on issues impacting the recognition and measurement of financial assets and liabilities.	Autonomy & Responsibilities
3	Evaluate key financial statements of a wide range of business types (public, private, not for profit, various size and structure) and be aware of current problems and/or new insights in financial and non-financial concepts and practices.	Autonomy & Responsibilities
4	Reflect on and demonstrate development of associated underpinning strategic agility and drive for results competencies to enhance employability and/or career advancement in positions of management & leadership.	Autonomy & Responsibilities

### Assessment Details

A closed book 2.0 hour examination to assess all module learning outcomes

### Indicative Content

#### Learning

- Regulatory Framework and Conceptual Framework
- Contemporary issues and developments

#### Practice

- Recognition & measurement
- Financial interpretation of selected problem/practice based case examples

### Learning Strategies

Recognising the diverse skills and styles of our student community places an emphasis on ensuring that a range of learning environments and media are available and enabling students to engage in learning in a variety of ways. The emphasis on practice-based learning in a professional environment creates the need for additional learning environments such as taking responsibility for hosting your own events and learning by doing to supplement the more traditional approaches of lectures, guest speakers, tutorials, workshops, seminars and VLE to complement and enhance traditional, face-to-face learning experience. Knowledge and skills will be developed through case-studies, role-plays, simulations, presentations, projects (work-based and academic), reflective portfolios and the extended use of technology supported activities.

The curriculum will develop and evolve so that knowledge and skills learned in modules will be transferred, re-applied and developed in related modules at higher levels. You will be guided through your studies through a teaching support network of module leaders, personal tutors, award leaders and supporting academic and managers, and dedicated and involved support and pastoral staff. Learning and teaching will be an enriching experience for you that reflects the value the school places on effective, innovative and research informed teaching. Learning and teaching will foster your critical intellectual development and the business capabilities required to engage in contemporary organisations.

In your learning situations you will be acting in partnership with module deliverers and facilitators who, through a programme of study designed to develop an evolving body of knowledge and portfolio of skills will be:

- Encouraging active learning and a confidence to learn.
- Making explicit the skills to be developed through the curriculum.
- Stimulating intellectual curiosity and excitement in learning through engagement with up to-date and contemporary, well researched subjects.
- Encouraging critical reasoning about the world of business to achieve well informed judgements and conclusions.

- Challenging and shaping new learning experiences and opportunities through application of research informed pedagogy.

And you will be:

- Engaging with complex, challenging problems and real-world issues.
- Proactively using available resources, technical, digital and paper-based to address problems, construct solutions and identify new topics for research.
- Engaging in constructive reflection on learning and new ideas.

## Texts

1. ACCA F9 Financial Management - Study Text, BPP Learning Media, 2017, BPP Learning Media
2. Contemporary Issues in Accounting 2E, Wiley, 2018, Michaela Rankin - Authors: Patricia Stanton, Susan McGowan, Kimberly Ferlauto

## Resources

- Module study guide
- The University Library and Learning Resources
- Books and academic journals
- The module VLE
- Electronic data bases
- Learning support materials
- Internet
- Selected problem/practice based case examples

## Implementation Guidelines

- The Faculty/Department must disseminate and explain the module descriptor to all module lecturers.

- In the first class of the module, all module lecturers must disseminate and explain the module descriptor to students.
- Module lecturers must adhere to the approved module descriptor.

## Module Descriptor

# Risk Management

## ECONO70143

### Summary

Defining risk and uncertainty and gaining an appreciation for the random nature of business events from a broadly multi-disciplinary approach such as economics, finance and accounting.

Evaluations contemporary risk management:

- The purpose of insurance
- The purpose of hedging
- The purpose of forecasting

The dynamic nature of dealing with the future will be central to the analytical nature of this module including how to incorporate these aspects in to business decisions such investment, borrowing and lending.

### Key facts

Faculty/Department: Business Administration - Postgraduate

Module Type:

Number of credits: 5

Prerequisite: None

### Contact

Module Leader: Shashi Chaudhary

Email: [shashikant.c@buv.edu.vn](mailto:shashikant.c@buv.edu.vn)

### Hours of Study

Contact hours: 75

Independent Study Hours: 175

Total Learning Hours: 250

*\* 01 contact hour = 50 minutes, as per Circular 17/2021/TT-BGDĐT*

## Module Details

### Learning Outcomes

No.	Module Learning Outcomes	Programme Learning Outcomes
1	Assess the nature, scope and impact of risk and uncertainty in the business context and show a keen appreciation for attitudes to risk and the consequences of loss in the modern world.	Knowledge
2	Develop a critical understanding of risk sharing and the pooling of risk over time using a variety of techniques of analysis such as hedging and insurance underpinned by Game Theory and Agency Theory.	Knowledge
3	Develop and apply the relevant evaluation and investigative techniques to interpret data and information used in financial markets and between organisations in the face of risk and uncertainty.	Autonomy & Responsibilities
4	Reflect upon the role of risk & uncertainty faced by management and leadership and appreciating the random nature of events such as "Black Swan" episodes in the context of underpinning strategic agility and drive for results competencies	Autonomy & Responsibilities

### Assessment Details

A two-hour unseen, closed-book examination (50%). There will be a choice of answering three questions from at least five questions covering all learning outcomes.

An assignment weighted at 50%

### Indicative Content

Learning

- The theory and practice of risk management in both firms and markets will be assessed including how to begin to cope with uncertainty.

Practice

- The critical evaluation of risk management techniques such as investment & hedging utilising problem/practice based case examples.

- Considering perspectives of business-users such as a commodity grower or a manufacturing exporter.
- The role of the speculator such as a hedge fund manager will be covered to show the dynamic nature of the subject area.
- A profound appreciation for risk management using a Game Theory approach and practice/problem based case examples that takes account of reaction
- Agency Theory taking into account asymmetry of information e.g. moral hazard

## Learning Strategies

Recognising the diverse skills and styles of our student community places an emphasis on ensuring that a range of learning environments and media are available and enabling students to engage in learning in a variety of ways. The emphasis on practice-based learning in a professional environment creates the need for additional learning environments such as taking responsibility for hosting your own events and learning by doing to supplement the more traditional approaches of lectures, guest speakers, tutorials, workshops, seminars and VLE to complement and enhance traditional, face-to-face learning experience. Knowledge and skills will be developed through case-studies, role-plays, simulations, presentations, projects (work-based and academic), reflective portfolios and the extended use of technology supported activities.

The curriculum will develop and evolve so that knowledge and skills learned in modules will be transferred, re-applied and developed in related modules at higher levels. You will be guided through your studies through a teaching support network of module leaders, personal tutors, award leaders and supporting academic and managers, and dedicated and involved support and pastoral staff. Learning and teaching will be an enriching experience for you that reflects the value the school places on effective, innovative and research informed teaching. Learning and teaching will foster your critical intellectual development and the business capabilities required to engage in contemporary organisations.

In your learning situations you will be acting in partnership with module deliverers and facilitators who, through a programme of study designed to develop an evolving body of knowledge and portfolio of skills will be:



- Encouraging active learning and a confidence to learn.
- Making explicit the skills to be developed through the curriculum.
- Stimulating intellectual curiosity and excitement in learning through engagement with up to-date and contemporary, well researched subjects.
- Encouraging critical reasoning about the world of business to achieve well informed judgements and conclusions.
- Challenging and shaping new learning experiences and opportunities through application of research informed pedagogy.

And you will be:

- Engaging with complex, challenging problems and real-world issues.
- Proactively using available resources, technical, digital and paper-based to address problems, construct solutions and identify new topics for research.
- Engaging in constructive reflection on learning and new ideas.

## **Texts**

Risk Management and Financial Institutions, 5E, Wiley, 2018, John C. Hull

## **Resources**

- Virtual Learning Environment (VLE) teaching and other support material to aid independent and self-motivated learning
- Module handbook and weekly tutorial problem-solving sheets including key reading lists
- Briefing papers written by the team deliveri

## **Implementation Guidelines**

- The Faculty/Department must disseminate and explain the module descriptor to all module lecturers.
- In the first class of the module, all module lecturers must disseminate and explain the module descriptor to students.
- Module lecturers must adhere to the approved module descriptor.

## Module Descriptor

# Strategic Marketing Management

## MKTG70307

### Summary

The module covers the following areas:

Introduction:

- The relationship between Corporate strategy and Strategic Market Management
- Strategic Analysis: External and internal audits including scenario planning.
- Strategy formulation: levels of marketing strategy, creating advantage (generic strategies), Market-led strategic change and achieving a market-orientation
- Brand strategy
- Segmentation, target marketing and positioning
- Impact of digital marketing.
- Design of an appropriate contemporary marketing mix i.e. 8 P's
- Implementation issues, including: leadership and planning, measuring market performance
- Evaluating emerging themes such as sustainability/CSR, digital and social media marketing; value co-creation within marketing; governance and risk.

### Key facts

Faculty/Department: Business Administration - Postgraduate

Module Type:

Number of credits: 5

Prerequisite: None

### Contact

Module Leader: Francesco Meca

Email: francesco.m@buv.edu.vn

## Hours of Study

Contact hours: 75

Independent Study Hours: 175

Total Learning Hours: 250

\* 01 contact hour = 50 minutes, as per Circular 17/2021/TT-BGDĐT

## Module Details

### Learning Outcomes

No.	Module Learning Outcomes	Programme Learning Outcomes
1	Critically appraise the digital stakeholder and customer, dynamics and interrelationships to enable the creation of effective marketing strategies and evaluate the impact of emerging themes including national and global brand awareness/reputation	Knowledge
2	Critically analyse, develop, and identify an effective co-ordinated strategic marketing plan in-line with organisational resources, corporate objectives /strategy.	Skills
3	Develop a strategic marketing audit to evaluate a business scenario.	Skills
4	Reflect on and demonstrate development of associated underpinning strategic agility and customer focus competencies supporting potential for leadership in a strategic management context.	Autonomy & Responsibilities

### Assessment Details

Individual Assignment 2,500 words (75%) based on development of a strategic marketing plan to assess LO's 1&2.

The assignment will include a 500 word minimum element reflecting critically on the relevant underpinning strategic agility & customer focus management & leadership competencies as they relate to this module to assess LO4.

A 15 minute group presentation (25%) based on a simulation including a critical evaluation of a contemporary challenge to a strategic marketing management process to assess LO3.

### Indicative Content

## Learning

- Developing an in-depth understanding of factors underpinning development and implementation of successful marketing strategic options.
- Exploration and analysis of current and future internal and external forces impacting on the planning process.
- Rationalisation and defence of strategic marketing choices.
- The challenges of the digital world and increased connectivity in conjunction with the move to customisation and personalisation.

## Practice

- Developing an appreciation of the bridge between marketing theory and observed practice through consideration of example problem/practice based case examples.
- The impact of these challenges will be contextualised with reference to design and implementation of strategic marketing plans alongside other contemporary issues e.g. sustainability/CSR, social & mobile media marketing, relationship and service based connectivity.

## Learning Strategies

Recognising the diverse skills and styles of our student community places an emphasis on ensuring that a range of learning environments and media are available and enabling students to engage in learning in a variety of ways. The emphasis on practice-based learning in a professional environment creates the need for additional learning environments such as taking responsibility for hosting your own events and learning by doing to supplement the more traditional approaches of lectures, guest speakers, tutorials, workshops, seminars and VLE to complement and enhance traditional, face-to-face learning experience. Knowledge and skills will be developed through case-studies, role-plays, simulations, presentations, projects (work-based and academic), reflective portfolios and the extended use of technology supported activities.

The curriculum will develop and evolve so that knowledge and skills learned in modules will be transferred, re-applied and developed in related modules at higher levels. You will be guided through your studies through a teaching support network of module leaders, personal tutors, award leaders and supporting academic and managers, and dedicated and involved support and pastoral staff. Learning and teaching will be an enriching experience for you that reflects the value

the school places on effective, innovative and research informed teaching. Learning and teaching will foster your critical intellectual development and the business capabilities required to engage in contemporary organisations.

In your learning situations you will be acting in partnership with module deliverers and facilitators who, through a programme of study designed to develop an evolving body of knowledge and portfolio of skills will be:

- Encouraging active learning and a confidence to learn.
- Making explicit the skills to be developed through the curriculum.
- Stimulating intellectual curiosity and excitement in learning through engagement with up to-date and contemporary, well researched subjects.
- Encouraging critical reasoning about the world of business to achieve well informed judgements and conclusions.
- Challenging and shaping new learning experiences and opportunities through application of research informed pedagogy.

And you will be:

- Engaging with complex, challenging problems and real-world issues.
- Proactively using available resources, technical, digital and paper-based to address problems, construct solutions and identify new topics for research.
- Engaging in constructive reflection on learning and new ideas.

## **Texts**

Marketing Management, An Asian Perspective, 7th edition, Pearson, 2017 - Authors: Kotler, Philip/Keller, Kevin Lane/Ang, Swee Hoon

## **Resources**

The content of this module requires that students have access to up-to-the-minute data and can synthesise data and communicate information effectively.

Problem/practice based case examples.

Access to WiFi in lessons and access to the IT laboratories and

### **Implementation Guidelines**

- The Faculty/Department must disseminate and explain the module descriptor to all module lecturers.
- In the first class of the module, all module lecturers must disseminate and explain the module descriptor to students.
- Module lecturers must adhere to the approved module descriptor.

## Module Descriptor

# Performing in Organisations

## SPOR70921

### Summary

Exploring development of organisational agility via enhancement of personal performance and well-being along with the performance and well-being of the wider team.

Explores a range of concepts including:

- how to understand, manage, and respond positively to stress.
- how we think and view demands helps an individual & team to perform more effectively.
- The social identity approach to leadership: considering 3 stages (Reflection, Representation, Realisation)

Considers how individuals time (e.g., when should cognitively demanding tasks be completed), and habits (e.g., sleep, email activity) and that of the organisation can be structured most effectively to enhance performance and well-being.

### Key facts

Faculty/Department: Business Administration - Postgraduate

Module Type:

Number of credits: 5

Prerequisite: None

### Contact

Module Leader: Kostas Tsonetos

Email: [kostas.t@buv.edu.vn](mailto:kostas.t@buv.edu.vn)

### Hours of Study

Contact hours: 75

Independent Study Hours: 175

Total Learning Hours: 250



\* 01 contact hour = 50 minutes, as per Circular 17/2021/TT-BGDĐT

## Module Details

### Learning Outcomes

No.	Module Learning Outcomes	Programme Learning Outcomes
1	Understand and increase awareness of developing personal resilience and be able to enhance resilience in others.	Knowledge
2	Understand and be able to apply thinking styles that enhance well-being and performance.	Autonomy & Responsibilities
3	Understand the strengths and weaknesses of adopting a social identity approach to leadership.	Knowledge
4	Reflect on and demonstrate development of associated underpinning drive for results and career ambition competencies supporting potential for leadership in a strategic management context.	Autonomy & Responsibilities

### Assessment Details

A 2,500 word problem/practice based case study addressing LO's 1,2, & 3 which details a needs analysis of the student's own career and an action plan to improve their own psychological approach and performance in an organisation. (80%)

A 20 minute 'Dragon's Den/Shark Tank' type viva voce oral examination of the proposed action plan covering LO's 3&4(20%).

### Indicative Content

Learning

Characterising an understanding of:

- Resilience
- Leadership
- Social Identity

Practice

Exercising techniques associated with:

- Time Management
- Planning
- Cognitive Restructuring
- Stress Management
- Interpersonal skills

## **Learning Strategies**

Recognising the diverse skills and styles of our student community places an emphasis on ensuring that a range of learning environments and media are available and enabling students to engage in learning in a variety of ways. The emphasis on practice-based learning in a professional environment creates the need for additional learning environments such as taking responsibility for hosting your own events and learning by doing to supplement the more traditional approaches of lectures, guest speakers, tutorials, workshops, seminars and VLE to complement and enhance traditional, face-to-face learning experience. Knowledge and skills will be developed through case-studies, role-plays, simulations, presentations, projects (work-based and academic), reflective portfolios and the extended use of technology supported activities.

The curriculum will develop and evolve so that knowledge and skills learned in modules will be transferred, re-applied and developed in related modules at higher levels. You will be guided through your studies through a teaching support network of module leaders, personal tutors, award leaders and supporting academic and managers, and dedicated and involved support and pastoral staff. Learning and teaching will be an enriching experience for you that reflects the value the school places on effective, innovative and research informed teaching. Learning and teaching will foster your critical intellectual development and the business capabilities required to engage in contemporary organisations.

In your learning situations you will be acting in partnership with module deliverers and facilitators who, through a programme of study designed to develop an evolving body of knowledge and portfolio of skills will be:

- Encouraging active learning and a confidence to learn.

- Making explicit the skills to be developed through the curriculum.
- Stimulating intellectual curiosity and excitement in learning through engagement with up to-date and contemporary, well researched subjects.
- Encouraging critical reasoning about the world of business to achieve well informed judgements and conclusions.
- Challenging and shaping new learning experiences and opportunities through application of research informed pedagogy.

And you will be:

- Engaging with complex, challenging problems and real-world issues.
- Proactively using available resources, technical, digital and paper-based to address problems, construct solutions and identify new topics for research.
- Engaging in constructive reflection on learning and new ideas.

## **Texts**

Psychology in organizations: The social identity approach, Sage, 2004, S. Alexander Haslam

## **Resources**

Module handbooks

VLE resource

Selected case questions

Directed texts

Problem/practice based case examples.

## **Implementation Guidelines**

- The Faculty/Department must disseminate and explain the module descriptor to all module lecturers.
- In the first class of the module, all module lecturers must disseminate and explain the module descriptor to students.
- Module lecturers must adhere to the approved module descriptor.

## Module Descriptor

# International Business

## IBUS70001

### Summary

Defining patterns & dynamics of international business and hence global economy

Evaluations of contemporary patterns of the global economy:

- The role of the TRIAD
- Impact of emerging economies on TRIAD dynamics
- Implications of emerging economies on the global economy

Future dynamics of international business

- Globalisation
- Factors likely to impact patterns of economic growth
- Implications for emerging economies and future growth of the global economy

### Key facts

Faculty/Department: Business Administration - Postgraduate

Module Type:

Number of credits: 5

Prerequisite: None

### Contact

Module Leader: Mark Harris

Email: [mark.h@buv.edu.vn](mailto:mark.h@buv.edu.vn)

### Hours of Study

Contact hours: 75

Independent Study Hours: 175

Total Learning Hours: 250

*\* 01 contact hour = 50 minutes, as per Circular 17/2021/TT-BGDĐT*

## Module Details

### Learning Outcomes

No.	Module Learning Outcomes	Programme Learning Outcomes
1	Employ a range of critical evaluation techniques to demonstrate a systematic awareness, understanding and knowledge of patterns of international business & the impact on global economies.	Application
2	Understand patterns of international business, take a global perspective on aspects of the global economy.	Knowledge
3	Apply valid evaluation and investigative techniques to interpret complex international business patterns and propose future possible scenarios. Demonstrate understanding of selected evaluation techniques within contemporary business paradigms.	Skills
4	Reflect on and demonstrate development of associated underpinning strategic agility and career ambition competencies to enhance employability and/or career advancement in positions of management & leadership.	Autonomy & Responsibilities

### Assessment Details

2,500 word (80%) group case study which aims to test LO's 1,2 & 3. based around the impact of an identified key factor on patterns of international business and hence the future development of the global economy.

The evaluation submission must :

- Incorporate a critical evaluation underpinned by a range of relevant & contemporary theories & frameworks leading to reasoned conclusions which address the assignment task.

A 10 minute individual 'viva voce' (aural) examination plus Q&A by academic staff & peer group representatives reflecting critically on the relevant underpinning strategic agility & career ambition management & leadership competencies as they relate to this module specifically aimed to test LO4 (20%).

### Indicative Content

Learning

- Characterise emerging patterns and cycle of global economic growth.

#### Practice

- Evaluate current global dynamics and relationships between TRIAD and emerging economies. Evaluating the implications.
- Conceptually think and evaluate key factors impacting the future patterns of global economic growth.
- Evaluate contemporary problem/practice based case examples

### **Learning Strategies**

Recognising the diverse skills and styles of our student community places an emphasis on ensuring that a range of learning environments and media are available and enabling students to engage in learning in a variety of ways. The emphasis on practice-based learning in a professional environment creates the need for additional learning environments such as taking responsibility for hosting your own events and learning by doing to supplement the more traditional approaches of lectures, guest speakers, tutorials, workshops, seminars and VLE to complement and enhance traditional, face-to-face learning experience. Knowledge and skills will be developed through case-studies, role-plays, simulations, presentations, projects (work-based and academic), reflective portfolios and the extended use of technology supported activities.

The curriculum will develop and evolve so that knowledge and skills learned in modules will be transferred, re-applied and developed in related modules at higher levels. You will be guided through your studies through a teaching support network of module leaders, personal tutors, award leaders and supporting academic and managers, and dedicated and involved support and pastoral staff. Learning and teaching will be an enriching experience for you that reflects the value the school places on effective, innovative and research informed teaching. Learning and teaching will foster your critical intellectual development and the business capabilities required to engage in contemporary organisations.

In your learning situations you will be acting in partnership with module deliverers and facilitators who, through a programme of study designed to develop an evolving body of knowledge and portfolio of skills will be:

- Encouraging active learning and a confidence to learn.
- Making explicit the skills to be developed through the curriculum.
- Stimulating intellectual curiosity and excitement in learning through engagement with up to-date and contemporary, well researched subjects.
- Encouraging critical reasoning about the world of business to achieve well informed judgements and conclusions.
- Challenging and shaping new learning experiences and opportunities through application of research informed pedagogy.

And you will be:

- Engaging with complex, challenging problems and real-world issues.
- Proactively using available resources, technical, digital and paper-based to address problems, construct solutions and identify new topics for research.
- Engaging in constructive reflection on learning and new ideas.

## **Texts**

International Business Strategy: Rethinking the Foundations of Global Corporate Success, 3E, Cambridge University Press , 2021, Alain Verbeke

## **Resources**

- VLE learning support material to be provided for independent /self directed learning.
- Module handbooks
- Selected contemporary problem/practice based case examples
- Directed text



## Implementation Guidelines

- The Faculty/Department must disseminate and explain the module descriptor to all module lecturers.
- In the first class of the module, all module lecturers must disseminate and explain the module descriptor to students.
- Module lecturers must adhere to the approved module descriptor.

## Module Descriptor

# Marketing Innovations

**MKTG70224**

## Summary

1. Development of innovative new products and new service innovation
2. When and why do customers fail to adopt innovative new products' understanding the adoption and diffusion of innovations
3. Marketing research - role and use in the development and launch of innovative new products
4. Managing the innovative new product development process
5. New product development for growth and innovative new product strategy

## Key facts

Faculty/Department: Business Administration - Postgraduate

Module Type:

Number of credits: 5

Prerequisite: None

## Contact

Module Leader: Joao Fialho, Francesco Meca

Email: francesco.m@buv.edu.vn, joao.f@buv.edu.vn

## Hours of Study

Contact hours: 75

Independent Study Hours: 175

Total Learning Hours: 250

*\* 01 contact hour = 50 minutes, as per Circular 17/2021/TT-BGDĐT*

## Module Details

## Learning Outcomes

No.	Module Learning Outcomes	Programme Learning Outcomes
1	Demonstrate a systematic understanding and awareness of new insights of contemporary marketing management issues pertaining to the development and launch of innovative new products	Knowledge
2	Demonstrate a comprehensive understanding and critical evaluation of customer psychology and its impact of the adoption and diffusion of innovation via formulation of marketing objectives and marketing strategies to introduce and manage innovative new pro	Skills
3	Demonstrate originality in the application of knowledge, together with critical evaluation of contemporary global developments in marketing innovative new products and the application of sustainability, corporate social responsibility, ecommerce and ethic	Skills
4	Reflect on and demonstrate development of associated underpinning customer focus and drive for results competencies to enhance employability and/or career advancement in positions of management & leadership.	Autonomy & Responsibilities

## Assessment Details

There will be two elements of assessment;

1. A 15 minute group presentation (40%) which assesses LO' s 1&2

Demonstration of a systematic understanding and awareness of new insights of contemporary marketing management issues pertaining to the development and launch of innovative new products , AND

Demonstration of a comprehensive understanding and critical evaluation of customer psychology and its impact of the adoption and diffusion of innovation

2. One individual 2,500 word assignment (60%) which assesses LO3.

To include a 500-word critically reflective element relating to the relevant underpinning customer-focus & career ambition management & leadership competencies as they relate to this assignment which assesses LO4.

## Indicative Content

### Learning

The module will focus on the marketing management of innovative new products within the context of small entrepreneurial firms and large established global companies. The module will also explore the challenges faced by marketers, entrepreneurs and consultants in bringing an innovative product to the market.

### Practice

The module will also examine the drivers of market adoption and evaluate marketing strategies for successful launch of innovative new products.

## Learning Strategies

Recognising the diverse skills and styles of our student community places an emphasis on ensuring that a range of learning environments and media are available and enabling students to engage in learning in a variety of ways. The emphasis on practice-based learning in a professional environment creates the need for additional learning environments such as taking responsibility for hosting your own events and learning by doing to supplement the more traditional approaches of lectures, guest speakers, tutorials, workshops, seminars and VLE to complement and enhance traditional, face-to-face learning experience. Knowledge and skills will be developed through case-studies, role-plays, simulations, presentations, projects (work-based and academic), reflective portfolios and the extended use of technology supported activities.

The curriculum will develop and evolve so that knowledge and skills learned in modules will be transferred, re-applied and developed in related modules at higher levels. You will be guided through your studies through a teaching support network of module leaders, personal tutors, award leaders and supporting academic and managers, and dedicated and involved support and pastoral staff. Learning and teaching will be an enriching experience for you that reflects the value the school places on effective, innovative and research informed teaching. Learning and teaching will foster your critical intellectual development and the business capabilities required to engage in contemporary organisations.

In your learning situations you will be acting in partnership with module deliverers and facilitators who, through a programme of study designed to develop an evolving body of knowledge and portfolio of skills will be:

- Encouraging active learning and a confidence to learn.
- Making explicit the skills to be developed through the curriculum.
- Stimulating intellectual curiosity and excitement in learning through engagement with up to-date and contemporary, well researched subjects.
- Encouraging critical reasoning about the world of business to achieve well informed judgements and conclusions.
- Challenging and shaping new learning experiences and opportunities through application of research informed pedagogy.

And you will be:

- Engaging with complex, challenging problems and real-world issues.
- Proactively using available resources, technical, digital and paper-based to address problems, construct solutions and identify new topics for research.
- Engaging in constructive reflection on learning and new ideas.

## **Texts**

Innovation Management and New Product Development GE, Pearson, 2021, Paul Trott

## **Resources**

- VLE - Blackboard
- Library
- Selected problem/practice based case examples

- Academic Journals
- Industry reports
- Videos

## Implementation Guidelines

- The Faculty/Department must disseminate and explain the module descriptor to all module lecturers.
- In the first class of the module, all module lecturers must disseminate and explain the module descriptor to students.
- Module lecturers must adhere to the approved module descriptor.

## Module Descriptor

# Decision Analytics (optional)

## MBAS01

### Summary

This module looks at Machine Learning Algorithms, Data Mining and Big Data Analytics in the context of decision making.

### Key facts

Faculty/Department: Business Administration - Postgraduate

Module Type:

Number of credits: 5

Prerequisite: None

### Contact

Module Leader: Jyotsna Ghildiyal Bijalwan

Email: jyotsna.b@buv.edu.vn

### Hours of Study

Contact hours: 75

Independent Study Hours: 175

Total Learning Hours: 250

*\* 01 contact hour = 50 minutes, as per Circular 17/2021/TT-BGDĐT*

### Module Details

#### Learning Outcomes

No.	Module Learning Outcomes	Programme Learning Outcomes
1	Discuss critically what is meant by knowledge discovery and the relationship between machine learning, data mining, organisational decision making and data science	Knowledge
2	Show clear understanding, and be able to explain, apply and critically evaluate the results of	Skills Autonomy & Responsibilities

	machine learning applied to data to support decision making	
3	Demonstrate, explain, apply and critically evaluate the use of big data analytics to support decision making	Skills Autonomy & Responsibilities
4	Discuss what is meant by the family of database technologies usually referred to as nosql; and be able to explain the characteristics, applications, strengths and limitations of this family of database technologies	KnowledgeSkills

### Assessment Details

Assignment 1 -

Is a case study to model a problem, with integrated presentation and covers Learning Outcomes 1 to 3.

Assignment 2 -

Is to build and demonstrate a NoSQL application, and undertake a presentation (Provide a corporate data solution for a business problem), Learning Outcome 4.

### Indicative Content

This module looks at Machine Learning Algorithms, Data Mining and Big Data Analytics in the context of decision making.

The content includes:

- The nature of Knowledge Discovery, and the role and contribution of Machine Learning, Data Mining, Organisational Decision Making and Data Science.
- Data Quality and ethics in machine learning and Big Data Analytics
- The nature of Big Data and Big Data Analytics and the selection of analysis strategies
- Professional issues and obligations in relation to data analysis
- Machine Learning and Data Mining algorithms using the Weka environment or optionally the R statistical software package, including:



- o Classification
- o Clustering
- o Association Rules

## Learning Strategies

Recognising the diverse skills and styles of our student community places an emphasis on ensuring that a range of learning environments and media are available and enabling students to engage in learning in a variety of ways. The emphasis on practice-based learning in a professional environment creates the need for additional learning environments such as taking responsibility for hosting your own events and learning by doing to supplement the more traditional approaches of lectures, guest speakers, tutorials, workshops, seminars and VLE to complement and enhance traditional, face-to-face learning experience. Knowledge and skills will be developed through case-studies, role-plays, simulations, presentations, projects (work-based and academic), reflective portfolios and the extended use of technology supported activities.

The curriculum will develop and evolve so that knowledge and skills learned in modules will be transferred, re-applied and developed in related modules at higher levels. You will be guided through your studies through a teaching support network of module leaders, personal tutors, award leaders and supporting academic and managers, and dedicated and involved support and pastoral staff. Learning and teaching will be an enriching experience for you that reflects the value the school places on effective, innovative and research informed teaching. Learning and teaching will foster your critical intellectual development and the business capabilities required to engage in contemporary organisations.

In your learning situations you will be acting in partnership with module deliverers and facilitators who, through a programme of study designed to develop an evolving body of knowledge and portfolio of skills will be:

- Encouraging active learning and a confidence to learn.
- Making explicit the skills to be developed through the curriculum.

- Stimulating intellectual curiosity and excitement in learning through engagement with up to-date and contemporary, well researched subjects.
- Encouraging critical reasoning about the world of business to achieve well informed judgements and conclusions.
- Challenging and shaping new learning experiences and opportunities through application of research informed pedagogy.

And you will be:

- Engaging with complex, challenging problems and real-world issues.
- Proactively using available resources, technical, digital and paper-based to address problems, construct solutions and identify new topics for research.
- Engaging in constructive reflection on learning and new ideas.

## **Texts**

Visual Six Sigma: Making Data Analysis Lean 2nd Edition, Cox, I. (2016), John Wiley and Sons ISBN: 1118905687; 9781118905685

Data Mining Techniques and Applications: an introduction Cengage, Du, H., (2013), ISBN 978-84480-891-5

Big data in practice: how 45 successful companies used big data analytics to deliver extraordinary results, Marr, B. (2016), Wiley ISBN: 1119231388; 9781119231387

Data analytics with Hadoop: an introduction for data scientists O'Reilly, Bengfort B., Kim J. (2016), ISBN: 1491913703; 9781491913703.

Data Protection Act 2018 and GDPR 2018

Data Governance: How to Design, Deploy and Sustain an Effective Data Governance Program Morgan Kaufmann, Ladley J. (2012) ISBN-13: 978-0124158290 0124158293

MongoDB.com <https://docs.mongodb.com/> - the authoritative source for MongoDB documentation.

## **Resources**

R statistical package - latest stable version

Microsoft Office

Internet access

Access to ISO standards ISO 8000-8:2015 Data Quality

Access to Lab

MongoDB

CouchDB

SQL Server Enterprise

NoSQL podcasts and forum including MongoDB.com and <http://nosql-databas>

### **Implementation Guidelines**

- The Faculty/Department must disseminate and explain the module descriptor to all module lecturers.
- In the first class of the module, all module lecturers must disseminate and explain the module descriptor to students.
- Module lecturers must adhere to the approved module descriptor.

## Module Descriptor

# Project

## STRA70172

### Summary

The aim is to prepare fully all students for this final independent & autonomous phase of the MBA study. The outcome of this first phase will be a final Project proposal.

### Key facts

Faculty/Department: Business Administration - Postgraduate

Module Type:

Number of credits: 8

Prerequisite: None

### Contact

Module Leader: Joao Fialho

Email: joao.f@buv.edu.vn

### Hours of Study

Contact hours: 120

Independent Study Hours: 280

Total Learning Hours: 400

*\* 01 contact hour = 50 minutes, as per Circular 17/2021/TT-BGDĐT*

### Module Details

#### Learning Outcomes

No.	Module Learning Outcomes	Programme Learning Outcomes
1	Employ a range of critical evaluation techniques to demonstrate a systematic awareness, understanding and knowledge of contemporary management & leadership issues associated with the project topic.	Knowledge
2	Demonstrate intellectual and entrepreneurial skills in the application of management & leadership competencies, together with a practical understanding of how established	Autonomy & Responsibilities

	management & leadership techniques are applied in the context of the project topic.	
3	Contextualise, analyse and apply learning from a wide range of teaching & learning, taking both local & global perspective on contemporary research & developments in management & leadership in the context of the project topic.	Knowledge
4	Generate innovative and enterprising approaches & solutions to management & leadership challenges which inform decision making in effective business risk management as they relate to the project topic.	Autonomy & Responsibilities
5	Devise and apply valid evaluation and investigative techniques to interpret complex business challenges and propose solutions in the context of the project topic. Demonstrate understanding of selected investigative techniques within contemporary business	Skills
6	Demonstrate a conceptual understanding and critical awareness of contemporary developments in management & leadership as they relate to the project topic. Evaluate the rigour and validity of evaluation and relevance to contemporary issues in management &	Skills
7	Articulate complex business information, situations & scenarios based on critical awareness & knowledge, adapting to different audiences, circumstances & feedback using a variety of communication tools & approaches.	Skills
8	Reflect on and demonstrate development of all 5 underpinning management & leadership competencies to enhance employability and/or career advancement in positions of management & leadership.	Autonomy & Responsibilities

## Assessment Details

### 1. Proposal evaluation (10%)

A 15 minute presentation followed by Q&A to a 'Dragon's-Den/Shark Tank' panel of three nominated academic staff/employer representative.

### 2. A project study & evaluation (80%)

A 15,000 word submission incorporating:

Critical assessment & evaluation drawing on relevant & contemporary theory & frameworks and reasoned conclusions.

(12,000 words)

Reflection on development of all 5X underpinning management & leadership competencies within the main body of the Project submission of up to 1,000 words.

### 3. Executive summary presentation (10%)

A 10 minute presentation followed by Q&A to a panel of 3 x nominated academic staff/employer and/or peer group representatives.

(100% total)

## Indicative Content

### Learning

Identify a suitable approach & methodology to prepare and conduct an investigation into a problem/practice based individual Project.

Characterise, evaluate & critically reason conclusions and/or recommendations with reference to appropriate underpinning theory and/or frameworks.

### Practice

Conduct a critical reasoned evaluation from analysis of secondary data and/or primary research to draw robust conclusions & make recommendations relating to an approved problem/practice based topic.

Evaluate the wider implications of Project conclusions and how they relate more generally to business.

Reflect on the development of all 5 x underpinning MBA business competencies in the context of management & leadership.

## Learning Strategies

Recognising the diverse skills and styles of our student community places an emphasis on ensuring that a range of learning environments and media are available and enabling students to engage in learning in a variety of ways. The emphasis on practice-based learning in a professional environment creates the need for additional learning environments such as taking responsibility

for hosting your own events and learning by doing to supplement the more traditional approaches of lectures, guest speakers, tutorials, workshops, seminars and VLE to complement and enhance traditional, face-to-face learning experience. Knowledge and skills will be developed through case-studies, role-plays, simulations, presentations, projects (work-based and academic), reflective portfolios and the extended use of technology supported activities.

The curriculum will develop and evolve so that knowledge and skills learned in modules will be transferred, re-applied and developed in related modules at higher levels. You will be guided through your studies through a teaching support network of module leaders, personal tutors, award leaders and supporting academic and managers, and dedicated and involved support and pastoral staff. Learning and teaching will be an enriching experience for you that reflects the value the school places on effective, innovative and research informed teaching. Learning and teaching will foster your critical intellectual development and the business capabilities required to engage in contemporary organisations.

In your learning situations you will be acting in partnership with module deliverers and facilitators who, through a programme of study designed to develop an evolving body of knowledge and portfolio of skills will be:

- Encouraging active learning and a confidence to learn.
- Making explicit the skills to be developed through the curriculum.
- Stimulating intellectual curiosity and excitement in learning through engagement with up to-date and contemporary, well researched subjects.
- Encouraging critical reasoning about the world of business to achieve well informed judgements and conclusions.
- Challenging and shaping new learning experiences and opportunities through application of research informed pedagogy.

And you will be:

- Engaging with complex, challenging problems and real-world issues.
- Proactively using available resources, technical, digital and paper-based to address problems, construct solutions and identify new topics for research.
- Engaging in constructive reflection on learning and new ideas.

## Texts

1. Statistics for Business and Economics, Global Edition 10E, Pearson, 2022, Newbold, Paul/Carlson, William L./Thorne, Betty
2. Research methods for business students 8E, Pearson, 2019, Prof Mark N. K. Saunders; Adrian Thornhill; Dr Philip Lewis

## Resources

- VLE learning support material.
- Module handbook.
- Directed texts.
- Supporting research methodology lecture material.
- Selected PPBL case examples
- Academic Journals
- Industry reports

## Implementation Guidelines

- The Faculty/Department must disseminate and explain the module descriptor to all module lecturers.
- In the first class of the module, all module lecturers must disseminate and explain the module descriptor to students.
- Module lecturers must adhere to the approved module descriptor.



# APPENDIX VI

# CURRICULUM VITAE

**Name** Adrian Wee Tiong Weng

**Year of birth** April, 1968

**Nationality** Malaysian

**Email** [adrian.wee@rmit.edu.vn](mailto:adrian.wee@rmit.edu.vn), [adrianwee70@gail.com](mailto:adrianwee70@gail.com)

**Education** Bachelor of Economics (Major in Accounting)  
Monash University, Melbourne, Australia

Master of Business Administration (Major in Marketing)  
University of New England, New South Wales, Australia

Doctor of Business Administration (completed 2016)  
(Research on Culture, Communication and Management)  
Southern Cross University, New South Wales, Australia

**Linkedin** <https://www.linkedin.com/in/dr-w-41bb082b/>

**Youtube** <https://www.youtube.com/channel/UCXh9Dfy4G-Qb0PxvzdC53NQ>

## ACADEMIC HISTORY

**Jun 2005 to Present**                    **Lecturer and Course coordinator, RMIT University, Vietnam**

- Responsible for designing, planning and coordinating business and management courses in the Bachelor of Business undergraduate program
- Collaborating with team members on course development, course customization and course assessments. Coaching and mentoring team members to ensure consistency in delivery and course experience
- Liaising with coordinators in Melbourne with respect to course contextualization, assessments and moderation
- Assuming other professional academic duties such as monitoring student's progress, providing course and career counseling, supervising examinations, assessments and course evaluations
- Teaching International Business, Global Trade, Contemporary Management, Organizational Behavior, Organizational Analysis, Financial Accounting, Management Accounting, Marketing Principles, Global Branding, Digital media, Content Creation, Creativity Innovation and Design, Entrepreneurship etc

## **AWARDS**

- Best Teacher award 2007, runners up
- Excellence in Teaching award 2016

## **JOURNAL PAPERS**

- Weng, AWT 2015, 'Communication at the international workplaces: The foreign managers' perspective', *International Journal of Business and Management*, vol. 10, no. 4, pp.82
- Weng, AWT 2017, 'Leadership and communication in HCMC, Vietnam', *International Journal of Business and Management*, vol. 12, no. 5, pp.111
- Weng, AWT 2018, 'CSR reporting in locally owned hotels in Malaysia', *Asian Social Science*, vol.14, no. 8, pp. 16
- Smith, MR, Weng, AWT, Kijbumrung, T & Suhor, A 2018, 'Do Western Companies Appropriately Adapt Their Indonesian Promotional Websites to an Indonesian Audience? A Study Applying Content Analysis of Cultural Cues Reveals Some Answers', *Asian Social Science*, vol. 14, no. 12
- Weng, AWT 2019, 'Facebook use in Malaysian owned and operated hotels', submitted to *Asia Pacific Journal of Tourism Research* in October 2019

## **PROFESSIONAL HISTORY**

### **Jan 2002 to Feb 2005      Training Manager, KPMG Malaysia**

- Jointly responsible for overseeing the training department with a total of 10 staff consisting of 3 managers and 6 training coordinators
- Responsible for planning, organizing and coordinating training events for KPMG Kuala Lumpur, a large professional accounting firm with a workforce approximating 1500 employees
- Liaising with the other department managers to identify training needs, and drawing up appropriate training plans
- Working with training providers to develop suitable course content, and evaluating individual training and the overall program
- Administering firm wide annual training needs analysis (TNA) to ensure the firm's current and future needs for training are properly addressed

- Supervising executive development programs designed to develop young, aspiring employees with potential to managerial positions
- Coordinating company wide events including the annual Managers Conference, the Corporate Governance Award dinner, Regional Partners Conference, other public seminars and forum
- Delivering soft skills training to the firm's employees, that includes leadership development, managing teams, effective presentation and facilitation, personal effectiveness, conflict resolution, developing client relationships and successful coaching

**Jan 1999 to Nov 2001          Lecturer, Metropolitan University College, Malaysia**

- Responsible for curriculum development and teaching the 1st and 2<sup>nd</sup> year accounting subjects for the Curtin University of Technology (Australia) Undergraduate Program
- Working with student recruitment to promote the Curtin academic programs including coordinating and staffing educational exhibitions, school visits, seminars and other events

**July 1994 to Nov 1998          Investment Executive, TA Securities, Malaysia**

- Responsible for gathering and analyzing company financial statements, industry and economic data, financial periodicals and newspapers for investment decisions
- Writing research reports on companies, industries and economy. Making recommendations on the purchase or sale of company securities.

## **COMPUTER SKILLS**

Proficient in the following commercial programs:

- Microsoft Office Suite, Google Office Apps
- Canvas and Blackboard (Course management software)
- NVivo and Endnote (Qualitative Research software)
- Lightworks and Adobe Premiere Pro (Video editing Softwares)

## **LANGUAGES**

English and Bahasa Malaysia are my native languages. My reading, speaking and writing skills for both languages are excellent.

## REFEREES

### **Dr. Justin Kong**

Lecturer, RMIT School of Business  
Handiresco Building  
521 Kim Ma, Ba Dinh District, Hanoi  
Tel : (02) 4 37261460  
Email : [justin.kong@rmit.edu.vn](mailto:justin.kong@rmit.edu.vn)

### **Dr. Gana Gopalakrishnan**

Lecturer, RMIT School of Business  
Handiresco Building  
521 Kim Ma, Ba Dinh District, Hanoi  
Tel : (02) 4 37261460  
Email : [gana.gopalakrishnan@rmit.edu.vn](mailto:gana.gopalakrishnan@rmit.edu.vn)

### **Dr. Phil Smith**

Senior Lecturer, RMIT School of Business  
702 Nguyen Van Linh  
District 7, HCMC  
Tel : (02) 4 37261460  
Email : [phil.smith@rmit.edu.vn](mailto:phil.smith@rmit.edu.vn)

## CURRICULUM VITAE

Name Dr. Anchit Bijalwan  
Address Faculty of Electrical & Computer Engineering  
Arba Minch University, Arba Minch, Ethiopia.  
Email-Id anchit.bijalwan@gmail.com  
Date of Birth 14<sup>th</sup> Jan 1980



### Qualification:

07/2012-11/2016 Doctor in Philosophy (Ph.D) from Uttarakhand Technical University  
Branch: Computer Science & Engineering  
Thesis: Investigation of Botnet Attacks

07/2010-05/2012 Master of Technology (M.Tech)  
Branch: Computer Science & Engineering

07/2006-06/2008 Master of Business Administration (MBA)  
Branch: Human Resource and Marketing

07/1998-06/2002 Bachelor of Engineering (B.E)  
Branch: Computer Science & Engineering  
2007 Cisco Certified Network Associate (CCNA)

### Work Experience:

10/2017(Onwards)	Faculty of Electrical & Computer Engineering Arba Minch University, Ethiopia	Associate Professor
09/2012-10/2017	Dept. of Computer Science & Engineering Uttaranchal University, Dehradun, India	Associate Professor & Head of Department
01/2012-09/2012	Quantum Global Campus Roorkee, India	Assistant Professor
01/2009-07/2010	College of Engineering Roorkee Roorkee, India	Assistant Professor
08/2003-07/2006		Lecturer
01/2008-01/2009	Tulas Institute	Lecturer

### Book:

1. "Network Forensics: The Privacy & Security", Taylor & Francis (CRC Press), ISBN: 9780367493615.

### Journal Publication:

1. P.Kaur, A. Awasthi, A. Bijalwan," Evaluation of feature selection techniques on network traffic for comparing model accuracy" International Journal of Computational Science and Engineering, Inderscience, 2021. DOI: 10.1504/IJCSE.2021.10033507 [ESCI, Scopus, DBLP]
2. JG Bijalwan, A. Bijalwan," Multivariate Analysis for Overcoming Complexities of

- Corporate Governance and Managerial Dilemma using Data Mining Technique” Complexity, 2021. Accepted [**SCIE, Scopus, DBLP**]
3. A. Bijalwan,” Botnet Forensic Analysis Using Machine Learning Approach,” Security and Communication Networks, vol. 2020, 2020. [**SCIE, Scopus, DBLP**]
  4. A. Bijalwan, S. Sando, M. Lemma, “An Anatomy for Recognizing Network Attack Intention”, *International journal of recent technology & Engineering*, vol 8, 2019. [**Scopus**]
  5. J. G. Bijalwan, A. Bijalwan, L. Amare,” An Exploratory Analysis of Corporate Governance using Supervised Data Mining Learning”, *International journal of recent technology & Engineering*, vol 8, 2019. [**Scopus**]
  6. A. Bijalwan, V. K. Solanki, and E. S. Pilli, "Botnet Forensic: Issues, Challenges and Good Practices," *Network Protocols and Algorithms*, vol. 10, no. 2, 2018. [**DBLP (ACM)**]
  7. A. Rana, A. Rawat, H. Bahuguna, and A. Bijalwan, "Application of Multi Layer Neural Network in Medical Diagnosis: An Efficient Survey," *International Journal of Engineering & Technology*, vol. 7, 2018. [**Scopus**]
  8. A. Bijalwan, M. Wazid, E. S. Pilli, and R. C. Joshi, "Forensics of Random-UDP Flooding Attacks," *Journal of Networks*, vol. 10, pp. 287-293, 2015. [**EI (Copendex), ESCI, SCImago, Scopus (Elsevier), DBLP (ACM)**]
  9. P. Kaur, A. Bijalwan, R. C. Joshi, and A. Awasthi, "Network Forensic Process Model and Framework: An Alternative Scenario," in *Intelligent Communication, Control and Devices*: Springer, 2018, pp. 493-502. [**SCOPUS (Elsevier)**]
  10. A. Bijalwan, N. Chand, E. S. Pilli, and C. R. Krishna, "Botnet Analysis Using Ensemble Classifier," *Perspectives in Science*, Elsevier, 2016.
  11. B. Anchit and S. Harvinder, "Investigation of UDP Bot Flooding Attack," *Indian Journal of Science and Technology*, vol. 9, no. 21, 2016. [**Scopus (Elsevier)**]
  12. H. Singh and A. Bijalwan, "Botnet Detection Using Logistic Regression Technique," *International Journal of Computer Science and Information Security (IJCSIS)* vol. 15, no. 7, pp. 306-313, 2017 [**Indexed in Scopus, DBLP**]
  13. R. Siddiqui and A. Bijalwan, "Identifying Bot Flooding Attack using NTP," *International Journal of Computational Intelligence Research*, vol. 12, no. 1, pp. 83-94, 2016. [**Indexed in DBLP (ACM)**]
  14. Bijalwan Anchit, Pilli Emmanuel,” Crime Psychology Using Network Forensics. *J Comput Eng Inf Technol (USA)* 3:2,2014. [**Indexed in Thomson Reuters**]
  15. A. Bijalwan, M. Thapaliyal, E. S. Pilli, and R. C. Joshi, "Survey and Research Challenges of Botnet Forensics," *International Journal of Computer Applications*, vol.75, 2013. [**Indexed in Proquest CSA**]
  16. A. Bijalwan. Anushah Khan, "Generic Architecture for Detecting Botnet," *IJCST*, vol. 3, pp. 210-234, 2015.
  17. H. Singh and A. Bijalwan, "A survey on Malware, Botnets and their detection," *International Journal of Advanced Engineering Research and Science* vol. 3, no. 3, 2016.
  18. P. Sharma, S. Tiwari, A. Bijalwan, ES Pilli,” Botnet detection Framework” *International Journal of Computer Applications*. [**Indexed in Proquest CSA, CiteSeer**]
  19. P. Sharma, A. Bijalwan, ES Pilli,” Analyzing Bot family behavior and its detection,” *International Journal of Engineering Trends and Technology*, vol.9, 2014. [**Indexed in CiteSeer, index Copernicus**]
  20. S. Bora, S. Singh, S. Mohamad Arsalan, and A. Bijalwan, "Watchdog: A Study on Examining and Eliminating Misbehaviour," *International Journal of Computer Applications*, vol. 87, pp. 1-3, 2014. [**Indexed in Proquest CSA**]
  21. I. Garg and A. Bijalwan, "Digital Image Watermark Key Extraction with Encryption and Decryption Scheme in MATLAB," *International Journal of Computer Applications*, vol. 105, 2014. [**Indexed in Proquest CSA**]

#### Conferences:

1. A. Bijalwan, and S. Sando, "Design & Issues for Recognizing Network Attack Intention," *Springer International Conference on Research in Intelligent and Computing in*

- Engineering (RICE)*, Hanoi, Vietnam, 2019, pp. 1149-1156.
2. P. Kaur, A. Bijalwan, and A. Awasthi, "Adhesive Model for Collection and Auto Storage of Colossal Health Data for Epidemiological Studies," in *IEEE International Conference on Research in Intelligent and Computing in Engineering (RICE)*, San Salvador, 2018, pp. 1-6.
  3. A. Rana, A. S. Rawat, A. Bijalwan, and H. Bahuguna, "Application of Multi Layer (Perceptron) Artificial Neural Network in the Diagnosis System: A Systematic Review," in *IEEE International Conference on Research in Intelligent and Computing in Engineering (RICE)*, San Salvador, 2018, pp. 1-6.
  4. P. Kaur, P. Chaudhary, A. Bijalwan, and A. Awasthi, "Network Traffic Classification Using Multiclass Classifier," in *International Conference on Advances in Computing and Data Sciences*, Dehradun, 2018, pp. 208-217, Springer
  5. P.Kaur, A. Bijalwan, R.C. Joshi, A. Awasthi," Network Forensic Process Model and Framework: An Alternative Scenario," in *International Conference on Intelligent Communication and Control and Devices*, Dehradun, 2017, Springer.
  6. A. Rana, A. S. Rawat, and A. Bijalwan, "Process of finding defects in software testing," in *Second International Conference on Research in Intelligent and Computing in Engineering*, Gopeshwar, 2017, pp. 297-300.
  7. S. Bansal, M.Qaiser, S. Khatri, A Bijalwan,"Botnet Forensics Framework: Is your System a Bot," in advance in computing and communication Engineering,2015, IEEE International Conference on pp 535-540
  8. Bijalwan Anchit, Pilli Emmanuel," Understanding Botnet on Internet"IEEE conference on computational intelligence and computing research, Coimbatore,Tamilnadu, 2014.
  9. M. Thapliyal, A. Bijalwan, N. Garg, and E. S. Pilli, "A Generic Process Model for Botnet Forensic Analysis," in *Proceedings of the Conference on Advances in Communication and Control Systems-2013*, Springer, pp. 98-102.
  10. A. Bijalwan, A. Tiwari "Security, Safety and privacy-Pervasive study for E&Eng-education" IEEE Conference on computational intelligence and computing research, Kanyakumari, Tamilnadu, 2011.
  11. A. Bijalwan," liao et al's password Authentication using smart card: An analytical study" at Uttarakhand Council for Science and Technology.
  12. A Bijalwan"Network security issues related to smart card and its commercial aspects " at an international conference held in IMT Ghaziabad as on 3-4 March 2011.
  13. A Bijalwan," Entrepreneurship and technology' at national conference held in Amrapali institute, haldwani (Nanital) as on 21-22 November 2009.

#### Reviewer:

1. Editorial Member of IJAIEM
2. Editorial Board Member in ICET conference, Arba Minch, Ethiopia.
3. Inderscience (International Journal of Computer Applications in Technology), IJCAT.
4. Inderscience (International Journal of Computer Application and Engineering Technology), IJCAET.
5. IGI Global (Journal of Information Technology Research), JITR
6. International Journal of Computer science and Information Technology.
7. Telecommunication Computing Electronics and control.
8. Expert System, Willey

#### Workshop:

1. Organized One week National Level STC on "Digital Repository & Storage Management" by **NITTTR, Chandigarh** from 1<sup>st</sup> August to 5<sup>th</sup> August 2016.
2. Attended One Week QIP - Short Term Course (STC) organized by **IIT Roorkee** on "Recent Trend in Network Security", from 1<sup>st</sup> February to 5<sup>th</sup> February 2016.
3. Attended One Week QIP - Short Term Course (STC) organized by **IIT Roorkee** on "Development & Challenges in Cloud Computing", from 10<sup>th</sup> June to 14<sup>th</sup> June 2013.
4. Attended One Week program on 'high impact teaching skills' by WIPRO in **College of Engineering, Roorkee**



**Award:**

1. International Researcher Award, 2021 by International Research Association, London, UK

**Research Supervision (Ph.D):**

1. Harvinder singh on Malware in Internet- Completed (2018)
2. Arti Rana on An Artificial Neural Based Diagnosis System – Ongoing
3. Himanshu Gupta on SAR Image Enhancement using edge preservation based despeckling – Ongoing
4. Prashant Chaudhary on A MultiFaceted Approach to Counter Internet Threats- Ongoing.

**Achievement:**

1. Research project on “Network Forensic Analysis for Securing confidential data using Machine Learning” by AMIT.
2. Workshop Speaker for IEEE Conference RICE at Universidad of Don Bosco, San Salvador, Central America, 22-24 Aug 2018.
3. PC Member for CSTM’18 Conference at London, UK.
4. Conference Chaired for Springer International conference on ICICDS at Uttaranchal University, Dehradun, India, 20-21 April 2018.
5. Co-convener of International Conference on STEM at Uttaranchal University, Dehradun, UK, 28<sup>th</sup> April, 2017.
6. Session Chaired on International conference on RICE at IT Gopeshwar, UK, 2017.
7. PC member of 7th International Conference on Cloud Computing, Data Science & Engineering organized on 12th-13th Jan, 2017, Amity University, India.
8. Member of Computer society of India (CSI).
9. Member of Board of Studies in Uttaranchal University, India.
10. Dale Carnegie’s training certificate from WIPRO’s mission10x program on ‘high impact teaching skills’
11. Member of International Relation Cell in College of Engineering Roorkee, India.
12. Organize CCNA lab at College of Engineering Roorkee, India.

**Project:**

1. Network Forensic Analysis for Securing confidential data using Machine Learning, Funded by AMIT, Arba Minch University, Ethiopia.
2. Community service project title, “Designing temporary & fast paced treatment center for covid-19”

**Date :****Place :****(ANCHIT BIJALWAN)**

### **SUMMARY:**

University Professor with a wide range of knowledge and experience looking to become an asset to prestigious university in need.

---

### **KEY SKILLS:**

- Experience in teaching a wide range of subjects.
  - Personable nature with students while maintaining professional relationships with colleagues.
  - Excellent communication skills both oral and written
  - Extremely organized in all planning of class material.
  - Efficient in time management.
  - Willingness to put in the extra time it takes to endeavor qualitative teaching learning environment and research.
  - Capable of writing and developing curriculum for all levels of courses
- 

### **PROFESSIONAL EXPERIENCE: 14 Years**

#### ***Organization:***

College of Business and Economics  
Arba Minch University  
Ministry of Science and Higher Education (MOSHE)  
Under United Nation Development Program (UNDP)  
Ethiopia Ethiopia, Africa

***Designation:*** Assistant professor

***Duration:*** Oct'2017 – Till date

#### ***Roles and Responsibilities:***

- Teaching the assigned subjects to students as per the stipulated syllabus by the university. (PG/PhD)
- Preparing the lectures, presentations, reading material and other resources for the subject to be shared with the students.
- Delivering the lectures to the students by means of presentations, book study, videos, case studies, discussions or using innovative teaching techniques.
- Mentoring and counselling students with their respective research projects and dissertations.
- Advising the students on academics and employment matters and helping them to take the right career decision depending upon their talents.

- Conducting research work in areas of interest for self – development and getting them published in scholarly journals or books.
- Representing the institution in various conferences, seminars, workshops, forums as a speaker and presenter.
- Reviewing the search projects of the department.
- Taking the training session and faculty development program for colleges and teachers from the other department
- Delivering the community services

<b>SN</b>	<b>Organization</b>	<b>Designation</b>	<b>Duration.</b>
1	Graphic Era University, Dehradun	Assistant professor	Jan'2016 – Oct'2017
2	Selaqui Higher Education, Dehradun	Assistant professor	Aug'2013 – Oct'2015
3	Quantum Global Campus, Roorkee	Assistant Professor	July 2011 to Feb 2014
4	College of Engineering Roorkee (COER)	Assistant Professor	Aug2010 to July'11
5	Nimbus Academy of Management	Lecturer	Nov 2008 to July'10

## **AREA OF INTEREST**

Financial Management, Investment Analysis and Portfolio Management, Advance Financial Accounting, Working Capital Management, Corporate Governance and business Ethics, Strategic Management and Analytics, Digital Marketing

### **A . RESEARCH WORK**

#### **I. BOOKS**

1. “**Strategic Management and Business Policy**”. **Paragon International** Publication, New Delhi (INDIA), 2009.  
**ISBN : 978-81-89253-49-3**
2. “**Business Ethics and Corporate Governance**”, **McGraw Hill** publication United States of America (USA), 2019.  
**ISBN: Print 978-93-5316-841-4 , Online 978 - 93 - 5316 - 842 -1.**
3. “**Sustainable strategies for the business in 21st century**” under the process of proof reading for publication by **Taylor and Francis** (CRC publication) United Kingdom (UK). *Expected in 2022.*

#### **II. JOURNALS PUBLICATIONS**

1. Bijalwan J.G., Bijalwan A. (2021), “Multivariate Analysis for Overcoming Complexities of Corporate Governance and Managerial Dilemma using Data Mining Techniques” In pipeline **(SCI INDEXED)**
2. Bijalwan J.G.. Malhotra R.K (2020) .“Corporate Governance Policies and Practices : With Special Reference to Private Sector Firms in Ethiopia”, *Shodh Sarita* , Vol 7(28). pp.191-197. **(LISTED IN UGC CARE)**
3. Bijalwan J.G., Desalew G.Y. (2020) ,“A nexus between corporate governance capital category and firm potency”, *International Journal of Management*, Vol.11 (11), pp. 1003-1013. **(SCOPUS INDEXED)**

4. Awal G., Khanna R., Bijalwan J.G.(2019), “The Effect of socio economic factors on consumers online buying behaviour : A study with reference to Garhwal division of Uttarakhand”, Journal of Critical Reviews , Vol. 6(5), pp.416-425. **(SCOPUS INDEXED)**
- 5.. Malhotra R.K., Bijalwan J.G, Thapliyal B.L. (2020),“Corporate governance in emerging economies : An Indian Insight”. International Journal of Management, Vol. 11 (09), pp. 663-670 **.(SCOPUS INDEXED)**
6. Bijalwan J.G., Bijalwan A., Amare L. (2019), “An Exploratory Analysis of Corporate Governance using Supervised Data Mining Learning”, International Journal of Recent Technology and Engineering , Vol. 8(3). **(SCOPUS INDEXED)**
7. Bijalwan, G.J.and Madan, P. (2013), “Board Composition, Ownership Structure and Firm Performance”, Research Journal of Economics and Business Studies, Volume II, Number VI, 86-101. **[International scholarly peer reviewed; Publication - National Library, Singapore]**
8. Bijalwan, G.J.and Madan, P. (2013),“Corporate Governance Practices, Transparency and Firm Performance of Indian Companies”, Journal of Corporate Governance, Issue XII, Vol.3,45-79.**[International scholarly peer reviewed; Included in Cabell’s Directory, EBSCO]**
9. Bijalwan, G.J. (2012), “Corporate Governance System in India”, International Journal of Management (IJM), Volume 3, Issue 2, pp. 260-269 . **(SCOPUS INDEXED) Journal Impact Factor (2012): 3.5420**
10. Bijalwan, G.J.and Shah, P. (2012), “Corporate Governance Failure in India: Satyam Fiasco - A Case Study”, International Journal of Management Sciences, Vol. 10, Issue 02. **[International scholarly peer reviewed]**
11. Bijalwan, G.J.and Shah, P. (2012), “Corporate Governance - Developments and Stumbling Blocks in India”, International Journal of Scientific and Research Publications, Volume 2, Issue 9. [ISSN 2250 3153 **[International scholarly peer reviewed]**

## **B. Community Service**

1. Delivered community service Training program on “Investment Risk Management” organized by the Community Service Coordination Office, College of Business and Economics, Chamo campus as on 7th May 2021.

## **C. Training and Consultancy**

1. Delivered training session in Birla College, Mumbai University for “Technical Analysis” on 22 /10/2019 on Security Analysis and Portfolio Management.
2. Provided Consultancy on *stress management* to the Community service project on “Designing temporary & fast paced treatment center for Covid 19.

## **D. Miscellaneous**

1. Worked on Getting the ISSN no for the Arba Minch University Journal “Ethiopian Journal of Business and Social Sciences” (EJBSS)
2. Working for getting DOI number for the Area Minch University Journal “Ethiopian Journal of Business and Social Sciences” (EJBSS).
3. Conducted a self-funded “Digital Covid Awareness Certification Program” for spreading awareness about the pandemic and the risk mitigation.
4. Member of curriculum development committee (for post graduate and PhD program)
5. Member of Departmental Graduating Committee (DGC)

---

## **EDUCATIONAL QUALIFICATIONS:**

Uttarakhand Technical University  
Ph.D. in Management, 2013

Uttarakhand Technical University  
Master in Business Administration (Finance & Marketing), 2008

Mumbai University  
Bachelors in Commerce, 2004

---

**DECLARATION:**


I hereby declare that the facts given in my resume are correct to the best of my knowledge and belief

Date: 2nd Feb 2022

Place: Arba Minch

Dr. Jyotsna Ghildiyal Bijalwan

# Dr Maren Viol, FHEA

✉ [mareniol@gmail.com](mailto:mareniol@gmail.com) ☎ +44 (0) 7570544182  [linkedin.com/in/dr-maren-viol-434b4243/](https://www.linkedin.com/in/dr-maren-viol-434b4243/)

## EDUCATION

---

2011 – 2016	<b>Doctor of Philosophy (PhD)</b> Edinburgh Napier University, Edinburgh, UK
2012 – 2013	<b>PGCert Teaching and Learning in Higher Education</b> Edinburgh Napier University, Edinburgh, UK
2010 – 2011	<b>MSc Tourism and Events</b> University of Sunderland, Sunderland, UK
2006 – 2010	<b>BBA International Hospitality Management</b> Stenden University of Applied Sciences, Leeuwarden, Netherlands

## TEACHING EXPERIENCE

---

08/2020 – present	<b>Lecturer</b> Glasgow Caledonian University, Glasgow, UK <ul style="list-style-type: none"><li>• Modules led: Event Planning and Management (postgraduate), Critical Events Studies (final year undergraduate), Critical Issues in Tourism (final year undergraduate), Event Delivery and Management (year 2 undergraduate), Introduction to Tourism and Events Studies (year 1 undergraduate)</li><li>• Modules taught: Applied Professional Practice (postgraduate), Business Research Methods and Skills (year 3 undergraduate)</li><li>• Postgraduate and undergraduate dissertation supervision</li><li>• Personal tutoring</li></ul>
05/2016 – 09/2019	<b>Senior Lecturer</b> British University Vietnam, Hanoi, Vietnam <ul style="list-style-type: none"><li>• Modules led: Tourism Management Project (final year undergraduate), Contemporary Issues in Tourism and Events (final year undergraduate), New Media Marketing for Tourism and Events (year 2 undergraduate), Tourism and Events Service Operations Management (year 2 undergraduate), Managing Mass and Direct Marketing Communications (year 2 undergraduate), Tourism Theories and Perspectives (year 1 undergraduate), Introduction to Tourism and Events (year 1 undergraduate), Introduction to Hospitality (year 1 undergraduate), Human Resource Management (year 1 undergraduate), Managing the Visitor Experience (year 1 undergraduate), Managing Practices for Today's Global Economy (pre-university foundation)</li><li>• Undergraduate dissertation supervision</li><li>• Personal tutoring</li></ul>
11/2011 – 03/2016	<b>Graduate Teaching Assistant/Hourly Paid Lecturer</b> Edinburgh Napier University, Edinburgh, UK <ul style="list-style-type: none"><li>• Modules taught: Experience Design and Management for Tourism, Hospitality and Events (postgraduate), The Impacts of Festivals and Events (year 2 undergraduate), Conference Management (year 2 undergraduate), Event Management (year 2 undergraduate), Introduction to Hospitality, Tourism, Festivals and Events (year 1 undergraduate), The Business of Festivals and Events (year 1 undergraduate)</li><li>• Postgraduate and undergraduate dissertation supervision</li></ul>

## LEADERSHIP EXPERIENCE

- 09/2021 – present      **Programme Leader**, MSc International Tourism and Events Management  
Glasgow Caledonian University, Glasgow, UK
- Responsible for the overall coherence, planning, evaluation and enhancement of the degree
  - Day-to-day programme administration and student support
  - Development of the student experience (organising of induction, employability and study skills programmes, field trips and industry guest speakers)
- 09/2016 – 09/2019      **Programme Leader**, BA (Hons) Tourism Management & BA (Hons) Events Management  
British University Vietnam, Hanoi, Vietnam
- Involvement in quality assurance processes to ensure delivery as per Staffordshire University standards
  - Development of the student experience (organising of domestic and international field trips, industry guest speakers)

## RESEARCH EXPERIENCE

- Ongoing
- Collaborative research project**
- Conceptual work exploring the implications of Western-centrism in tourism on internationalisation of UK tourism education in Southeast Asia
  - Co-researcher: Carol Southall
- Small-scale internally funded research project**
- Empirical research investigating post-COVID recovery in the context of community-based festivals in Scotland
  - Co-researchers: Dr Nick Davies, Daniel Baxter
- Small-scale internally funded research project**
- Empirical research investigating the impact of working at COP26 on students' understanding of climate change and sustainable development
  - Co-researchers: Dr Nick Davies, Daniel Baxter
- 2011- 2016
- Doctoral Research**
- Qualitative research based on in-depth interviews and semiotic analysis that explored how narratives of collective memory and identity emerge at commemorative events of the fall of the Berlin Wall in the major anniversary years of 2009 and 2014
  - Supervisors: Dr Eleni Theodoraki, Dr Constantia Anastasiadou, Dr Louise Todd
- 2016
- Research Assistant**
- Assistant for a research project entitled: 'Imaging the 'Festival City': exploring the symbolic contribution of Edinburgh's festivals to the city's brand image and consumers' brand relationships'
  - Responsibilities included literature search and writing of literature review
  - Lead researcher: Dr Louise Todd
- 2013
- Final Project, PGCert Teaching and Learning in Higher Education**
- Applied research based on questionnaires that explored the use of wikis as support for collaborative working and their influence on students' learning experience
  - Supervisor: Dr Karen Aitchison
- 2011
- Research Assistant**
- Assistant for a project that studied the impacts of large scale outdoor music events at the Stadium of Light in Sunderland
  - Responsibilities included conducting qualitative data analysis and co-authoring the final report
  - Lead researcher: Dr Teresa Leopold

- 2011 **Postgraduate Dissertation**
- Qualitative research based on focus groups and in-depth interviews that explored place marketing, place identity and residents' attitudes in Nordhorn, Germany
  - Supervisor: Dr Teresa Leopold

## FURTHER RELEVANT EXPERIENCE AND SKILLS

---

- IT Skills** Collaborate Ultra, MS Teams, Zoom, Padlet, Moodle, Blackboard, wikis, podcasts and similar for blended or remote teaching  
 Profound knowledge of MS Office (Outlook, Word, Excel, PowerPoint)  
 Basic knowledge of QSR NVivo 10 for qualitative data analysis
- Languages** German (native tongue)  
 Fluent written and spoken English
- Co-organiser** of the conference 'Vietnam Tourism in the 21st Century', successfully held in December 2019 at British University Vietnam
- Advisory board member** for the student project 'Viet Youth on Sustainable Tourism', 2017-2019
- Reviewer** for the journals 'Tourism Management', 'Event Management', 'e-Review of Tourism Research', 'International Journal of Tourism Policy', 'Equality, Diversity and Inclusion'

## HONOURS AND AWARDS

---

- 2015 **Final Year Research Student Prize for Research Excellence**  
 Edinburgh Napier University
- 2014 **Interim Research Student Prize for Research Excellence**  
 Edinburgh Napier University
- 2012 **First Year Research Student Prize for Research Excellence**  
 Edinburgh Napier University
- 2011 **Best Postgraduate Student**  
 Association for Tourism in Higher Education (ATHE)

## PROFESSIONAL MEMBERSHIPS

---

Fellow of the Higher Education Academy (Advance HE)

## PUBLICATIONS AND RESEARCH OUTPUT

---

### Journal articles:

- Viol, M. & Southall, C.** (2021) 'A conceptual framework for understanding Western-centrism in transnational education in tourism', *Current Issues in Tourism* (ABDC: A)
- Viol, M., Todd, L., Theodoraki, E. & Anastasiadou, C.** (2018) 'The role of iconic-historic commemorative events in event tourism: Insights from the 20th and 25th anniversaries of the fall of the Berlin Wall', *Tourism Management*, 69C, 246-262. (ABDC: A\*)
- Viol, M.** (2015) 'The use of wikis within the virtual learning environment to support collaborative working and their influence on students' learning experience', *Journal of Perspectives in Applied Academic Practice*, 3 (2), 50-57.

### Book chapters:

- Nguyen, B. L. & Viol, M.** (forthcoming) 'Factors influencing decision-making of millennial travellers participating in community-based rural tourism experiences in South-East Asia', accepted for inclusion in Kim, S. & Styliadis, D. (eds.) *Tourism Marketing in East and South-East Asia*, Egham: CABI.



**Publications in progress:**

- Working title: 'Deconstructing commemorative narratives', to be submitted to *Annals of Tourism Research* (ABDC: A\*)
- Working title: 'Semiotic analysis for deconstructing event design and meaning', to be submitted to *Tourism Management* (ABDC: A\*)
- Working title: 'The economic potential of non-monetary activities at business events', to be submitted to *Event Management* (ABDC: A)

**Peer-reviewed conference presentations:**

- Nguyen, B. L. & Viol, M. (2019) 'Factors influencing decision-making of millennial travellers consuming community-based rural tourism', presented at: *Vietnam Tourism in the 21st Century*, Hanoi, Vietnam, December 5th – 6th, 2019.
- Nguyen, B. L. & Viol, M. (2019) 'Factors influencing decision-making of millennial travellers consuming community-based rural tourism', presented at: *Sustainable Niche Tourism: 10th International Conference*, Danang, Vietnam, June 26th – 28th, 2019.
- Viol, M. & Southall, C. (2018) 'Western-centrism in internationalised tourism higher education curricula: Perspectives from Vietnam', presented at: *Critical Tourism Studies Asia Pacific Inaugural Biennial Conference: Recentering Critical Tourism Studies*, Yogyakarta, Indonesia, March 3rd - 6th, 2018.
- Viol, M. & Southall, C. (2017) 'Western-centrism in internationalised tourism higher education curricula: Perspectives from Vietnam', presented at: *International Conference on Tourism: Place and the Tourist Experience: Heritage, Sustainability and Economy*, Chiang Mai, Thailand, June 28th – July 1st, 2017.
- Viol, M., Theodoraki, E., Anastasiadou, C. & Todd, L. (2014) 'Researching narratives of collective memory and identity: The case of the commemorative events of the fall of the Berlin Wall', presented at: *International Conference on Remembering in a Globalizing World: The Play and Interplay of Tourism, Memory, and Place*, Le Chambon sur Lignon, France, September 8th - 10th, 2014.
- Viol, M., Theodoraki, E. & Anastasiadou, C. (2013) 'The impact of commemorative events of the fall of the Berlin Wall on collective memory (re)constructions', presented at: *Post Conflict, Cultural Heritage and Regional Development: An International Conference*, Wageningen, Netherlands, October 9th - 11th, 2013.
- Viol, M., Theodoraki, E. & Anastasiadou, C. (2012) 'Constructing social memory: A critical investigation of reconstructions of the past and governance at commemorative events', presented at: *Current Issues and (Im)possible Solutions: an interdisciplinary dialogue in tourism and leisure*, GLTRG PhD Colloquium, University of Surrey, UK, September 6th - 7th, 2012.
- Viol, M., Theodoraki, E. & Anastasiadou, C. (2012) 'Constructing social memory: A critical investigation of cultural governance and narratives of the past at commemorative events', presented at: *Global Events Congress V: Advances in Event Management Research & Practice*, Stavanger, Norway, June 13th - 15th, 2012.
- Viol, M., Theodoraki, E. & Anastasiadou, C. (2012) 'Constructing social memory: A critical investigation of cultural governance and narratives of the past through festivals and events', presented at: *Innovative Approaches to Tourism Marketing and Management Research*, PhD Colloquium, Exeter, UK, April 2nd - 4th, 2012.

**Invited speeches, seminars and workshops:**

- Viol, M. (2018) 'Introduction to sustainable tourism', key note speech delivered at seminar: *Young leaders towards sustainable tourism*, Vietnam National University - University of Social Sciences and Humanities, Hanoi, Vietnam, April 2018.
- Viol, M., Theodoraki, E., Anastasiadou, C. & Todd, L. (2016) 'Event tourism and the Berlin Wall commemorative events in 2009 and 2014', research seminar delivered at Edinburgh Napier University, Edinburgh, UK, February 2016.
- Viol, M., Theodoraki, E., Anastasiadou, C. & Todd, L. (2015) 'Collective memory and identity in commemoration of the fall of the Berlin Wall: Narratives of the 2009 and 2014 anniversary events', research seminar delivered at Edinburgh Napier University, Edinburgh, UK, May 2015.

**Other:**

- Leopold, T. & Viol, M. (2011) 'Large-scale music concerts in Sunderland: The impact of Take That and Kings of Leon', unpublished report based on research funded by the Centre of the Experience Economy, University of Sunderland.

**REFERENCES**

Available on request

## QUALIFICATIONS

**The University of York, Ph.D. Management**

**2009-2013**

*Thesis title:* **“Public Confidence Modelling: A Locally Based Approach to Police Performance Management”**

*Supervisors:* *Prof. Kiran Fernandes, Dr Ignazio Cabras*

*Synopsis:* Ensuring that local residents have confidence in the police is a critical issue for the police forces of England and Wales. Despite this, the underlying issues as to why people feel the way they do about the police are not fully understood, especially in smaller urban areas. This thesis takes a holistic approach in modelling potential factors influencing public confidence in the police of York, with the aim of adjusting operational policing policy to improve public confidence.

**The University of York, BSc (Hons) 2:1. Management**

**2005-2008**

## ACADEMIC TEACHING EXPERIENCE

**Quality Leader, British University Vietnam, Hanoi**

**2015-present**

As the Quality Leader for British University Vietnam I provide academic leadership to ensure that the quality standards relating to assessments, marking and moderation are met by all faculty at the University, and have developed our internal systems to increase the speed and quality of assessment creation, release and marking. I recently oversaw the introduction of a compulsory English and academic skills examination for all BUV students in order to provide a benchmark piece of work when investigating cases of potential plagiarism.

My duties include:

- Overall responsibility for the assessment procedures and adherence to policy
- Working with faculty to ensure all timetables for assessments are met and that assessments are appropriate and meets partner requirements
- Management and development of the assessment/exam process
- Monitoring of attendance and discipline procedures
- Panel member for academic misconduct and extenuating circumstances decisions

**Senior Lecturer in Management, British University Vietnam, Hanoi**

**2016-present**

**Lecturer in Management, British University Vietnam, Hanoi**

**2013-2016**

Senior Lecturer on the Staffordshire University and University of London programmes delivered by British University Vietnam at both foundation and undergraduate levels. The modules I have delivered include:

- Introduction to Quantitative Techniques, People and Organisations, Managing Practices, Business Enterprise (*Foundation/Pre-University*)
- Operations and Supply Chain Management, Entrepreneurial Marketing (*1<sup>st</sup> year*)
- Operations Management, Asian Development, Project Management (*2<sup>nd</sup> year*)
- Management: International Comparative Perspectives, Strategic Management, Student Projects, Research Methods, Business Ethics, Applied Business Research (*3<sup>rd</sup> year*)

I consistently achieve excellent student and peer teaching evaluations which are available on request.

- Ran seminars and demonstrations, and first-marked various undergraduate and post-graduate modules: Supply Chain Management (3<sup>rd</sup> year), Business Information Systems (PG), Project and Operations Management (PG).
- Co-designed and ran the Supply Chain Management module in conjunction with the module leader. This module was the first of its kind in the School, involving industrial partners in all stages of the module delivery and assessment. The module received the highest feedback score out of any module that year.
- Mentored summer school students and co-supervised an undergraduate dissertation project.
- Nominated for the University of York Vice-Chancellor's Teaching Award (2011).

- Successfully completed the Preparing Future Academics course involving the completion of a portfolio of evidence demonstrating a commitment to enhancing learning and teaching in a higher education environment.
- The course required the production of detailed session plans, reflexive teaching logs and peer assessments in addition to compulsory workshops structured towards developing academic teaching skills.
- Compulsory workshops completed included: Structuring and Designing Sessions, Evaluation and Quality Enhancement, Effective Lecturing, Giving Feedback on Student Work and Planning Assessment Methods for Student Work.

## **PUBLICATIONS AND CONFERENCES ATTENDED**

### ***Publications***

Perkins, M. (in press). Different communities, different approaches: Avoiding a 'one size fits all' approach to neighborhood policing strategies. In Bruns, D. (Ed.). *Global Perspective on Crime Prevention and Community Resilience*. Taylor & Francis

Perkins, M., Cotrel-Gibbons, L. (in press). The Vietnamese police response to domestic violence against women: The family unit under pressure. In Bruns, D. & Schroder, S. (Ed.). *International Perspectives on Domestic Violence*. Routledge

Perkins, M. (2016). Modelling public confidence of the police: how perceptions of the police differ between neighborhoods in a city. *Police Practice and Research: An International Journal*, 17(1) 113-125

Perkins, M., Grey, A., Remmers, H. (2014). What do we really mean by "Balanced Scorecard"? *International Journal of Productivity and Performance Management*, 63(2), 148-169

Perkins, M. (2013). Public Confidence Modelling: A Locally Based Approach to Police Performance Management. York: The University of York (Published commercial report)

Fernandes, K. and Perkins, M. (2010) Geographical Information Systems: The North Yorkshire Police GIS Strategy & Implementation Roadmap. York: The University of York. (Published commercial report)

Perkins, M. (2008) A report to Oakdale (Contracts) Ltd Regarding the Utilisation of Discrete Event Simulation and the Analytic Hierarchy Process in Aiding Storage Facility Design. York: The University of York (Published commercial report)

### **Conferences attended**

26<sup>th</sup> International Police Executive Symposium

*Pattaya, Thailand, 8<sup>th</sup>-12<sup>th</sup> August 2015*

Oral Presentation: Retaining order and legitimacy: Improving policing through an understanding of public confidence factors

25<sup>th</sup> International Police Executive Symposium

*Sofia, Bulgaria, 27<sup>th</sup>-31<sup>st</sup> July 2014*

Oral Presentation and conference paper: *Public Confidence Modelling: A Locally Based Approach to Police Performance Management*

4<sup>th</sup> Annual PhD Criminology Conference

*University of Sheffield, 29<sup>th</sup>-30<sup>th</sup> August 2012*

Oral Presentation: Public Confidence in Policing: insights from a Citywide survey

## **RESEARCH SKILLS**

- Current research interests include: public confidence in policing, Gender, and performance management systems
- Skilled in running large-scale surveys including experimental design, questionnaire development and quantitative analysis of large data sets using SPSS and AMOS.
- Considerable experience of interdisciplinary research through membership of the York Centre for Complex Systems Analysis (YCCSA); a diverse international community of researchers from different departments working together in communal research space.

## **ADMINISTRATIVE EXPERIENCE**

- Organised a Hanoi based youth event focusing on Anti-corruption and Business Integrity in conjunction with a wide number of different organisations.
- Reviewer for the International Journal of Productivity and Performance Management (IJPPM) *and Police Practice and Research: An International Journal*
- Experienced in the recruitment and selection of both students and faculty.
- Organised several national and international doctoral conferences invited by the Institute for Small Business and Enterprise (ISBE) to co-organise the doctoral day of the ISBE 2011 (Sheffield) conference
- Assisted in guest editing for a Special Edition of the International Journal of Business Environment (IJBE, 2010 Vol. 3, No. 2).

## **PUBLIC ENGAGEMENT**

- Experienced public speaker; regularly involved in student recruitment and marketing activities at schools throughout Hanoi and Hai Phong. This has included being interviewed on Vietnamese national news as a representative of British University Vietnam.
- Member of the Governance & Integrity working group for the Vietnam Business Forum, with responsibilities for promoting transparency and anti-corruption amongst the international business communities within Vietnam.
- Committed to producing research with impact, proven by the widespread publication of my PhD work in the UK media (University of York, York Press, The Yorker, BBC Radio York, Crime Reduction Partnership News).
- Media and Public Engagement trained.
- Past academic expert on policing issues for BBC Radio York.

## ACADEMIC AWARDS AND FUNDING

- Awarded full scholarship and fee-waiver from The York Management School for PhD studies.
- North Yorkshire Police made an additional ESRC CASE styled contribution to the scholarship to focus the doctoral research towards the North Yorkshire Police (*Project Sponsor: Deputy Chief Constable Tim Madgwick*).
- Winner of the Vitae Yorkshire & North East Hub Public Engagement Competition 2012 providing me with the opportunity to present my work to the public at the Sheffield Children's Festival.
- Placed second in the University of York's "Thesis in three minutes" competition (2012)
- Honourable Mention in the York Management School Research Poster Competition (2012).

## MEMBERSHIP OF PROFESSIONAL BODIES

- Associate Fellow of the Higher Education Academy
- Member of the Society for Evidence Based Policing

## OTHER EXPERIENCE

**College Tutor, Goodricke College /Halifax College, The University of York** **2010-2012**

- Resident senior student responsible for acting as first point of contact for students with any welfare issues or concerns, as well as dealing with minor disciplinary issues and grievances within the College.
- Member of the College Welfare Team and College Council responsible both for the overall running of the college and fostering college spirit.
- Member of both the Graduate and Senior Common Room Committees with responsibility for arranging college events and widening participation of SCR and GCR members.

**Consultant/Proprietor, Perkins Consulting** **2008-2011**

- Independent consultant in the manufacturing and public sectors. Projects in the manufacturing sector included performing market assessments and assisting in new product development. Projects with the public sector consisted of strategic road mapping of new technologies in order to improve the efficiency of operations and bridge the gap between the different layers of the organisation.

## CURRICULUM VITAE WITH PUBLICATION LIST

TITLE: Professor Raymond Gordon PhD, MBA,  
FAIM, CPA  
ADDRESS: 24 Spoonbill Court, Burleigh Waters, Qld,  
Australia, 4220.  
TELEPHONE: 617 56070603 (Home), 617 55951186  
(Work) or 61437238034 mobile  
DATE OF BIRTH: August 22, 1960  
NATIONALITY: Australian  
MARITAL STATUS: Married with three children.



### Qualifications relevant to the position

- PhD in Management 2003 (UTS)
- Master's Degree in Business Administration (MGSM) 1992
- Diploma in Vocational Education (UTS)

### Employment History

- 2016 – now**      **Professor of Leadership and Director of Core, Bond University Australia.**  
Duties include the redesign of one of Bond University's core program with a focus on the use of digital education technologies and blended learning. This is a temporary turn around role after which I will return to duties within the Bond Business School or University executive.
- 2014 – 2016**      **Head, School of Commerce and Management, RMIT University Vietnam. 3,000 students; \$35M US in revenue; 92 Academic staff (does not include adjuncts or tutors).**  
  
Duties included financial, operational, marketing, industry and international relationship responsibilities. Key to this role was returning the School to a sustainable financial position (increased gross margin from 32% to 54% with a decreasing student enrolment pipeline). Worked with marketing team to created new market and student recruitment channels (developed pathway programs to increase entry points to key business programs) and industry linkages. Developed new programs to expand revenue channels (tourism and hospitality management; cyber security). Embedded AACSB leadership model, which included: the establishment of advisory boards; government and industry linkages; mission and strategic development processes; financial and budgeting systems; development of new programs; rationalisation and/or repositioning of existing programs; social media marketing, promotion and public relations strategies; academic staff sufficiency and performance management systems; and, assurance of management systems. Work with quality assurance team to complete RMIT University's TEQSA quality assurance review (TEQSA audited RMIT Vietnam).
- 2013 – 2014**      **Deputy Dean, Faculty of Business, Bond University. \$37.8M in revenue; 850 students; 115 academic staff (does not include adjuncts or tutors).**  
  
Duties included financial, operational and international relationship responsibilities. Critical to the role was working with advisory boards, working with government and industry representatives, the management and operations, along with the management of international programs and partner relations in Japan, China, Taiwan and the Middle East
- 2010 – 2013**      **Associate Dean Quality Assurance and International Programs, Faculty of Business, Bond University.**  
  
Duties include financial, operational and international relationship responsibilities. Critical to the role, has been the leadership and AACSB, EQUIS and AMBA accreditation along with the management of International programs and partner relations in Japan, China, Taiwan and the Middle East. I was also the Director of the BOND-BBT MBA. The latter has a suite of online subjects and has required significant change management to align with AACSB requirements.

**2009 – 2010**     **Interim Dean Faculty of Business, Technology and Sustainable Development for a period of 12 months. \$44.5M in revenue; four schools; 135 academic staff (does not include adjuncts and tutors); 1122 students.**

The Faculty's senior management team's focus was to ensure that all KPI's central to the University's whole of University strategic plan were met. All KPIs were achieved within budget with a 24% increase in revenue. Other duties included chairing the development of the Faculty's mission, strategic and operational plans; Establishing the school's advisory board; Liaising with government and industry representatives as well as key philanthropic and potential philanthropic partners. At this time, critical to the role was: overseeing the Faculty's governance processes (Faculty Executive, Teaching and Learning, Research and External Engagement Committees); Strategic and operational planning; Budgeting and Financial management; leading the Faculty through the University's AQUA five-year review (Australian government quality assurance program – now TEQSA) and an internal University five year Faculty review process. As well as ensuring that the faculty was on track with its AACSB and EQUIS international accreditation applications.

**2009 – 2010**     **Member of the Bond University (private not for profit institution) Senior Management Group (SMG). \$168.5M; Four Faculty's, Business, Humanities, Law, and Health Sciences Medicine.**

The University's Senior Management Group (SMG) was structured to provide leadership, oversight and monitoring against key performance indicators and international benchmarks, regulatory requirements, as well as governance and policy processes across the university.

**2009 – now**     **Professor of Leadership and Organisational Behaviour, Bond University. Awarded full professorship by formal external international promotions committee.**

**2007 – 2009**     **Head - School of Business, Faculty of Business, Technology and Sustainable Development, Bond University. 2007 Revenue, \$19M; 2008 Revenue, \$23M; 2009 Revenue, \$27M; 6 Departments.**

Managed the School's Mission and strategic planning process; chaired and oversaw school's key governance committees and systems; Responsible for formulating budgeting and financial management. Established school advisory board, industry linkages and potential philanthropic partners. Key achievements were leading the school through a major cultural and operational change, reinforcing the shift from a teaching only focus to a teaching and research focus; implemented performance management and accountability systems; implemented new recruitment strategies and policies for the employment of fulltime and sessional academic staff that ensure a high level of faculty sufficiency was achieved and maintained; to establish long term growth, financial sustainability and return on investment through more effective and efficient use of resources (program based ROI), worked with marketing team to expand international markets through the development of hybrid programs (using education technologies). Since 2007 research output has increased steadily. In 2010 and 2012 the Business School received an ERA ranking of 4 and 3 respectfully for the discipline of Business and Management which placed the school in the top 5 for the discipline in Australia.

**2008 – 2013**     **Director – AACSB, EQUIS and AMBA Accreditation, Faculty of Business, Technology and Sustainable Development, Bond University.**

These accreditation frameworks have been central to the change initiatives that the Bond Faculty of Business has experienced over the last 9 years. Leading the Faculty's Accreditation process was added to my management portfolio in 2008 after its accreditation plan was rejected by the AACSB Peer Assessment Committee (PAC). Working with a selected team of academics and administrators I revised and re-implement all mission, faculty sufficiency and assurance of learning standards. I have introduced several innovative approaches to the implementation of the standards which AACSB have recommended to its members. Based on this innovation I was approached by AACSB and EQUIS to engage in their mentor and panel committees. Bond are now fully accredited with AACSB and EQUIS.

- 2008 – 2014**     **Director – Global Leadership MBA, Faculty of Business, Technology and Sustainable Development.**
- Led the team that marketed and managed the operations of this program (this was an important relationship with Japanese partner). This program targets Japanese executives but attracts a large number of Korean and Chinese students. The program is delivered in a hybrid format (online and on-campus study tours) with 70% of the program taught in English and 30% taught in Japanese. The program became the largest post graduate program the University offered; it has an impressive alumni spread throughout the world that is very active and dedicated to the University. **In 2010 the program was awarded the AIEA award for innovation in international education.** This is an exciting educational business that has been formally recognised for its innovative approach to international education; it has created many innovative strategies, techniques and technologies at the forefront of management education.
- 2007 – 2008**     **Associate Dean – Research, Faculty of Business, Technology and Sustainable Development, Bond University.**
- Within this role I prepared the Faculty for the introduction of the then Research Quality Framework (RQF).
- 2007 – 2009**     **Associate Professor of Organisation Behaviour.**  
**Responsible for teaching and research in the field of Leadership and Organisational Behaviour.**
- 2005 – 2006**     **Head - Graduate School of Business** Faculty of Business, University of Technology, Haymarket Campus.
- 2003 – 2006**     **Senior Lecturer in Management,** School of Management, Faculty of Business, University of Technology Sydney, Haymarket Campus.
- 2000 – 2003**     **Lecturer in Management,** School of Management, Faculty of Business, University of Technology Sydney, Haymarket Campus.
- 1999 – 2000**     **Associate Lecturer in Management,** School of Management, Faculty of Business, University of Technology Sydney, Haymarket Campus.
- 1997 – 1998**     **Lecturer/Tutor in Marketing,** School of Business, University of Newcastle - Central Coast Campus (1997).
- 1995 – 1997**     **Lecturer/Tutor in Management,** University of Western Sydney - Nepean, School of Management.
- 1994 – 1997**     **Lecturer in Management and Small Business,** Liverpool College of TAFE, full time teaching Diploma in Management and Leadership, Diploma in Business and Diploma in Marketing and Small Business courses, as well as specialist programs for TAFE's Multicultural unit, Outreach Department and Aboriginal unit.
- 1992 – 1994**     **State (NSW) Distribution Manager,** Motorola Communications Australia, responsible for the sales and operational performance of the NSW Dealer Network (75 Small Businesses reporting to this position). Included Strategic Management, Sales Management, Operations Management and Training (entrepreneurial management, communications skills and sales skills).
- 1991 – 1992**     **State (NSW) Network Services Manager,** Techway Limited
- 1985 – 1991**     **Regional Service Manager,** Prime Computer of Australia
- 1982 – 1991**     **Customer Engineer,** Prime Computer of Australia (1982-85)



**1979 – 1982**     **Trainee/Cadetship in Electronic Engineering, Department of Defence Navy (1979-82),**  
four years' full time study in Electronic Engineering, practical experience - Department of  
Weapons and Systems HMAS Platypus.

## **Professional appointments:**

- 2015 – 2016**     **Director on the Board for the Australian Chamber of Commerce Vietnam**  
This role involved meeting Australian and international Government and business delegates to  
establish networks and mutually beneficial business and trade opportunities.
- 2015 – now**     **President and Chair of Board, Australian Academy of Management (AABM)**  
AABM is an academy made up of a network of academics and practitioners from Asia Pacific  
and South East Asia region. It offers Australian nationally recognised vocational education  
and training programs at Diploma and Certificate levels. These programs provide pathways  
for international student into Australian, British and US Universities. AABM offers a range of  
executive education programs primarily in the field of leadership and management, more  
recently – innovation processes (leading ideation processes). AABM also run international  
conferences and seminars.
- 2014 – now**     **Mentor for the Association to Advance Collegiate Schools of Business (AACSB)  
International.**  
AACSB Mentors serve as a key resource in advising AACSB eligible business schools on the  
association's self-assessment process and the development of the school's initial self-  
assessment report (iSER). A Mentor guides and stimulates the school to define its processes,  
activities and outcomes, as well as present various options to help develop a better  
understanding of the AACSB standards and what they mean. Mentors are required to visit the  
schools they assigned and report on the progress the school is making toward the development  
of its Initial Self Evaluation report. This report is essentially a gap analysis between the  
school's existing strategic management, financial management, operating, staff sufficiency  
and assurance of learning procedures and the requirements of the AACSB standards. These  
standards represent a blue print of best practice leadership and management systems for high  
quality business schools and Universities
- 2014 – now**     **Vice President and member of the board, International Counsel of Business and  
Management (ICBM)**  
ICBM is a network of academics from countries throughout Asia, Australia, America, Canada  
and Europe. The network facilitates research collaboration that addresses the Asian Region's  
Business and Management challenges. ICBM produces two peer reviewed journals and I am  
the chief editor of one of these journals
- 2013 – now**     **Member of the Queensland Chamber of Commerce.**  
This involved meeting State and international Government and business delegates to establish  
networks and mutually beneficial business and trade opportunities.
- 2012 – now**     **President and Chair of Board, Quality Training Solutions (QTS)**  
QTS is an Australian Registered Training Organisation (RTO) offering Australian nationally  
recognised business programs to Australian and international students. QTS currently has over  
400 students studying programs at Diploma and Certificate levels. QTS provides pathways for  
international students into Australian, British and US Universities. QTS also offers a range of  
executive education programs in the fields of executive leadership, team leadership,  
teamwork, innovation, managing power relations, conflict management, emotional  
intelligence, cross cultural management and cultural intelligence.

## Publication record:

### Journals

Yam, L., Raybold, M, Gordon, R.D. (2018), What Makes People Stay? An investigation of job embeddedness construct, and the exploration of the effects of on-the-job and off-the-job embeddedness on voluntary turnover in the hospitality industry. *Journal of Human Resources in Hospitality and Tourism*, Vol. 17 (4). Pp. forthcoming.

Mate, S., Gordon, R.D., Dinh, N and Bai, K. (2015), Developing sustainable education systems in Vietnam, *Journal of Business and Accounting Research*, Vol 6, pp.1-9

Bai, K., Asai, S., Yoshida, T. and Gordon, R.D. (2015), An experimental study on corporate cultures and CSR activities: A survey of Japanese affiliated companies in Southeast Asia, *Journal of Management Science*, Vol. 6, pp. 1-9

Gordon, R.D. and Bai, K. (2014) Power as a Central Construct in Organizational Change: A Research Framework for Studying the Effects of Power in Corporate Governance Change Management Scenarios, *Journal of Management Science*, Vol 5: 1-7

Bai, K, Gordon, R.D. and Shinoto, R (2013) The Problematic Nature of Power in Asian Organizations at the Beginning of the Asia Century, *Journal of Management Science*, Vol 4. pp 1-8

Gordon, R.D. and Bai, K. (2013) Whereabouts of Corporate Valuation from the Perspective of Organizational Governance : Based on Relationship between Inappropriate Accounting and Corporate Governance, *Journal of Business and Accounting Research*, Vol 2: pp 7-12

Gordon, R.D. (2012) An Ethnographic Account of Leadership, Power and Change, *Journal of Management Science*, 2: 1- 15

Clegg, S.R. and Gordon, R.D. (2012) Accounting for Ethics in Practice: Problems of Legitimacy, *Financial Accountability and Management*, 28(4): 0267-4424, **(A Journal)**

Gordon, R.D. (2010) Dispersed Leadership, Power and Change: An Empirical Study Using a Critical Management Framework, *Management Communication Quarterly*; Sage Publications Vol 24, 2, pp. 206-287

Gordon, R.D., Kornberger, M. and Clegg, S.R. (2009) Power, Rationality and Legitimacy in Public Organisations, *Public Administration*, 87(1): 15-34. **(A\* Journal)**

Gordon, R.D., Kornberger, M. and Clegg, S.R. (2009) Embedded Ethics: Discourse and Power in the NSW Police Service, *Organisation Studies*, 30(01): 73-99 **(A\* Journal)**

Gordon, R.D. (2006), An Empirical Investigation Into the Power Behind Empowerment, *Organizational Management Journal*, special issue edited by Tom Keenoy & Cliff Oswick featuring the work of emerging scholars, 3(2), 144-165.

Gordon, R.D. and Grant, D. (2005), Why People Interested in Knowledge Management Might Consider the Work of Foucault and the Construct of Power, *Tamara: Journal of Critical Postmodern Organization Science*, 3(2): 1:12

Gordon, R.D. (2002), Conceptualizing Leadership With Respect to Its Historical-Contextual Antecedents to Power, *The Leadership Quarterly*, 13 (2), 151:167 **(A\* Journal)**.

Gordon, R.D. (2001), Is the Sense We Take Equal to the Sense We Make? A Discussion on Sensemaking and Power in Organizations. *Journal of Management and Organization*, 7 (2), 41:49

Gordon, R.D. (1999), A New Concept of Leadership, *Executive Excellence*, 15(4), 19:30

Gordon, R.D. (1998), Leaders and Their Shakespearean Veils, *Executive Excellence*, 15(12), 20:32

### Books

Gordon, R.D. (2007), *Power, Knowledge and Domination*, Malmo: Copenhagen Business School Press

### Book Chapters

Gordon, R.D. (2011), Leadership and Power, in Bryman, A. et al Handbook of Leadership Studies, London: Sage Publications

Gordon, R.D. (2008) Power in Organisations, in Stewart Clegg and Mark Haugaard (Ed) Handbook of Power, London: Sage Publications.

Gordon, R.D. (2008) Power in Organisation Behaviour, in Stewart Clegg (Ed), Handbook Of Macro Organisation Behaviour, London: Sage Publications.

Gordon, R.D. (2008) Power, in Clegg, S.R. *The Encyclopaedia of Organization Studies*, Vol. 4: 1288-1291, Sage Publications

Gordon, R.D. (2008) Transactional Leadership, in Clegg, S.R. *The Encyclopaedia of Organization Studies*, Vol. 2: 790-792, Sage Publications

Gordon, R.D. (2008) Servant Leadership, in Clegg, S.R. *The Encyclopaedia of Organization Studies*, Vol. 2: 785-788, Sage Publications

Gordon, R.D. (2008) Qualitative Research Approaches, in Clegg, S.R. *The Encyclopaedia Of Organization Studies*, Vol.4: 1339-1342, Sage Publications

Gordon, R.D. (2008) Bureaucracy, in Clegg, S.R. *The Encyclopaedia of Organization Studies*, Vol. 1: 109-113, Sage Publications

Gordon, R.D. (2008) Followership, in Clegg, S.R. *The Encyclopaedia of Organization Studies*, Vol. 2: 509-510, Sage Publications

Gordon, R.D. & Grant, D. (2006) Currents of Power, in Peter Murray et al. (Ed.) *Contemporary Issues in Management*, Sydney: Thompson.

R Gordon, R.D. (2006) The Routinization of Charisma, in Ritzer, G. (Ed.) *The Encyclopaedia of Sociology*, Vol. 1: 437-439, Blackwell Publishing

Ray, T. Clegg, S.R. & Gordon, R.D. (2004) A New Look at Dispersed Leadership, in John Storey (Ed), *Leadership in Organizations: Current Issues and Key Trends*, London: Routledge.

Gordon R.D. (2002), Viewing The Dispersion Of Leadership Through A Power Lens: Exposing Unobtrusive Tensions And Problematic Processes, in *Grounding Leadership Theory and Research: Issues, Perspectives and Methods*, edited by Jim Meindl and Ken Parry, Greenwich: Information Age Publishing Inc.

Gordon R.D. & Conner, R. (2001), Peer Learning in Management Education, in *Peer learning in higher education: Learning with and from each other* edited by David Boud, Ruth Cohen and Jane Sampson. London : Kogan Page, 85:99

### Book reviews

Gordon R.D. (2008) Making Political Science Matter, *Organisation Studies*, 28(11): 1780-1745 (**A\*Journal**)

Gordon, R.D. (2001), Moving Beyond the Science Wars?, *Ephemera Critical Dialogues in Organizations*, 2 (3), 296: 302

Gordon, R.D. (2001), review of Research and Knowledge at Work: Perspectives, Case Studies and Innovative Strategies by John Garrick and Carl Rhodes, *Asia Pacific Journal of Human Resources Management*.

### **Refereed Conferences and Colloquiums**

Gordon, R.D. (2008) An Empirical Study into Leadership, Power and Discourse, *ANZAM Colloquium into Discourse and Leadership*, Auckland Business School Dec 08

Gordon, R.D. (2008) Power and Legitimacy, *International Sociological Association Conference*, Barcelona, Spain

Gordon, R.D. (2007) Power, Domination and Legitimacy, *APROS colloquium*, Management Development Institute, Gurgaon, New Delhi, India

Gordon, R.D. (2006) Power, Authority and Legitimacy, *Australian and New Zealand Academy of Management Conference*, Yapoan, December 2006. (Won best paper award in Critical Management Studies Division, and the all academy highly commended paper award).

Gordon, R.D. (2005) Ethics, Discourse and Power: An Empirical Analysis of Ethics in Practice, *American Academy of Management Conference: A New Vision of Management In The 21<sup>st</sup> Century*, Hawaii, Aug 2005. (Won best paper from a dissertation in Social Issues in Management Division, and was nominated for the all academy Newman award)

Gordon, R.D. (2005) Constitution of Power and Corruption in a Police Organization, *American Academy of Management Conference: A New Vision of Management In The 21<sup>st</sup> Century*, Hawaii, Aug 2005.

Gordon, R.D. (2004) The Constitution Of Power and Corruption: A Critical Discursive Research Framework, *Australian and New Zealand Academy of Management Conference*, Dunedin University, Dec 2004.

Gordon, R.D. (2004) Power, Knowledge and Domination: A Critical Discursive Study of Organization Discourse. *6<sup>th</sup> International Conference on Organizational Discourse: Artefacts, Archetypes and Architexts*, Amsterdam, July 2004.

Gordon, R.D. (2003) Leadership, Power and Democracy: A Critical Discursive Research Framework. *American Academy of Management in Seattle Washington*, August 2003

Gordon R.D. (2002) Police Networks And The Constitution Of Power By Police Networks. *American Academy of Management in Denver Colorado*, August 9-14

Gordon R.D. & Grant D. (2001) Fear, Change and the Dynamics of Power: A Critical Discursive Analysis, *17<sup>th</sup> EGOS Colloquium: Odyssey of Organization*, Lyon France

Gordon R.D. (2001) Developing a Research Framework for Discursively Oriented Change Management Scenarios, *Australian and New Zealand Academy of Management Conference: Beyond the Divide*, UNITEC New Zealand

Gordon, R. D. (2000), Developing an Alternative Research Framework for Studying Change Management Scenarios, *Proceedings of APROS: Organizing Knowledge Economies And Societies*, Sydney Australia, 14-17 December

Gordon, R.D. & Grant, D. (2000), Change and the Dynamics of Power: A Critical Discursive Analysis, *4<sup>th</sup> International Conference on Organizational Discourse: Word Views, Work Views and World Views Kings College London*, University of London, 26-28 July 2000

Gordon, R. D. and Grant, D. (1999). Knowledge management or the management of knowledge? *Proceedings of KNOW'99: Deciphering Knowledge Management Vol2*: 356-370. Sydney, Australia, 26-27 November

Gordon, R. (1999) Leadership as a problematic construct in the new millennium. *Proceedings of the 13th International ANZAM Conference, From the Edge: Management Beyond*. Hobart, Australia, 1-4 December

### **Non-Refereed conferences and Colloquiums**

Gordon, R.D. (2005) Shifting the Boundaries of Power: Unforseen Tensions and Paradoxes, *European Group of Organization Studies Conference*, Berlin Germany, 30 June – 2 July

Gordon R.D. and Clegg S.R. (2003) The Constitution of Power and Corruption. *Re/Constructing Corruption*, University of East Anglia, Norwich England, April 30 – May 2

Gordon, R.D. (1999), Dispersed Leadership: More of the Same Wrapped in a Veil of False Empowerment, *SCOS*, Conference “Taking Liberties in Organization”, The University of Edinburgh, Scotland, July

Gordon, R.D. (1999), Leading in Dispersed Environments: Leadership as a problematic construct in a changing World, *EGOS*, Conference “Organizations in a Changing World: Theories, Practices and Societies”, The University of Warwick, UK, July

### **External research funds and grants:**

- 2014, ARC Future Fellowship Grant, Developing Asia Capable Leaders in Australian Organisations, not successful.
- 2006, ARC Linkage Grant with NSW Waterboard lead by Professor Stewart Clegg, Managing Collaborative Organisation Projects, \$350,000.
- 2006, Joint linkage project, Leadership development program, NSW Health, \$20,000. Project completed.
- 2005, Joint linkage project, Exploring the use of democratic control systems in policing, NSW Police, \$25,000. Project completed.
- 2005, UTS ECR linkage discovery project, Link between power and behaviour in Rugby League Football, \$20,000. Project completed.
- 2002, UTS Curriculum Development Grant, Peer Learning in the MBA class room, \$5000. Project completed.

### **Research Supervision:**

- Co-Supervisor for PhD student Stella Ng, Dissertation title: Managing Power Relations between Academic and Academic Administrators, UTS, Completed.
- Co-Supervisor for PhD student Gerard Betros, Dissertation title: Asymmetrical Power Relations in the Thoroughbred Racing Industry, Griffith University, In progress
- Supervisor for PhD student Arlee Hatfield, Dissertation title: Collaboration and Change in the NSW Health Service, completed 2007
- Co Supervisor for PhD Student Khimji Vaghjiani; Dissertation title: Aspirations of Financial Executives, Vision to Reality, Completed 2005
- Supervisor for MBA Research Project Student David Leviton; Dissertation title: Accreditation in aged care information systems, Completed 1999
- Supervisor for MBA Research Project Student Rajeev Kochhar; Dissertation title: Relation between ISO certification and customer satisfaction, completed 1998

### **Editorial contributions to scholarly journals and other publications:**

#### **Editorial Board Membership:**

Currently Chief editor: *Journal of Management Science*. Japan: ICBM

Currently member of the Editorial Board for the, *Journal of Political Power*. London: Routledge.

Member of the Editorial Board as the Associate Editor Australia for the, *Human Resources Development International (HRDI) Journal*. London: Routledge, from 2003 -2006

#### **Reviewer for:**

- Leadership Quarterly Journal
- Journal of Power
- Journal of Management and Organisation
- Human Relations Journal
- International Journal of Management Reviews
- Journal of New Technology Work and Employment
- Ephemera: Critical Discourses in Organization
- Human Resources Development International
- International Journal of Organization Behaviour
- Journal of the Australian and New Zealand Academy of Management

- Journal of Applied Management Studies
- Journal of Organization Studies
- Leadership and Organization Development Journal
- Journal of Organizational Change Management
- Asia Pacific Journal of Human Resources Development
- International Studies in Management Journal
- International Journal of Employee Relations
- Plus others

### **PhD examiner:**

- University of Sydney, Abz Sharma, PhD Titled, Life After Death: The Routinisation of Charismatic Leadership at Apple and Hewlett-Packard (2017)
- Edith Cowan University, Lindsay Garrett, PhD Titled, Power Relationships and Authentic Organisational Learning: Daring to Break the Silence on Meaningful Dialogue in Policing Organisations 2013
- University of Sydney, Helena Liu, PhD title “Leadership through Crisis: The Social Construction of Authenticity among Banking CEOs” 2012
- University of Copenhagen Business School, Rex Denergrade, Change in the Danish Police Force 2010.
- University of Sydney, Jane Gyung Sook Lee, PhD Title: The Experience Of Immigrant Korean Workers In The Australian Labour Market: A Narrative Analysis, 2006
- University of Technology, Sydney, Sam Toglwa, PhD Title: Virtual Organisation, 2005.

### **Professional membership:**

- FAIM                                      Fellow, Australian Institute of Management
- CPA                                        CPA Australia
- ABDC                                      Former member Australian Business Deans Council
- BARDSNET                                Former member Business Academics Research Directors’ Network
- IPSA                                        International Political Science Association
- ANZAM                                     Australian and New Zealand Academy of Management.
- AOM                                        Academy of Management. (American Academy of Management)
- EGOS                                        European Group of Organizational Studies.
- ISA                                         International Sociological Association

### **Referees:**

1. **Eileen Peacock PhD, Senior Vice President AACSB International and Chief Officer Asia, AACSB International O8-07 Odeon Towers, 331 North Bridge Road, Singapore 188720. T +65 6592 5212, M +65 9750 8207, E [eileen@aacsb.edu](mailto:eileen@aacsb.edu)**
2. **Professor Ian Palmer, Pro Vice Chancellor Business and Vice President, RMIT University. College of Business, RMIT University, Level 7. 445 Swanston Street, Melbourne VIC 3000, T 03 9925 5605, E [pvcbus@rmit.edu.au](mailto:pvcbus@rmit.edu.au)**
3. **Professor David Grant, Pro Vice Chancellor Business, Griffith Business School, Griffith University, Nathan campus, QLD 4111, Business 1 (N50) Room 0.09, T +61 7 373 53875, E [david.grant@griffith.edu.au](mailto:david.grant@griffith.edu.au)**

# Dr Jason MacVaugh

University of Liverpool, Management School  
<https://www.liverpool.ac.uk/management/staff/jason-macvaugh/>

Google Scholar profile / Citation Index scores:  
<https://scholar.google.com/citations?user=6SV8V74AAAJ&hl=en>



Address: 2 York Place, Bangor, LL57 1HE, United Kingdom

Email: [j.macvaugh@liverpool.ac.uk](mailto:j.macvaugh@liverpool.ac.uk)

---

## EDUCATION

- 2009 **PhD** Knowledge Management, University of Gloucestershire
- 2007 **PGCHE** Higher Education, University of Gloucestershire
- 2003 **MSc** Human Resource Management and Industrial Relations, Brunel University
- 2000 **BSc** Business Management (Magna cum Laude) N.C. State University

## EMPLOYMENT

2019 - Present: **Director of Studies** (Business Management) University of Liverpool Management School, University of Liverpool (*a Member of the elite Russell Group and holder of the 'Triple Crown' of Business School Accreditations*)

Key responsibilities: Undergraduate recruitment, selection and management for ~1000 students. Curriculum design/development. Accreditation. Coordination with local and international direct entry programmes in 1+2 and 2+2 formats. Supervision of the Academic Advising scheme. Teaching development and standards. Leading scholarly research/practice for tutors working on the degree. *This is a high profile role as Business Management is the single largest programme at the University of Liverpool*

Management: Managing year tutors, coordinating the Undergraduate Support Team, managing student representation teams, managing student experience staff, management and mentorship of new lecturers including ULTRA teacher training scheme registration and support for the FHEA recognition process

Committee work: Undergraduate Programmes Committee, Academic Quality and Standards committee, Faculty Program Board, Teaching Practice Forum, Recruitment/selection working group. National Teaching Fellowship board (and mentorship)

Outside work: External Examiner for the University of London Global MBA, Supervisor for the Stafford (Northampton) and the UWTSD DBA programmes, multiple conference and journal review boards

2017-2019: **Course Development Lead**, Norwich Business School, University of East Anglia

Key responsibilities: the redevelopment of the BSc and BA suites of Undergraduate degree courses at NBS, an expansion from 5 to 10 (including a 50% increase in planned student numbers), requiring the coordination of 5 Course Leaders, recruiting and selecting 5 further Course Leaders. Teaching observation lead, research (Innovation & Pedagogy) and employer engagement

➤ During this period Norwich Business School was awarded TEF gold, was in the top 10 in the UK on the NSS, and increased its student numbers in UG programmes by 20%

Teaching: core module delivery at UG, PG and MBA levels including Organisational Behaviour, HRM, Business Skills (Entrepreneurship), and Managing Across Cultures and International Business. Personal Advisor

Committee work: UG Program Board (member), School Board (member), University Teaching Fellows Board (member). Teaching Practice Forum (leader). *This was a senior role, working as part of the management team*

2016-2017: **Associate Head of School**, School of Marketing and Management, Coventry University

Line management: Direct line manager for 10 members of staff in the school: 7 Course Directors across both UG and PG and 3 specialists in the areas of Digital Literacy, Research Informed Teaching, and Experiential Learning. *This was senior role, working as one of six members of the management team for a school of 1800+ FT students*

➤ During this period the school achieved TEF Gold, and was Ranked in the top 10 in the UK in the NSS, including a perfect 100% NSS score (Overall Satisfaction) for the HRM degree

Teaching: Dissertation module lead, PhD / Research courses

Key responsibilities: Lead for Student Experience (NSS, TEF, PTES, AACSB & EPAS accreditation, curriculum development/innovation, course reviews) with a remit including 71 FT and 42 PT staff; recruitment/selection/induction of new staff, teaching observation lead, supervision of research/dissertations, research (Innovation & Pedagogy). Program Board (member), school induction (lead), and School Board (member)

2014-2016: **Associate Professor**, Kwansei Gakuin University, School of International Studies

Key responsibilities: Developing international student degree programs (in English), curriculum development, supervision of research/dissertations, research project administration (Kakenhi), research and publications

➤ During this period Kwansei Gakuin (and in particular our programmes in the School of International Studies) was awarded 'Super Global' Status, one of only 20 universities in Japan to win the award (and subsequent additional funding of 20,000,000 Yen from the Japanese Government)

Teaching: Basic Seminar I & 2, Basic Management, Management A & B, International Management, Research Seminar I & II, internship supervisor



Committee work: School board (member), Centre for International Education Coordination (advisor). *This was the senior role for course development among English-medium programmes*

2012-2014: **Director of Undergraduate Studies**, Hull University Business School

Matrix management: managing 9 undergraduate Program Leaders, managing the undergraduate Administrative Support Team (3). *This was a senior role, and part of the school's advisory team*

Teaching: MBA; Human Resource Management (FT and Executive including overseas in Bahrain, Hong Kong and Singapore) BA; Research Methods, Human Resource Management, Strategic Management, International Business, Organisational Change

Key responsibilities: Director of Studies (undergraduate), Learning Teaching and Assessment Coordinator, University Senate (member), under-/post-graduate program development, and National Teaching Fellowship (grant administration). Chairing the undergraduate programs committee, under-/post-graduate and executive teaching, (cross-campus) curriculum development, supervision of BA, MBA, and PhD dissertations, research and publishing

Outside work: HRM Consulting for BP (Renewable Energy Division) from December 2013-present.

2010-2012: **Assistant Professor**, Faculty of Knowledge Science, Japan Advanced Institute of Science and Technology (Ishikawa, Japan)

Key responsibilities: post-graduate teaching, supervision of MSc and PhD dissertations, research and publishing

Teaching: MSc Business Management, Knowledge Management, International Business

Committee work and funded research role: coordinator of national and international partnerships, Kakenhi and JAIST Fund (grant administration ~20,000GBP equivalent)

2006-2010: **Senior Lecturer**, University of Gloucestershire Business School (UK)

Key responsibilities: Program Leader (HRM), coordinating undergraduate Module Leaders, under-/post-graduate and professional teaching, curriculum development, supervision of BA, MBA and MSc dissertations, research and publishing

Teaching: PhD/DBA thesis supervision\*, MBA/MSc (Including overseas in Vietnam); Strategic Human Resource Management, International Human Resource Management, Leadership and Development, Strategic Management CIPD; People Resourcing, Managing People, BA; Human Resource Management, International Human Resource Management, Human Resourcing, Managing Change, Organisational Behaviour, Study Skills, Public Speaking

➤ Both my teaching practice and my course development innovations (with a focus on inclusivity in higher education) undertaken during my time at Gloucestershire lead me to a National Teaching Fellowship in the following academic year

Committee work: faculty representative on the University Teaching, Learning and Assessment Committee from 2008, voted to Faculty Board in 2009, awarded Centre for

Active Learning (CeAL) Fellowship 2009-2010, awarded University Teaching Fellowship June 2010, co-lead of development and accreditation teams for new MSc in International HRM and the redevelopment of all undergraduate Business Management degree programs from 2008-2010. Placements (co-ordinator)

2004-2006: **Lecturer**, London International College of Business and Technology (UK)

Duties: part-time Undergraduate teaching

Teaching: Organisational Theory and Analysis

2003-2006: **Graduate Teaching Assistant**, Brunel University (London, UK)

Duties: part-time teaching support, seminar leading, marking

Teaching: Human Resource Management, Organisational Theory and Analysis, and Critical Perspectives on Management

2001-2002: **Operations Analyst**, Bank of America headquarters (Charlotte, USA)

Worked with central resource holders and the Diversity Team to support relationships with key external suppliers, Co-developed part of Bank of America's 'Supplier Service Automation' system

1999-2000: **Cooperative placement program**, North Carolina State University (Raleigh, USA)

Two Three-month placements, at Nortel Networks and John Deere, Supported purchasing and engineering teams by developing short reports on performance using proprietary software, Pareto analysis, and post-performance reviews

## **AWARDS AND ASSOCIATIONS**

Awards	<b>National Teaching Fellowship</b> (Inclusivity in Higher Education) 2011-2014 Higher Education Academy (UK). Chartered Association of Business School's 'Leaders in Learning and Teaching' (UK)
Member	Chartered Institute of Personnel and Development ( <b>MCIPD</b> ), Higher Education Academy ( <b>FHEA</b> ), Academy of Management, British Academy of Management, European Institute for Advanced Studies in Management
Reviewer	Academy of International Business Conference, British Academy of Management Conference, European Journal of Innovation Management, Management Learning, International Journal of Sustainability in Higher Education

## RESEARCH AND SCHOLARSHIP

### Journal articles

- AlShwayat, D., MacVaugh, J. and Akbar, H. (2021), "A Multi-level Perspective on Trust, Collaboration and Knowledge Sharing Cultures in a Highly Formalized Organization", *Journal of Knowledge Management* (accepted for publication) (2\* AJG 2018)
- Chiao, B. and MacVaugh, J. (2020), "Open Innovation and Organizational Features: An Experimental Investigation", *European Management Journal*, <https://doi.org/10.1016/j.emj.2020.12.004> (2\* AJG 2018)
- Mejri, K., MacVaugh, J., and Tsagdis, D. (2018), "Knowledge configurations of small and medium-sized knowledge-intensive firms in a developing economy: A knowledge-based view of business-to-business internationalization", *Industrial Marketing Management*, Vol. 71 (May), pp. 160-170. (3\* AJG 2018)
- Pritchard, C. and MacVaugh, J. (2017), "Strategic selection using person-organisation fit: evidence from stage theatre companies", *International Journal of Employment Studies*, 2017, Vol. 25, No. 2, pp. 25-42. (1\* AJG 2018)
- MacVaugh, J., Jones, A. and Auty, S. (2014), "Implicit, stand-alone or integrated skills education for Undergraduates: a longitudinal analysis of program outcomes", *Journal of Further and Higher Education*, Vol. 38 No. 6, pp. 755-772. (1\* AJG 2018)
- MacVaugh, J. and Evans, J. (2012), "A re-examination of flexible working in Japan", *International Journal of Human Resource Management*, Vol. 23 No. 6, pp. 1245-1258. (3\* AJG 2018)
- MacVaugh, J. and Norton, M. (2011), "Introducing sustainability into business education contexts using active learning", *Higher Education Policy*, Vol. 24 No. 4, pp. 439-457. (2\* AJG 2018)
- MacVaugh, J. and Schiavone, F. (2010), "Limits to the diffusion of innovation: a literature review and integrative model", *European Journal of Innovation Management*, Vol. 13 No. 2, pp. 197-221. (1\* AJG 2018)
- Schiavone, F. and MacVaugh, J. (2009), 'A user based perspective on limits to the adoption of new technology', *International Journal of Technoentrepreneurship* Vol. 2 No. 2, pp. 99-114.
- Pitt, M. and MacVaugh, J. (2008), "Knowledge management for new product development", *Journal of Knowledge Management*, Vol. 12 No. 4, pp. 101-116. (2\* AJG 2018)
- MacVaugh, J. and Auty, S. (2008), "Proactive Knowledge Management: An Independent Enabler of New Product Development Success?", *International Journal of Technology Intelligence and Planning*, Vol. 4 No. 3, pp. 347-363. (1\* AJG 2018)
- MacVaugh, J. (2008), "Factors Affecting the Decision to Outsource Human Resource

Management: Evidence from Two Multinational PEOs." *Contemporary Management Research*, Vol. 4 No. 3.

### Research grants

\**Limits to innovation diffusion: An empirical study in four parts* (2011-2013) My Role: project leader. External Support: Amount of program subsidy: 8,000 pounds for the pilot study (from the JAIST foundation) and 32,000 pounds for the study via Kakenhi (Japanese Ministry of Education, Culture, Sports, Science and Technology), **a total of 40,000 GBP**.

\*NTFS research project titled *Rethinking final year Projects and Dissertations* (2010-2012) My Role: team member. External Support: Amount of **program subsidy: 200,000 GBP** in total from the Higher Education Academy.

\**Redevelopment of The University of Gloucestershire Business School Curriculum* (2007-2010) My Role: team leader. External Support: Amount of **program subsidy: 20,000 GBP** in total from the Centre for Active Learning.

### Book chapters & other articles

Awasthi, S. and MacVaugh, J. (2012), 'Socialization and Cultural Adaptation in Subsistence Markets.' In Awasthi, S. (ed) **Handbook of Management and Behavioural Science**, Vol. III (ISBN: 978-81-89547-93-6)

'Problem Based Learning' Published (Summer 2009) in the eBook **Handbook of Sustainability Literacy** (<http://www.sustainability-literacy.org>)

Shiavone, F. and MacVaugh, J. (2012), 'Non-adoption of new technology.' In Shiavone, F. (ed), **Contemporary Perspectives on Technological Innovation, Management, Information Age** (Volume 2), 2012 (ISBN: 9781623960636)

### Conference papers / Guest lectures

#### International & Comparative Human Resource Management

'Human Resource Management Practice in the Context of Changing Employment Law.' Presented at the *12<sup>th</sup> ISERD conference*, 2015.

Pritchard, C. and MacVaugh, J. (2011) 'Strategic selection using person-organisation fit: evidence from stage theatre companies.' **Best full paper** (HRM category) at *British Academy of Management Conference*, 2011.

Evans, J. and MacVaugh, J. (2011) 'A framework for the investigation of non-Japanese labour management in Japanese small and medium sized enterprises.' Presented at *Asian Conference on the Social Sciences*, Osaka.

Evans, J. and MacVaugh, J. (2010) 'A re-examination of flexible working in Japan.' Presented at the *25<sup>th</sup> workshop on Strategic Human Resource Management*, Barcelona, 2010.

'Factors affecting the decision to outsource Human Resource Management in

Multinational Organisations.' Presented at **22nd Workshop on Strategic Human Resource Management**, Brussels.

Chen, W. and MacVaugh, J. (2006) 'Structural Resistance and the Climate for Change in China's Free-Trade Zones: The case of GTIG.' Presented at **Conference on Organisational Change and Development in Transitional Countries**, Tallinn.

### **Knowledge Management**

Salih, A., MacVaugh, J., and Sciavone, F. (2020) 'Technology Acceptance In A Multi-Level, Multi-Firm, Environment: An Investigation Of Hospital Construction in the Middle East' presented at **British Academy of Management Conference**, 2020.

Al Shwayat, D. and MacVaugh, J. (2018) 'A Multi-level Examination of the Relationship between Organisational Culture and Knowledge Sharing in the Banking Sector.' **SIBR Conference**, Osaka.

Tsagdis, D.; Kais, M.; MacVaugh, J.A. (2016) 'SME Internationalization Knowledge: A Developing Economy Perspective.' **Academy of Management 76th Annual Conference**, Anaheim.

Tsagdis, D.; Kais, M.; MacVaugh, J.A. (2016) 'Knowledge Cost and SME Internationalisation from a Developing Economy.' **Academy of International Business Annual Conference**, New Orleans.

Tsagdis, D.; Kais, M.; MacVaugh, J. (2014) 'SME internationalisation knowledge acquisition: A developing economy perspective.' Presented at the **Annual Tokyo Business Research Conference**, Waseda University.

'An international study of resistance to innovation diffusion: Initial findings and preparation for quantitative work.' Presented at the **Second Asia Pacific Innovation Conference**, Singapore, 2011.

'Proactive Knowledge Management: An Independent Enabler of New Product Development Success?' presented at **14th International Product Development Management Conference**, Porto, 2007.

'Knowledge Management's effect on New Product Development.' Presented at the **14th European Doctoral Seminars on Technology Management**, 2004.

### **Higher Education Pedagogy**

MacVaugh, J. (2022) 'Student groups and cohorts, an extension of integrated skills education for undergraduates: an analysis of programme outcomes.' **ICTEL Conference**, Singapore.

Murray, J. and MacVaugh, J. (2019) 'Improving Student Satisfaction at University Using a Customer Focused Strategy.' **SIBR Conference**, Tokyo.

'Implicit, stand-alone or integrated graduate attributes for Undergraduates: an analysis of program outcomes.' Presented at the **Asian Conference on Education 2010**, Osaka.

^'Nurturing young people's environmental consciousness: lessons from the University of Gloucestershire.' Guest Lecture for the **Symposium on Green Management of Technology** (MOT), Nagano, 2010.

'Chopping off our tail: a critical examination of the development of Active Learning in Business and management education.' Presented at **Research in Education for Active Learning (REAL)** Cheltenham, 2010.

'Stand alone Generic skills or Embedded skills in modules: What does an examination of Management curricula tell us about the classic pedagogic debate?' Presented at the **International Conference on Business and Information** (Summer 2009), Kuala Lumpur.

### **Doctoral research student supervision**

Ahmed Salih, DBA (**Awarded September 2020**) "Improving Project Management Information System Introduction Success in a Construction Context" First Supervisor (University of Liverpool, UK)

Jacqueline Murray, DBA "Improving Student Satisfaction at a Caribbean University Using a Customer Focussed Strategy" (**Awarded July 2018**) Joint supervisor (Napier University, UK)

Dana Alshwayat "Knowledge Management for Product Innovation in the Financial Service Sector." PhD (**Awarded November 2017**) First Supervisor (University of Gloucestershire, UK)

Nguyen Thu Huong "Knowledge-bridging Managers in High-Tech Partnership: A Case Study of Software Offshoring from Japan to Vietnam." PhD (**Awarded February 2012**) role: Second Supervisor (JAIST, Japan)

Kais Mejri "The Knowledge Process in Internationalization of SMEs: A Case Study of the Tunisian ICT Industry." PhD thesis (**Awarded March 2011**) role: Second Supervisor (JAIST, Japan)

## REFERENCES (Please request before contact)

1. Dr Meera Sarma, Director of the Liverpool DBA, University of Liverpool, UK  
[Meera.Sarma@liverpool.ac.uk](mailto:Meera.Sarma@liverpool.ac.uk)
2. Dr Francesco Schiavone, Professor, University Parthenope Naples, Italy  
[schiavone@uniparthenope.it](mailto:schiavone@uniparthenope.it) (co-author, multiple funded projects in management research)
3. Dr Martin Jenkins, Head of Academic Development, Coventry University, UK  
[Martin.Jenkins@coventry.ac.uk](mailto:Martin.Jenkins@coventry.ac.uk) (University wide Development Coordinator)
4. Dr Ian Pownall, Associate Professor, Lincoln University, UK [ipownall@lincoln.ac.uk](mailto:ipownall@lincoln.ac.uk)  
(former Line Manager at the University of Hull)
5. Dr Jim Keane, Senior Lecturer, University of Gloucestershire, UK [jkeane@glos.ac.uk](mailto:jkeane@glos.ac.uk)  
(former Head of Subject Group)
6. Prof Mike Norton, Visiting Professor, Tokyo Technical University, Japan  
[michaelnorton307@gmail.com](mailto:michaelnorton307@gmail.com) (Mentor while working in Japan)

## Professor RICK BENNETT



### Academic CV

---

#### Overview

<b>National and International Conference &amp; Seminar Presentations</b>		<b>57</b>
<i>Keynote Addresses</i>		6
<i>Plenary Addresses</i>		30
<i>Parallel Sessions</i>		21
<b>Refereed Academic Papers/Chapters</b>		<b>21</b>
<b>Research Grants</b>	(AUD \$775,310)	<b>16</b>
<b>Significant Awards</b>		<b>8</b>
<b>Exhibitions</b>		<b>6</b>
<b>Trademarks</b>		<b>2</b>

---

#### Academic Qualifications

**Doctor of Philosophy (2004-2009)**

The University of Sydney, Australia

*Thesis: Drawing on the Virtual Collective: Exploring Online Collaborative Creativity.***Master of Higher Education (1994-1998)**

The University of New South Wales, Australia

**Bachelor of Arts (Hons) Fine Arts (1981-1984)**

Bristol Polytechnic, England (UK)



## Academic Positions

### RMIT University (Vietnam)

Professor (2015- current)

Dean, School of Communication & Design (2015-2018) – 4 years

Vice-President (Academic) (2018-19) – 2 years

Executive Dean (Academic & Students) (2020 – current) – 2 years

As Executive Dean (Academic & Students), I am responsible for 15 student support Departments that include 160+ full-time professional staff, as well as academic governance and oversight of 3 Higher Education Schools – 3 Deans and over 300+ Academic staff, and the School of English & University Pathways with its Director and over 100 full and part-time English teachers.

I currently chair or sit on the following RMIT committees and boards:

- RMIT University (Vietnam) Education Committee – Chair
- RMIT University (Vietnam) Executive Leadership Team
- Ministry of Education & Training (MOET) & RMIT University (Vietnam) - Online & Digitally Enhanced Learning (ODEL) Advisory Committee – Co-Chair
- RMIT University (Vietnam) Critical Incident Management Team – Co-Chair
- RMIT University (Australia) Academic Board
- RMIT University (Australia) – DVCE Executive Committee
- RMIT University (Vietnam) School of Communication & Design Industry Advisory Board – Chair (2015 – 2019)

### University of New South Wales – College of Fine Arts (Sydney, Australia)

Associate Professor (2010-2014)

Senior Lecturer (2004-2009)

Lecturer (1999-2003)

Associate Lecturer (1995-1998)

Senior Technical Officer (1992-1994)

### De La Salle College of Saint Benilde University: School of Design & Arts (Manila, Philippines)

Visiting Professor (2008-2010)

## National & International Conference, Seminar & Workshop Presentations

**Bennett, R. (2021)** (Plenary Address)

*What new networks and partnerships will position Victoria and Vietnam to drive education innovation for the region?*

Global Victoria & RMIT University Digitally Enhanced Learning Summit

Australia & Vietnam (Online)

**Bennett, R. (2021)** (Keynote Address)

*Barriers to Online Education for Higher Education in Vietnam*

2021 Auscham Education Conference

Vietnam (Online)

**Bennett, R., Stubbs, S. (2021)** (Plenary Address)*ODEL: Practical Recommendations for Quality Assurance for Teachers*Vietnam Leads: MOET & RMIT Online & Digitally Enhanced Learning (ODEL) Advisory Board  
Hanoi, Vietnam**Bennett, R. (2021)** (Plenary Address)*Setting the scene: Planning, Scope, Terminologies and Expectations*Vietnam Leads: MOET & RMIT Online & Digitally Enhanced Learning (ODEL) Advisory Board  
Hanoi, Vietnam**Bennett, R. (2020)** (Plenary Address)*The Agile University: Attracting Quality Staff to Overseas Universities*

2020 Human Resources Conference:

Ho Chi Minh City, Vietnam

**Bennett, R. (2020)** (Plenary Address)*Foreign Investment in Higher Education: Reputation and Quality Determined*

2020 Ministry of Education &amp; Training (MOET) Conference

Ho Chi Minh City, Vietnam

**Bennett, R. (2014)** (Keynote Address)*Global Classrooms, Local Benefits*2014 International Conference on Global Education for Digital Natives: Prospects and Reflections  
Tamkang University, New Taipei City, Taiwan.**Bennett, R. (2013)** (Plenary Speaker)*A Design Education Online*

Sydney Design Week 2013

The Apple Store, Sydney, Australia.

**Bennett, R. (2012)** (Plenary Address)*Cyber Education: Extending Frontiers, Transforming Lives*

HYCU 10th Anniversary International Conference, Hanyang Cyber University, Seoul, South Korea.

**Bennett, R. (2011)** (Keynote Address)*Creative Outreach Through Computing in Education*

Global Learn Asia Pacific 2011 Conference

Association for the Advancement of Computing in Education (AACE), The Sebel Albert Park Hotel, Melbourne, Australia.

**Bennett, R. (2011)** (Invited Lecture)*Art and Advocacy: Creative Outreach*

Celebrate Australia 2011, Australia Embassy Manila

Ayala Museum, Makati, Manila, Philippines.

**Bennett, R. (2010)** (Plenary Address)*Omnium Creative Outreach*

Design Futures – Public Lecture Series

College of Fine Arts, University of New South Wales, Sydney, Australia.

**Bennett, R. (2009)** (Plenary Address)*Omnium Creative Outreach*

Australian Graphic Design Association Design Conference

How Can Graphic Design Help Save The Planet? Powerhouse Museum, Sydney, Australia.

**Martini, N., Harrison, J., & Bennett, R. (2008)***Breaking borders with the VIP project*

The Fifth Pan-Commonwealth Forum on Open Learning, London, UK.

**Bennett, R. (2007)** (Plenary Address)*The Omnium Project: Online Collaboration & Creativity (OCC) Within Educational Communities*

ACUADS '07 Conference, College of Fine Arts, UNSW, Sydney, Australia.

**Bennett, R. & Polaine, A. (2007)** (Plenary Address)

*Exploring Emerging Online Cultures, Social Networking and Creative Collaboration Through e-Learning to Offer Visual Campaigns for Local Kenyan Health Needs.*

Paper presented at the Icoграда World Design Congress Education Network Conference, Havana, Cuba.

URL:[http://www.icograda.org/events/event\\_archive/articles1014.htm?query\\_page=1](http://www.icograda.org/events/event_archive/articles1014.htm?query_page=1)

**Bennett, R. (2007)** (Keynote Address)

*Education 3.0: When the world of design education becomes truly connectEd.*

ConnectEd 2007 International Conference on Design Education, The University of New South Wales, Sydney, Australia.

**Bennett, R. (2006)** (Plenary Address)

*The Omnium Project: Global Communities, Ethical Futures and a New Open-Source Solution*

Create World, AUC2006 Conference, Griffith University, Brisbane, Australia.

**Bennett, R., Polaine, A., McIntyre, S. & Dziekan, V. (2006)**

*Small World, Global Classrooms: Exploring the Potential and Advantages of Fully Online Global Learning Communities Arts*

Online-Educa Conference: 12<sup>th</sup> International Conference on Technology Supported Learning & Training, Berlin, Germany.

**Bennett, R. (2006)**

*The Omnium Project: Establishing Solely Online Educational Communities In The Visual Arts*

Designs on E-Learning (online) Conference: The University of the Arts, London, England.

**Bennett, R. & Polaine, A. (2006)**

*Online Collaboration and Creative Processes*

Enhancing Curricula: Center for Learning and Teaching in Art & Design (CLTAD) Conference: Lisbon, Portugal.

**Bennett, R. (2006)** (Plenary Address)

*Encouraging students to be Creative and make their own Waves for surfing whilst e-learning*

Pushing the Boundaries: Setting the e-Learning research Agenda Conference, University of Leicester, England.

**Bennett, R. (2006)** (Plenary Address)

*Maximising the Advantages of Learning using Technology (MALT): One step beyond 'blended' online education*

Only Not Lonely - E-Learning Seminar: London South Bank University, England.

**Bennett, R. (2005)**

*Omnium: A Creative P2P Learning Environment*

International Conference on Computers in Education (ICCE05): Nanyang Technology University, Singapore.

**Bennett, R. & Dziekan, V. (2005)**

*Establishing online communities to explore collaborative modes of creative interaction and education*

Ascilite Conference '05, Queensland University Technology, Brisbane, Australia.

**Bennett, R. (2005)** (Plenary Address)

*Forming online communities of students, educators and professionals to explore collaborative modes of creative interaction*

8th International Electronic Theses and Dissertations Symposium ETD2005: UNSW, Sydney, Australia.

**Bennett, R. & Salmon, G. (2005)** (Plenary Address)

*Online Collaboration: Working With the Most Interactive Community of Designers We Have [N]ever Met*

Designs on E-Learning International Conference: The University of the Arts, London, England.

**Bennett, R. & Dziekan, V. (2005)**

*The Omnium Project: Creative Waves: A Case Study*

World Design Congress (ERA 05) Conference: Danish Design Centre, Copenhagen, Denmark.

**Bennett, R. (2005)** (Plenary Address)

*Finding Value After The Online Educational Goldrush*

Beyond Distance Research Alliance Seminar: The University of Leicester, England.

**Bennett, R. (2005)** (Plenary Address)

*Introducing Frameworks For Collaborative & Creative Online Communities*

X Media Lab Workshop: Singapore Expo Centre, Singapore.

**Bennett, R. (2005)** (Plenary Address)

*A Digital Interdependence Between Research, Education and Practice in Visual Arts and Design*  
Design Research Group Seminar: Faculty of the Built Environment, UNSW, Australia.

**Bennett, R. & Dunphy, E. (2004)**

*Meeting Pluralist Demands With A Pluralist Response: The Omnium Project - offering an online collaborative design response to an increasingly diversified, interconnected and pluralist world.*  
FutureGround International Design Research Conference, Monash University, Australia.

**Bennett, R., Chan, L. & Polaine, A. (2004)**

*The Future Has Already Happened: Dispelling Some Myths of Online Education*  
ACUADS Conference, Australian National University, Canberra, Australia.

**Bennett, R. & McIntyre, S. (2004)**

*Encouraging Quality and Purpose in Online Art and Design Education*  
ACUADS Conference, Australian National University, Canberra, Australia.

**Bennett, R. (2004)** (Keynote Address)

*Proposing a Framework for Creative Online Interaction*  
Create.Ed Conference: E-Learning for the Creative Industries, Storey Hall, RMIT, Melbourne, Australia.

**Bennett, R. (2004)** (Keynote Address)

*Online Design Process and Interaction*  
Digital Voyages: Apple University Consortium (AUC) Conference, University of Adelaide, Australia.

**Bennett, R. (2004)**

*The Omnium Project: Facilitating Design Process and Interaction within International Online Communities*  
International Web-Tech Conference: Cockle Bay Wharf, Darling Harbour, Sydney, Australia.

**Bennett, R. (2004)** (Plenary Address)

*Distanced or Connected, Theoretical or Practical: a Report of Initiatives for Flexible Learning & Teaching*  
Core Pacific-Rim Universities Seminar on International Distance Education, Busan, South Korea.

**Bennett, R. (2003)**

*Context, Collaboration, Content and Computers: Suggesting a Framework for Online Design Education*  
Australian Council of University Art & Design Schools (ACUADS) Off-Campus On-line Seminar,  
Australian National University, Canberra, Australia.

**Bennett, R. (2002)** (Plenary Address)

*Interactivity & the Web*  
International designers Network (IdN) Fresh Conference: Singapore Expo Centre, Singapore.

**Bennett, R. (2001)** (Plenary Address)

*The Future of Web Imagery and Inspirations Influencing Future Designers*  
Industrial Designers' Society of America (IDSA) National Conference, Boston, USA.

**Bennett, R. (2001)** (Plenary Address)

*Possibilities for Teaching Design Online*  
Industrial Designers' Society of America (IDSA) National Education Conference, Massachusetts College of  
Art, Boston, USA.

**Bennett, R. (2000)** (Plenary Address)

*International Online Design Collaborations*  
International Design Forum (IDF), Singapore International Convention and Exhibition Centre, Singapore.

**Bennett, R. (2000)**

*Experiencing Cultural Diversities and Geographical Distance Whilst Working Collaboratively Online*  
Design Research Society Co-Designing Conference, The University of Coventry, England.

**Bennett, R. (2000)** (Plenary Address)

*Omnium Virtual Design Studio '99- A New Pathway for Design Education*  
Australian Council for Education through Technology (ACET) 2000 Conference: Canberra, Australia.

**Bennett, R. (2000)**

*Omnium Projects 1999*  
Open University Online Education Seminar: Open University, Milton Keynes, England.

**Bennett, R. (1999)** (Plenary Address)*Omnium: Virtual Design Studio '99*

Interfaces Virtuelle Seminar, Universit  de Compi gne, Paris, France.

**Bennett, R. (1999)** (Plenary Address)*A Collaborative Web Interface for Exchanging Creative Ideas*

Virtual Design Studio Seminar - The London Institute, London.

**Bennett, R. (1999)** (Plenary Address)*Past, Present and Future of Design Studio Education*

Design in Education Council Australia (DECA) Conference '99 - UNSW, Australia.

**Bennett, R. (1999)***Past, Present and Future of Design Studio Education*

Australia Council of University Art &amp; Design Schools (ACUADS) Conference '99, UNSW, Australia.

**Bennett, R. (1999)** (Plenary Address)*A Virtual Vision for Design Education*

TEL-isphere (Technology Enhanced Learning) 99: Sherbourne Conference Centre, Barbados.

**Bennett, R. (1999)** (Plenary Address)*Omnium Virtual Design Studio '99*

Centre for Teaching Initiatives in Art and Design (CTIAD) Seminar: University of Brighton, England.

**Bennett, R. (1999)***The Virtual Design Studio*

Sydney Design 99: Sydney Convention and Exhibition Centre, Darling Harbour, Australia.

**Bennett, R. (1999)** (Plenary Address)*An Alternative to Traditional Design Education*

4th Biennial IdN design Award Conference 99-00: Sydney Convention and Exhibition Centre, Darling Harbour, Australia.

**Bennett, R. (1999)***Omnium Virtual Design Studio*

European Academy of Design Conference: Sheffield Hallam University, England.

**Bennett, R. (1997)***Transition, Orientation and Motivation for Design Students*

3rd Pacific Rim First Year in Higher Education Conference: Auckland Institute of Technology, New Zealand.

**Bennett, R. (1997)***Strategies for Giving Feedback to Students Studying Design in Large Groups*

Education 97 Conference: UNSW, Australia.

**Bennett, R. (1996)***Identifying methods of giving quality feedback to students studying within large groups*

Design in Education Council Australia (DECA) Conference '97: Surfers Paradise, Australia.

## Refereed Academic Publications

**Bennett, R. (2014)***Global Classrooms, Local Benefits*2014 International Conference on Global Education for Digital Natives: Prospects and Reflections  
Conference Proceedings pp 18-32**Bennett, R. (2010)***Drawing on the Virtual Collective: Exploring Online Collaborative Creativity*PHD Thesis, The University of Sydney - <http://ses.library.usyd.edu.au/handle/2123/6433>**Martini, N., Harrison, J., & Bennett, R. (2010)***Creating Waves across geographical and disciplinary divides through online creative collaboration.*In *Interaction in Communication Technologies & Virtual Learning Environments*, Ragusa, Angela, T. (Ed),  
Human Factors, IGI Global, pp 9-25. ISBN: 978-1-60566-874-1

**Polaine, A., & Bennett, R. (2010)**

*Creative Waves: Exploring Emerging Online Cultures, Social Networking and Creative Collaboration Through e-Learning to Offer Visual Campaigns for Local Kenyan Health Needs.*  
In *Collaborative Technologies and Applications for Interactive Information Design: Emerging Trends in User Experiences*, Rummier, Scott & Ng, Kwong-Bor (Eds.), Hershey, PA: IGI Global. ISBN: 978-1-60566-727-7

**Bennett, R. & Polaine, A. (2006)**

*Online Collaboration and Creative Processes.*  
Enhancing Curricula: 3<sup>rd</sup> International Conference Proceedings pp 416-432, Center for Learning and Teaching in Art & Design (CLTAD), University of the Arts, London, ISBN 0-9541439-5-7

**Bennett, R. & Dziekan, V. (2005)**

*Establishing online communities to explore collaborative modes of creative interaction and education*  
ASCILITE Conference Proceedings, Queensland University Technology (QUT), Australia, ISBN: 0-9757093-1-3

**Bennett, R. & Dziekan, V. (2005)**

*Forming online communities of students, educators and professionals to explore collaborative modes of creative interaction and practice.*

ETD2005, 8th International Electronic Theses and Dissertations Symposium Proceedings: UNSW, Sydney, Australia

**Bennett, R. & Dziekan, V. (2005)**

*Online Collaboration in the Creative Process: Working With the Most Interactive Community of Designers We Have [N]ever Met.*

Designs on E-Learning International Conference Proceedings: The University of the Arts, London, England, ISBN: 1-903455-09-X

**Bennett, R. & Dziekan, V. (2005)**

*Creative Waves: A Case Study.*  
World Design Congress (ERA 05) Conference Proceedings: Danish Design Centre, Copenhagen, Denmark.

**Bennett, R. & Dziekan, V. (2005)**

*Creative Waves - an online global creative community: Students, educators and professionals explore collaborative modes of creative interaction, conversation and working process.*  
United Designs: Graphic Design Practice & Education, Masthead Publisher, Seoul, Korea. pp56-67, ISBN: 89-954486-2-8

**Bennett, R. & Dunphy, E. (2004)**

*Meeting Pluralist Demands With A Pluralist Response The Omnium Project: offering an online collaborative design response to an increasingly diversified, interconnected and pluralist world.*  
FutureGround International Design Research Conference Proceedings 2004, Monash University, Melbourne, ISBN 0-9756060-2-6

**Bennett, R., Chan, L. & Polaine, A. (2004)**

*The Future Has Already Happened: Dispelling Some Myths of Online Education.*  
ACUADS Conference Proceedings, Australian National University, Canberra, Australia.  
<http://web.sca.usyd.edu.au/acuads/2004conference.html> - ISBN 0-7315-3040-3

**Bennett, R. & McIntyre, S. (2004)**

*Post the eLearning Goldrush: Encouraging Quality and Purpose in Online Art and Design Education.*  
ACUADS Conference Proceedings, Australian National University, Canberra, Australia.  
<http://web.sca.usyd.edu.au/acuads/2004conference.html#top> ISBN 0-7315-3040-3

**Bennett, R. & Broadfoot, O. (2003)**

*Design Studios: Online?*  
Apple University Consortium Academic and Developers Conference Proceedings 2003, pp 9-21, ISBN: 0-947209-34-4

**Bennett, R. (2003)**

*The Omnium Project: Proposing a Framework for Creative Online Interaction.*  
Create.Ed 2003 Conference Proceedings, pp 2-14, RMIT Publishing, ISBN: 0-86459-291-4

**Bennett, R. (2001)**

*Omnium: Proposing Strategies for Quality, Collaborative On-Line Teaching and Learning.*  
Education, Communication and Information: Vol1 No.1. link p 104, Open University (UK) & Harvard (USA), Taylor and Francis/Routledge Press, ISSN: 1463-631X

**Bennett, R. (2000)**

*Om'nium [vds]: Experiencing Cultural Diversities and Geographical Distances Whilst Collaborating Within an International On-Line Design Process.*

Collaborative Design: Design Research Society, Coventry (UK). Springer Press, ISBN 1852333413

**Bennett, R. (2000)**

*Om'nium [vds]: Presenting an On-Line Future for Tertiary [Design] Education*

Outline 9, winter issue 9, pgs 17-24 University of Brighton, CTIAD, (UK), ISSN 1365-4349

**Bennett, R. (2000)**

*Omnium vds: virtual design studio'99: Experiencing Cultural and Geographical Diversity in International Online Design*

Co Designing 2000 Adjunct Proceedings, pgs 123 ñ130, Coventry University (UK), ISBN 0 905949 93 5

**Bennett, R. (2000)**

*Omnium [vds]: virtual design studio '99.*

Design Cultures Conference Proceedings, European Academy of Design, pgs 72-75, Sheffield Hallam University & Salford University (UK), ISBN: 0-902896 21-0

**Bennett, R. (1998)**

*Transition, Orientation & Motivation: identifying individual and institutional factors that affect the successful orientation and adjustment of design students entering tertiary education.*

First Year in Higher Education Conference Proceedings, AIT (NZ) & QUT (Aus), ISBN: 0-473-05249-0

## Research / Learning & Teaching Grants

**Bennett, R., Bennett, J., Del Favero, D., Goodwin, R., Harley, R. (2010)**

UNSW MREI Grant – *Smart Art Lab: Art, design and media resources using mobile smart technologies* (\$98,000)

**Bennett, R. (2009)**

UNSW Faculty Research Grant - *Das[ma]nila: Creative collaboration to design and produce street art for typhoon-devastated Manila with weavers from under-privileged communities in the Philippines.* (\$13,000)

**McIntyre, S., Bennett, R., & Watson, K. (2009)**

Australian Learning & Teaching Council (ALTC) - *Learning to Teach Online: Developing high-quality video and text resources to help educators teach online.* (\$219,000)

**McArthur, I., McIntyre, S., Bennett, R., Fang X, Goodwin, R., (2009)**

UNSW Faculty Research Grant (ECR) - *Culturally adaptive online pedagogy: Developing and evaluating culturally appropriate online pedagogy for trans-national collaborative design education.* (\$17,500)

**Bennett, R., McIntyre, S. (2008)**

COFA Research Infrastructure Block Grant - *Developing an Online Tool for Enabling User-centric Portability and Integration Across Multiple Sites* (\$9,896)

**Bennett, R. & McIntyre, S. (2007)**

UNSW Learning & Teaching Performance Fund - *Planning, Infrastructure Provision and Establishment of the UNSW Academy of Online Art and Design Education* (\$68,000)

**McIntyre, S. & Bennett, R. (2007)**

UNSW Early Career Researcher Program - *Evaluating impact and affects that issues associated with time have on student motivation within fully online learning and teaching communities* (\$12,000)

**Bennett, R., McArthur, I. & McIntyre, S. (2007)**

UNSW Faculty Research Grant (ECR) - *Culture and online pedagogy: A comparative analysis of the effectiveness of different media types in cross-cultural online design education.* (\$8,500)

**Bennett, R. (2006)**

UNSW Research Infrastructure Block Grant - *Computer Programming: to secure and upscale the Omnium technical infrastructure and safeguard the Omnium Software Suite.* (\$30,000)

**Bennett, R. (2004)**

UNSW Faculty Research Grant - *Harnessing the popularity of instant messaging systems, to improve socialisation, interaction and the overall learning experience for students studying online.* (\$5,000)

**Bennett, R. (2004)**

UNSW Postgraduate Learning and Teaching Grant - *Improving accessibility, engagement and experience in art and design postgraduate (coursework) study: Towards a model for course-specific online information literacy.* (\$15,000)

**Bennett, R. & Chan, L. (2004-06)**

Australian Research Council (ARC) Discovery Grant - *The Omnium Project: Formalising a System and Approach for an Effective Online Collaborative Design Process in Visual Communication.* (\$260,000)

**Bennett, R. (2002)**

UNSW Faculty Research Grant - *A research and development project to improve 'synchronous' [live] interaction and collaboration, between geographically distanced [design] students studying together online.* (\$17,104)

**Bennett, R. (2002)**

COFA Faculty Research Grant - *Comparing traditional face to face Design Studio education with modern initiatives that aim to efficiently teach creativity and design exclusively via the internet.* (\$2,614)

**Bennett, R. (1999)**

Australian Research Council (ARC) Small Grant - *Ominium [vds]: Virtual Design Studio 199: A project involving international design students working collaboratively using the internet as their communication tool.* (\$4,395)

**Bennett, R. (1998)**

COFA Faculty Research Grant - *The Design Studio: A critical analysis of university 'design studio' practice; identifying facilitative strategies to improve teaching & learning outcomes.* (\$4,630)

**Bennett, R. (1996)**

COFA Faculty Research Grant - *A collection of data concerning approaches & practices relating specifically to first year Art & Design curricula in Australian tertiary education institutions.* (\$3,689)

## Academic and Creative Awards

**Australian Government Arts in Asia Awards (2013)**

Finalist in 3 Categories:

*The Banglos Project (Philippines) by Rick Bennett – 'For outstanding contribution to Visual Arts'*

*The Banglos Project (Philippines) by Rick Bennett – 'For outstanding Philanthropic contribution'*

*The Banglos Project (Philippines) by Rick Bennett – 'For outstanding Individual contribution'*

**Citation for Outstanding Contributions to Student Learning (2006)**

Carrick Institute (now ALTC)

*'For pioneering internationally recognised best practice in online education in the creative arts and design'*

**AUQA Commendation (2006)**

Australian University Quality Agency

*'For good practice in systematisation of online delivery and innovation in online collaborative education.'*

**President's Award (2005)**

Australasian Society of Computers in Learning in Tertiary Education (Ascilite)

*'For innovation and exemplary use of technology in higher education'.*

**ACUADS Distinguished Teacher of the Year Award (2004)**

Australian Council of University Art and Design Schools (ACUADS)

**UNSW Vice-Chancellor's Award for Teaching Excellence (2001)**

*'For exemplary innovation in the use of technology in teaching'*



## Art & Design Exhibitions

**Bennett, R. (2013)**

*The Banglos project – Design Installation*  
Ayala Museum, Makati, Manila, Philippines.

**Bennett, R. (2011)**

*DasManila – Design Installation*  
Royal Botanic Garden Sydney, Australia.

**Bennett, R. (2010)**

*DasManila – Design Installation*  
Ayala Museum, Makati, Manila, Philippines.

**Bennett, R. (2009)**

*Rel[frame]: Manila – Design Installation*  
College of Saint Benilde – School of Design and Art, Malate, Manila, Philippines.

**Bennett, R. (2002)**

*Collaboration/Process/Outcome 01, 02 & 03.*  
Design Research Exhibition, COFA, Sydney, Australia.

**Omnium (1999)**

*Om'nium [vds] – 'Small Red Car' Design Exhibition*  
School of Colour & Design Gallery, Circular Quay, Sydney, Australia.

## Trademarks / Patents

**Omnium ®, Omnium Software ® (2007)**

*Educational and training services including information services relating to online and web-based learning.*  
Ten-year Australian Trademark by IP Australia (No. 1109961)

**Omnium Ruksac ® Software ® (2012)**

*Educational and training services including information services relating to online and web-based learning.*  
Ten-year Australian Trademark by IP Australia (No.)

# An Empirical Analysis of Export-Led Growth of Vietnam: Trade in Value Added (TiVA) Approach

Nguyen Viet Khoi<sup>1</sup>, Shashi Kant Chaudhary<sup>2</sup>

## Abstract

*This paper examines the long-run relationship between domestic value added exports and economic growth of Vietnam using ARDL bounds test of cointegration on annual data covering the period of 1995-2014. The bounds test establishes existence of both short-run and long-run relationship between exports and GDP of Vietnam and shows a substantial contribution of exports in the real GDP (0.73 percent for one percent changes in the domestic value added exports). The exports pattern of Vietnam portrays it following the footsteps of export-led growth model of Mexico, whereby it has turned itself into export production platforms for MNCs by suppressing the wages, rather than developing own indigenous industrial capacity. In such scenario, it seems challenging for Vietnam to sustain its export-led growth which it has achieved so far based on its cheap labour. With the rising living standards, ultimately the comparative advantages of cheap labour force would vanish in the future, which will cause a wave of assembly jobs to flow out of Vietnam. Moreover, two other low-cost countries in the region, Cambodia and Myanmar are likely to rise as close competitors of Vietnam in the low cost assembly works in the near future. By that time, in case Vietnam fails to enter into higher value added activities, it will drag itself into the 'middle income trap'. Therefore, the 'assembly strategy' shall be bonded with strategy to develop own indigenous industrial capacity, and national technological base. These will help Vietnam to upgrade its activities along value chains in forms of product upgrading, process upgrading, functional upgrading, and sectoral upgrading so that it can switch its role of 'assembling agent' to 'indigenous producer'.*

**Keywords:** ARDL, Breakpoint Unit Root, Exports-led Growth, Value Added Export, Vietnam

## 1. Introduction

Export-led growth is a 'development strategy' that postulates that export expansion is a key factor for the economic growth of a nation. In theory, the expansion of exports can spur economic growth through several channels viz. (i) allocation of resources to the competitive sectors that results into increase in efficiency of the economy, (ii) generating employment opportunities to the unskilled labourers and improve equality, and (iii) greater inflows of FDI and technology transfers to the economy. The history of development of Germany and Japan in 1950s and 1960s; Mexico in 1970s; Asian Four Tigers (South Korea, Hong Kong, Taiwan,

and Singapore), in 1980s adopting export-led growth strategies is remarkable. There are a lot of empirical works done that support the export-led economic growth hypothesis, some of these significant works are Krueger (1978), Chenery (1979), Tyler (1981), Kavoussi (1984), Balassa (1985), Chow (1987), Fosu (1990), Salvatore and Hatcher (1991) etc. In contrary to it, there are some other empirical works viz. Jung and Marshall (1985), Kwan and Cotsomitis (1990), Ahmad and Kwan (1991), Dodaro (1993), Oxley (1993), Yaghmaian (1994), and Ahmad and Harnhirum (1995) that did not find much support to the export-led economic growth hypothesis. Thus, the stories of economic success based on export-

<sup>1</sup> Professor, VNU University of Economics and Business, Hanoi, Vietnam

<sup>2</sup> Assistant Professor, British University Vietnam, Hanoi, Vietnam

led strategies are limited to only a handful European and East Asian economies and hence lacks a general consensus. Nonetheless, aforementioned economies were successfully capable of maintaining sustained rapid growth until 1997, however only China has continued forging ahead at near double-digit rates since 2000, while all others have slowed down.

In the end of 1980s, Vietnam also adopted some comprehensive and radical economic reforms in sectors including foreign trade and foreign investment, to overhaul the economy in a way to adopt the export-led growth strategy. As a result, the period of first half of 1990s became the turning point in the history of 'Modern Vietnam'. During this period, Vietnam achieved remarkable economic growth, on average 8.2 percent because of these comprehensive and radical economic reforms. Apart from these reforms, some trade related developments also took place in order to open the economy, for instance, Vietnam signed trade agreement with EU in 1992; established its full diplomatic relationship with the US in 1995; and joined ASEAN in 1995. These developments would turn into milestones in the later period while talking about the 'success story' of Vietnam.

Vietnam started to realize the outcomes of these reforms and trade developments instantly. For instance, the Vietnamese economy boomed to 9.3 percent in 1996, and on an average of 7 percent over 1996-2000, despite occurrence of 'Asian Financial Crisis' in the ASEAN region during which also Vietnam stood strong with fair economic growth of about 6 percent. Along with strong economic growth, Vietnam achieved remarkable progress in socio-economic indicators as well, for example life expectancy increased from 70.5 years in 1990 to 73.3 years in 2000; GDP per capita increased to US\$ 434 in 2000 from US\$ 98 in 1990; poverty rate reduced from 60 percent in 1990 to 38.78 percent in 2002. Such significant progress in those socio-economic indicators was also reflected in improvement of the country's position in HDI values from 0.477 in 1990 to 0.576 in 2000 (UNDP, 2016). Now it is almost 30 years since the adoption of those comprehensive and radical economic reforms, the

story of economic success has not stopped yet. Vietnam still stands stronger in terms of economic growth and progress in socio-economic indicators, as reflected by its quick jump from a category of 'poor country' to 'lower middle-income country' by 2011.

In recent time, a significant number of empirical studies are available on identifying the growth drivers of Vietnam's spectacular growth. These studies, in specific identify different factors as important growth drivers so far, for instance, cheap labour force, foreign direct investment (FDI), shift of labour force from agriculture to non-agriculture sectors increasing the labour productivity, strong intra-regional exports, policy reforms etc. However, in this paper we would analyse the contribution of exports to the economic growth of Vietnam from the perspective of domestic value added exports indicated by symbol 'DVA\_EXGR' in this paper. The rest of this paper is organized as follows: section II discusses the early initiatives taken by Vietnam to enhance foreign investments and trade, which is followed by methodological framework in section III. Section III discusses the research methods, procedures and techniques used in data analysis in details. Section IV presents the empirical findings, which is followed by concluding remarks and policy discussions in section V.

## **2 . Early Initiatives and the Achievements**

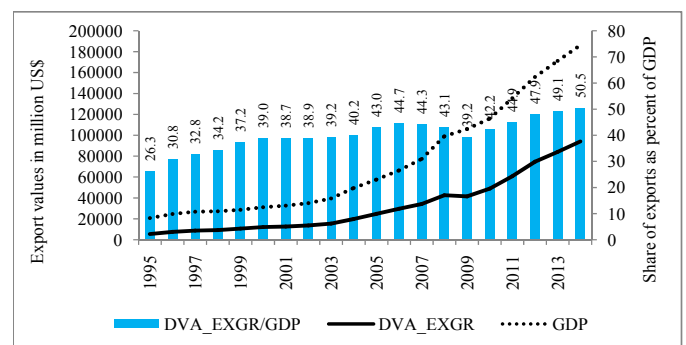
After unification of North and South Vietnam in 1975, the country was ruled under principle of centrally planned economy until 1986. But the centrally planned principle did not seem to work well for the nation. The second and third five years plan (1976-1980 & 1981-1986) failed to achieve their targets in terms of high economic growth rates, industrial production, agricultural production etc. due to bottlenecks such as low productivity, technological and managerial shortfalls that were present in the economy. Its foreign trade remained limited and was heavily dependent on the Soviet Union and its allies (as it was a member of 'Comecon'). In the first ten years, the average GDP growth rate remained strong (about 6 percent, most likely due to base year effect), but also remained quite volatile. The GDP growth rate

was recorded even negative in year 1980. Likewise, the exports growth rate remained about 16 percent per year on average, but it also remained highly volatile. In the initial 9 years, 4 years' growth rate was recorded negative. During this period, the average share of exports in GDP remained about 15 percent.

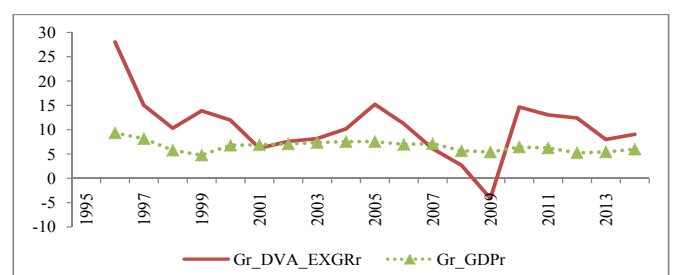
In order to overhaul the economy, a renovation framework popularly known as 'Doi Moi' was launched in 1986. This renovation framework laid foundation of many policy reforms which resulted into transformation of Vietnamese economy from centrally planned to 'socialist-oriented market economy'. The country promulgated 'Foreign Investment' law in 1987 which underwent several amendments later on to attract FDI in Vietnam. The FDI together with growth of local businesses was expected to play central role in boosting the exports of the country. However, the dissolution of Soviet-Union bloc in 1991 pushed foreign trade sector of Vietnam into trouble causing sharp fall in its exports. According to GSO (2006), Vietnam used to share about 57 percent of its total exports value with the 'Eastern Europe' alone before the dissolution of Soviet-Union bloc (1986-1990), which nosedived after 1991. Surprisingly, the GDP growth still remained 6 percent in 1991. Nonetheless, this troublous experience pushed the nation to diversify its trading partners in order to access new markets in the next few years. Some notable developments towards enhancing the foreign trade are: (i) trade agreement with the European Union in 1992, (ii) re-establishment of its relation with the US in 1995, (iii) effort to access WTO in 1995; full member of WTO in 2007; (iv) membership of ASEAN in 1995 and APEC in 1998; and (v) foreign trade relationship with 100 countries by 1995 (only 43 by 1986); 192 countries by 2000; and more than 200 economies by 2006 (GSO, 2006). Later as a member of ASEAN, Vietnam also joined other important free trade agreements (FTA) viz. ASEAN-China FTA (2002), ASEAN-Japan Comprehensive Economic Partnership (2003) and ASEAN-South Korea FTA (2005). Government of Vietnam also initiated to get into deeper international integration by signing new generation of deep preferential trade agreements (PTAs) with major

country or regional trading partners such as Japan, Korea, EU and CPTPP (Comprehensive and Progressive Agreement for Trans-Pacific Partnership).

This is the outcome of all those cumulative progress that Vietnam stood with a domestic value added exports value of US\$ 94 billion in 2014, which is 17 times larger than the exports value in 1995. During this period, GDP increased from US\$ 20.7 billion in 1995 to US\$ 186.2 billion in 2014. Thus, in 2014, the share of domestic value added exports remained 50.5 percent. This achievement of Vietnam was attained in a short span of time which is remarkable. The trends of GDP and exports series and the respective growth rates are presented in figure 1.



**Figure 1a: Trends of Export and GDP, and their Proportion**



**Figure 1b: Growth Rates of GDP and Export**

During the study period, the domestic value added export has grown at a rate of 16.2 percent and that of the GDP at 6.6 percent. We can see that the growth rate of exports is quite volatile, while that of GDP growth rates though follow the pattern of exports, but are less volatile than growth rates of exports. The impacts of major economic shocks such as 'Asian Currency Crisis' in 1997 or 'Global Financial Crisis' in 2008 or 'Eurozone crisis' in 2010 are very clearly seen on the growth rates

of exports. Moreover, the impact of financial crisis is severe. Aftermath crisis, the exports growth rates are negative and the GDP growth rate also fell substantially (7.1 percent in 2007 to 5.7 percent in 2008 and 5.4 percent in 2009). However, by 2010, Vietnam has made a breakthrough in terms of exports and GDP growths and clear signs of recovery can be observed. But again after 2010 until 2014, growths of exports are falling. Thus, though growth rate of GDP has shown weak sensitivity to the shocks in export growth rate, there is quite higher correlation (correlation coefficient above 0.99) in terms of dollar values.

### 3. Data and Methodology

The contribution of exports to the economic growth of Vietnam has been analysed through examination of existence of a long-run relationship between the domestic value added exports (DVA\_EXGR) and gross domestic products (GDP), both measured in real terms. Empirically, the long-run relationship between two variables in question can be tested by using either (i) two-step Engle and Granger approach, or (ii) cointegration approach, or (iii) ARDL (autoregressive distributed lags) approach. However, the first two approaches require the underlying variables to be integrated of same order one,  $I(1)$ , while the ARDL approach does not require the underlying variables to be integrated of the same order one, though none of them should be integrated of the order higher than one. This means that it is essential to test the presence of unit root and also to determine the order of integration for each of these variables if someone opts to apply the Engle and Granger approach, or cointegration approach. On the other hand, ARDL approach is applicable despite the underlying variables show a mixed order of integration, i.e.  $I(0)$  and  $I(1)$ . This flexible feature of ARDL approach has made it popular in recent days as a technique to test existence of a long-run relationship.

Whilst the ARDL approach does not require testing the order of integration of variables beforehand, we have preferred to do it beforehand for two reasons- (i) at this moment, we don't know which approach would best fit to

model the existence of cointegration between underlying variables. Therefore, it is better to know their order of integration beforehand, (ii) though ARDL approach seems flexible in the initial steps in ignoring the order of integration of variables, it requires at later steps to confirm that none of these variables are integrated of order 2.

At current level of literature, there are two approaches to examine the presence of unit roots in variables' series viz. (i) the unit root test that does not allow structural break (hence after we will call it 'CURT'- the conventional unit root test); and (ii) the unit root test that allows structural break (hence after we call it 'BURT'- the breakpoint unit root test). The CURT can be conducted using Augmented Dickey-Fuller (ADF), Phillips-Perron (PP), Kwiatkowski, Phillips, Schmidt, and Shin (KPSS), Ng-Perron test etc. However, Perron (1989) by re-examining Nelson and Plosser's work (1982) by incorporating two important structural breaks, that is, 'the great crash of 1929' and 'the oil price shock of 1973' in the underlying variables series, found that CURT test might falsely result into presence of unit root when the data are 'trend stationary' with structural break(s). Surprisingly, 10 out of 13 nonstationary series were found stationary in their level forms when structural breaks were introduced in the test. Thereby Perron (1989) cautions that although use of long-span data in testing presence of a unit root allows tests with larger power in comparison to using a smaller span; however; drawback is that the long-span data may include effect of a major event, which may behave as an outlier.

In the light of Perron's caution, a researcher must be aware of the presence of outlier(s) while considering a long-span data series for testing a unit root; otherwise the use of CURT to validate the stationarity of time series might be misleading if a structural break is present in it. In this research, the underlying variables (i.e. GDP and domestic value added exports) cover a period from 1995 to 2014 for which the existing sets of literature strongly suggest possibility of structural break(s). There are at least three reasons behind this suspicion- (i) occurrence of 'Asian financial crisis' affecting ASEAN region in

1997, (ii) occurrence of ‘Global financial crisis’ in 2008 affecting the US and Euro zone, which are major markets for Vietnamese exports, and (iii) Ling et al. (2013) found presence of structural breaks in 10 macroeconomic time-series, including GDP and exports of ASEAN countries during the period of 1960-2010. They found that common structural break occurred among these ASEAN macroeconomic time series were closely associated with global economic events such as the first oil shock of 1973-1975, the second oil shock of 1979-1980, the commodity crisis in 1985-1986 and the Asian financial crisis of 1997-1998. As Vietnam is also located in and connected with the ASEAN region, such possibility cannot be denied. However, there are some empirical works in context of Vietnam viz. Nguyen et al. (2017), Nguyen (2017), Duong (2016), Bhatt (2013), and Pham (2008) who have applied CURT approach on GDP and exports series of Vietnam to test presence of unit roots, thus overlooking the possibility of presence of structural break in GDP and exports series. All of these papers though agree that order of integration of exports series is one, I(1) in level form, they differ in determining order of integration of GDP series. Nguyen et al. (2017) and Bhat (2013) concludes it as I(1), while Nguyen (2017) confirms it to be I(0) (table 1). Upon thoughtful consideration on the facts and scenarios as discussed above, we realised that it would be better to use BURT approach to confirm the stationarity and the order of integration of the underlying variables series.

**Table I: Empirical Papers Using Data Series on Exports and GDP of Vietnam**

Reference	Variable	Coverage	Order of integration	Method
Nguyen et al. (2017)	Net exports and GDP	1990-2015	Both → I(1)	CURT
Nguyen (2017)	Exports and GDP	1986-2015	Export (1); GDP → I(0)	CURT
Duong (2016)	Exports	1985-2015	I(1)	CURT
Bhatt (2013)	Exports and GDP	1990-2008	Both → I(1)	CURT
Pham (2008)	Exports	1986-2007	I(1)	CURT

### 3.1 Unit Root Test in Presence of a Single Structural Break

Perron’s work (1989) is a prominent initiative to introduce structural break in the unit root test framework. He considered three different models to test null hypothesis of a unit root against the alternative hypothesis of deterministic trend with a one-time exogeneous break in - (A) the level of the series (aka ‘crash model’), (B) the slope (aka ‘changing growth model’); and (C) both the level and slope. These hypotheses are parameterized as follows:

Null hypotheses:

$$\text{Model (A): } y_t = \mu + dD(T_B)_t + y_{t-1} + e_t$$

$$\text{Model (B): } y_t = \mu_1 + y_{t-1} + (\mu_2 - \mu_1)DU_t + e_t$$

$$\text{Model (C): } y_t = \mu_1 + y_{t-1} + dD(T_B)_t + (\mu_2 - \mu_1)DU_t + e_t$$

Here  $DU_t$  is ‘intercept break’ variable that takes the value of 0 for all dates prior to the break, and 1 thereafter (i.e.  $DU_t = 1$ , if  $t > T_B$ , 0 otherwise). Likewise,  $D(T_B)_t$  is ‘one-time break dummy’ variable which takes the value of 1 only on the break date and 0 otherwise, (i.e.  $D(T_B)_t = 1$ , if  $t = T_B + 1$ , 0 otherwise).

Alternative hypotheses:

$$\text{Model (A): } y_t = \mu_1 + \beta t + (\mu_2 - \mu_1)DU_t + e_t$$

$$\text{Model (B): } y_t = \mu + \beta_1 t + (\beta_2 - \beta_1)DT_t^* + e_t$$

$$\text{Model (C): } y_t = \mu_1 + \beta_1 t + (\mu_2 - \mu_1)DU_t + (\beta_2 - \beta_1)DT_t^* + e_t$$

Here  $DT_t^*$  is ‘trend break’ variable which takes the value 0 for all dates prior to the break, and is a break date re-based trend for all subsequent dates (i.e.  $DT_t^* = t - T_B$  if  $t > T_B$  and 0 otherwise).

In these models, the difference  $(\mu_2 - \mu_1)$  represents the magnitude of the change in the intercept of the trend function at time  $T_B$ , and the difference  $(\beta_2 - \beta_1)$  represents the magnitude of the change in the slope of the trend function occurring at time  $T_B$ . The innovation series  $\{e_t\}$  is taken to be of the ARMA(p, q), the orders p and q possibly unknown.

The null hypothesis of a unit root in the model (A) is presented in term of a dummy variable, which takes the value one at the time of break, while the alternative hypothesis allows for a one-time change in the intercept of the trend function. Likewise, the null hypothesis of the model (B) specifies that the drift parameter  $\mu$  changes

from  $\mu_1$  to  $\mu_2$  at time  $T_B$ . The alternative hypothesis allows a change in the slope of the trend function without any sudden change in the level at the time of the break. The model (C) allows for both effects to take place simultaneously i.e., a sudden change in the level followed by a different growth path.

For empirical purpose, Perron (1989) employed an adjusted Dickey-Fuller (ADF) type unit root testing strategy, which involve estimation of the following augmented regression equations (1) – (3) (Zivot & Andrews, 1992):

$$y_t = \hat{\mu}^A + \hat{\theta}^A DU_t + \hat{\beta}^A t + \hat{\delta}^A D(T_B)_t + \hat{\alpha}^A y_{t-1} + \sum_{j=1}^k \hat{c}_j^A \Delta y_{t-1} + \hat{e}_t, \dots (1)$$

$$y_t = \hat{\mu}^B + \hat{\beta}^B t + \hat{\gamma}^B DT_t^* + \hat{\alpha}^B y_{t-1} + \sum_{j=1}^k \hat{c}_j^B \Delta y_{t-1} + \hat{e}_t, \dots (2)$$

$$y_t = \hat{\mu}^C + \hat{\theta}^C DU_t + \hat{\beta}^C t + \hat{\gamma}^C DT_t^* + \hat{\delta}^C D(T_B)_t + \sum_{j=1}^k \hat{c}_j^C \Delta y_{t-1}, \dots (3)$$

Perron assumed the break date as exogenously determined in these methods and known *ex ante*, which later drew a lot of criticism, Christiano (1992) being the first to point it. Later, many other studies viz. Banerjee, Lumsdaine and Stock (1992), Zivot and Andrews (1992), Perron and Vogelsang (1992), and Perron (1994) proposed procedures to address the choice of break date issue (Vogelsang and Perron, 1994). All of these four studies suggest endogenizing the choice of break date by making it data dependent. For this, two approaches have been considered, and both require estimation of a Dickey-Fuller type regression at all possible break dates.

The first procedure is choosing a break date that minimizes the Dickey-Fuller t-statistic across all possible regressions, and the second procedure is choosing a break date that maximizes (or minimizes, depending upon the context) a statistic which tests the significance of one or more of the coefficients on the ‘trend break’ dummy variables. Further, the asymptotic results are available for many combinations of trend breaks, choice of break year, and choice of AO (additive outlier) or IO (innovational outlier) models within all the four studies. For instance, Perron and Vogelsang (1992) provide results for non-trending data for both AO and IO models, where the break date is chosen both by minimizing the Dickey-Fuller t-statistics and by the significance of the

coefficient on a mean-break dummy variable. Likewise, Zivot and Andrews (1992) provide results for trending data for the IO models, where break date is chosen by minimizing the Dickey-Fuller t-statistics (we will discuss briefly about these two models shortly in the next section). On the other hand, Banerjee et al. (1992) give results in the IO framework for the crash model and changing growth model only, where break date is chosen both by the Dickey-Fuller t-statistics and by the significance of a trend break dummy parameter.

**3.2 Discussion on Models**

Zivot and Andrews (1992) introduced an endogenous break in the Perron’s (1989) models; and excluded the crash dummy  $D(T_B)$ , thus models involves estimation of the following regression equations (4) – (6):

$$y_t = \hat{\mu}^A + \hat{\theta}^A DU_t(\hat{\lambda}) + \hat{\beta}^A t + \hat{\alpha}^A y_{t-1} + \sum_{j=1}^k \hat{c}_j^A \Delta y_{t-1} + \hat{e}_t, \dots (4)$$

$$y_t = \hat{\mu}^B + \hat{\beta}^B t + \hat{\gamma}^B DT_t^*(\hat{\lambda}) + \hat{\alpha}^B y_{t-1} + \sum_{j=1}^k \hat{c}_j^B \Delta y_{t-1} + \hat{e}_t, \dots (5)$$

$$y_t = \hat{\mu}^C + \hat{\theta}^C DU_t(\hat{\lambda}) + \hat{\beta}^C t + \hat{\gamma}^C DT_t^*(\hat{\lambda}) + \hat{\alpha}^C y_{t-1} + \sum_{j=1}^k \hat{c}_j^C \Delta y_{t-1} + \hat{e}_t, \dots (6)$$

Here,  $DU_t(\lambda) = 1$  if  $t > T\lambda$ , 0 otherwise.  
 $DT_t^*(\lambda) = t - T\lambda$  if  $t > T\lambda$ , 0 otherwise.

Hats on the  $\lambda$  parameters indicate estimated values of the corresponding break fraction. It is important to note that Zivot and Andrews method regards every point as a potential break-date and runs a regression for every possible break-date sequentially. The break date is selected where the t-statistic from an ADF test of unit root is at a minimum (i.e. most negative) (Waheed et al., 2006). On the other side, Perron and Vogelsang (1992) included  $D(T_B)$  in Perron’s (1989) model, but excluded t, their models are given as below (7) – (9):

Innovative Outlier Model (IOM)

$$y_t = \mu + \theta DU_t + \delta D(T_B)_t + \alpha y_{t-1} + \sum_{i=1}^k c_i \Delta y_{t-1} + e_t, \dots (7)$$

Additive Outlier Model (AOM) – Two steps

$$y_t = \mu + \theta DU_t + \tilde{y}_t, \dots (8)$$

$$\tilde{y}_t = \sum_{i=0}^k w_i D(T_B)_{t-1} + a \tilde{y}_{t-1} + \sum_{i=1}^k c_i \Delta \tilde{y}_{t-1} + e_t, \dots (9)$$

$\tilde{y}_t$  in the above equations represents a detrended series y. Later Perron (1997) included both  $D(T_B)$  and t in his Innovational Outlier (IO1 and IO2) and Additive Outlier

(AO) models, which are presented as below (10) – (12):  
IO model allowing one time change in intercept only (IO1):

$$y_t = \mu_t + \theta DU_t + \beta t + \delta D(T_B)_t + \alpha y_{t-1} + \sum_{i=1}^k c_i \Delta y_{t-i} + e_t \dots (10)$$

IO model allowing one time change in both intercept and slope (IO2)

$$y_t = \mu + \theta DU_t + \beta t + \gamma DT_t + \delta D(T_B)_t + \alpha y_{t-1} + \sum_{i=1}^k c_i \Delta y_{t-i} + e_t \dots (11)$$

AO model allowing one time change in slope (AO)

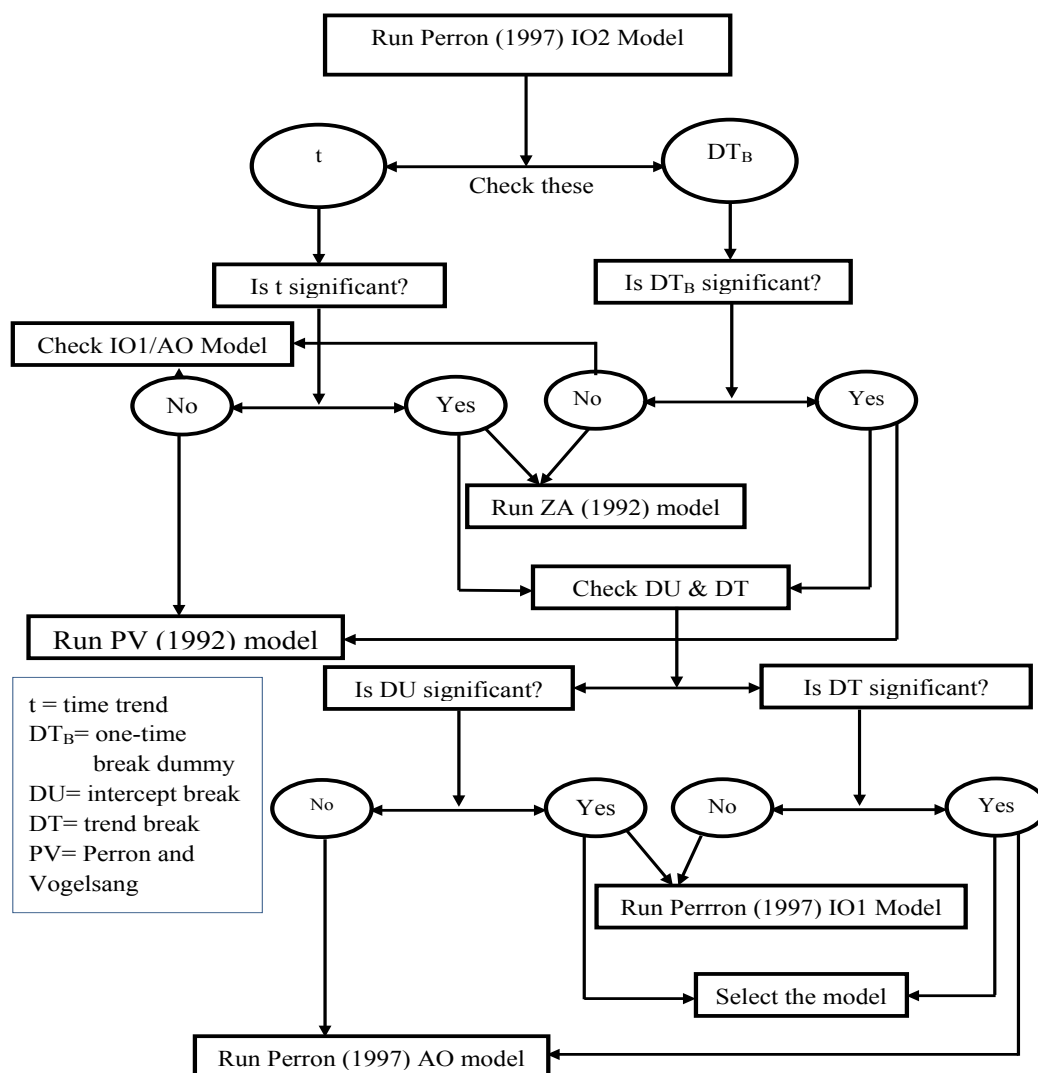
$$y_t = \mu + \beta t + \delta DT^*_t + \tilde{y}_t \dots (12)$$

Here  $DT^*_t = 1 (t > T_B) (t - T_B)$

$$y_t = \alpha \tilde{y}_{t-1} + \sum_{i=1}^k c_i \Delta \tilde{y}_{t-i} + e_t$$

Among bunch of these models, like any other researcher, we also faced the problem of selecting an appropriate

model to determine the stationarity of a time series in presence of structural break. Results of different models in different test specification viz. (i) with intercept only, (ii) with trend only or (iii) with both intercept and trend were likely to differ, causing confusion in terms of inclusion of irrelevant information and the exclusion of relevant information. In either case, the model might be misleading. Nonetheless, in order to overcome this state of confusion Shrestha and Chowdhury's paper (2005) on 'sequential procedure' becomes an effective guideline, and thereby we have followed their sequential procedure in the unit root analysis. A flow-chart based on this paper has been presented in figure 2. Other aspects of these models have been discussed in the 'empirical results' section.



**Figure II: Flow Chart for the Sequential Procedure**

Source: Researchers' contribution based on sequential procedure described in Shrestha and Chowdhury's paper (2005).



**3.3 Cointegration Test**

**3.3.1 Engel-Granger Approach**

The first step of Engle-Granger approach requires testing for unit roots in variable series, after which two cointegration regressions (direct and reverse) between variables are estimated using ordinary least square (OLS)<sup>1</sup> method. The second step involves testing stationarity in the error terms of the two cointegration regressions as estimated in the first step. According to Engle and Granger (1987), if the stochastic error terms are integrated of order zero, I(0), then  $y_t$  and  $x_t$  are said to be cointegrated. In this case, residuals from the equilibrium regression can be used to estimate the error correction model.

Hence, if variables series  $\{y_t\}$  and  $\{x_t\}$  are cointegrated, the variables would have the error correction form as below:

$$\Delta x_t = \alpha_0 + \alpha_x \rho_{t-1} + \sum_{i=1}^p \alpha_{1i} \Delta x_{t-i} + \sum_{i=1}^p \alpha_{2i} \Delta y_{t-i} + e_{xt} \dots (13)$$

$$\Delta y_t = \beta_0 + \beta_y \rho_{t-1} + \sum_{i=1}^p \beta_{1i} \Delta x_{t-i} + \sum_{i=1}^p \beta_{2i} \Delta y_{t-i} + e_{yt} \dots (14)$$

where  $\Delta$  is first difference operator on variables,  $\epsilon_{xt}$  and  $\epsilon_{yt}$  are white noise disturbances (which may be correlated with each other), and  $\alpha$ 's and  $\beta$ 's are all parameters. The  $\rho_{t-1}$  is the error correction term (ECT) whose magnitude ( $\alpha_x$  or  $\beta_y$ ) is expected to be a negative fraction between 0 and unity, and implies a 'speed of adjustment' per year of any deviation from the long run equilibrium path in order to maintain the long-run equilibrium relation between underlying variables. The independent variables are said to 'cause' the dependent variable if the error correction term (ECT), and the coefficients of the lagged independent variables (summation of  $\alpha_{2i}$  in equation (13) and summation of  $\beta_{1i}$  in equation (14)) are jointly significant.

**3.3.2 Johansen Test**

Johansen (1988) test of cointegration is based on the relationship between the rank of matrix and its

1 *The direct and reverse cointegration regressions for two time series  $Y_t$  and  $X_t$  can be written as follows in log linear form:*

$$Y_t = \alpha_0 + \alpha_1 X_t + u_{1t} \quad \text{and} \quad X_t = \beta_0 + \beta_1 Y_t + u_{2t}$$

characteristics roots. Its generalised model can be written in form of a vector auto regression (VAR) in levels with the constant suppressed as:

$$x_t = \sum_{i=1}^k A_i x_{t-i} + u_t \dots (15)$$

For the simpler case  $k = 1$ , it is simply-

$$\Delta x_t = (A_1 - I) x_{t-1} + \epsilon_t = \Pi x_{t-1} + \epsilon_t \dots (16)$$

where,  $x_t$  and  $\epsilon_t$  are  $(n \times 1)$  vectors;  $A_1$  = an  $(n \times n)$  matrix of parameters;  $I$  = an  $(n \times n)$  identity matrix; and  $\Pi = A_1 - I$ ,  $n$  is the number of variables.

The Johansen test examines the rank of  $\Pi$  matrix. If the rank  $(\Pi) = 0$ , then the variables are not cointegrated, otherwise they are said to be cointegrated. In fact the rank of  $\Pi$  provides the number of cointegrating vectors. Further, the Johansen test comprises of two tests: the maximum eigenvalue test, and the trace test. For both test statistics, the initial Johansen test is a test of the null hypothesis of no cointegration against the alternative of cointegration. These tests differ in terms of the alternative hypothesis.

**3.3.3 ARDL Bounds Test**

The basic form of an ARDL ( $p, q$ ) regression model can be represented as follow:

$$y_t = \delta_0 + \delta_1 t + \theta_1 y_{t-1} + \theta_2 y_{t-2} + \dots + \theta_p y_{t-p} + \beta_1 x_{t-1} + \beta_2 x_{t-2} + \dots + \beta_q x_{t-q} + e_t \dots (17)$$

Pesaran et al. (2001) reduced the basic form of ARDL to the conditional error correction form in their seminal paper which got the most attention in applied work to test for the existence of long-run relationship. Their conditional error correction form of ARDL model can be represented as follow:

$$\Delta y_t = \delta_0 + \sum_{i=1}^p \theta_i \Delta y_{t-i} + \sum_{i=0}^q \beta_i \Delta x_{t-i} + \delta_1 t + \lambda_1 y_{t-1} + \lambda_2 x_{t-1} + e_t \dots (18)$$

where  $\Delta$  represents the first difference operator;  $\theta$ 's are the short-run coefficients and all the terms in the summations are the short-run dynamics of the model;  $\lambda$ 's are the long-run coefficients, and  $e$  is the error term of the equation.

For testing the long-run relationship, the interest is to test that  $\lambda_1$  and  $\lambda_2$  are non-zero. If these are statistically equal

to zero, it means that long-run relationship does not exist among the variables. This is done by performing ‘bounds test’ where one would check the significance of F-statistic for null hypothesis that ‘no long-run relationship exists’ (i.e.  $\lambda_1 = \lambda_2 = 0$ ). The guideline is that if value of F-statistic is greater than the upper bound (I1) critical value, it is called to be significant and one can reject the null hypothesis, otherwise cannot reject it.

Once the ‘bounds test’ leads to the conclusion of cointegration, the long-run relationship between variables can be estimated by the following regression equation:

$$y_t = \alpha_0 + \alpha_1 x_t + u_t \dots\dots\dots (19)$$

The residual series  $\{u_t\}$  obtained from equation (19) when used in the regression equation of the short-run dynamic model would give the value of ‘error correction term (ECT)’. Thus, the error correction model can be represented as:

$$\Delta y_t = \delta_0 + \sum_{i=1}^p \theta_i \Delta y_{t-i} + \sum_{i=0}^q \beta_i \Delta x_{t-i} + \rho u_{t-1} + v_t \dots\dots\dots (20)$$

where,  $u_{t-1} = (y_{t-1} - \alpha_0 - \alpha_1 x_{t-1})$ ,  $\alpha$  with hats represent OLS estimates of  $\alpha$ 's in the long-run equation (19), and  $\rho$  is the speed of adjustment.

In this study, the basic equation to examine the contribution of domestic value added exports on GDP has been formulated as below:

$$GDP_r = \alpha_0 + \alpha_1 DVA\_EXGR_r + u_t \dots\dots\dots (21)$$

where GDP and DVA\_EXGR are GDP and domestic value added exports of Vietnam both measured in real terms.

**4. Variables and Data**

The data of current GDP and real GDP (base year 2005) have been taken from UNCTADSTAT. Likewise, the current data on domestic value added exports has been extracted from OECD TiVA database (2016 edition). Once data were obtained, the current and constant values of GDP were used to compute the GDP deflator that has been later used to convert current exports values into the real values. For further analysis, real values of both variables have been treated in their natural log forms viz. LNGDPr as dependent variable and LNDVA\_EXGRr as independent variable.

**5. Empirical Analysis**

**5.1 Testing Presence of Unit Root and Structural Break**

As stated earlier we have applied Perron’s (1997) model and Zivot and Andrews’ (1992) (ZA for short) model to confirm the order of integration of series  $\{LNGDPr\}$ , and  $\{LNDVA\_EXGRr\}$ . The appropriate model has been chosen following the ‘sequential procedure’ as presented in section (3.2) of ‘methodological framework’. In Perron’s model, the break date has been chosen by minimizing the Dickey-Fuller t-statistics, and the optimal lag length was set automatic to be chosen by the software based on Schwarz information criteria (SIC). The decision on nonstationarity or stationarity of the series has been laid on the level of significance of ADF statistics in Perron’s model and the ZA statistic in ZA model within 5 percent level. Estimated results are presented in Table II.

*Series: Real GDP (LNGDPr)*

Under Perron’s IO2 model, the ADF statistic for  $\{LNGDPr\}$  in level form is not found significant at 5 percent level. So is the case in its first differenced form. Nonetheless it is significant at 10 percent level. But as the accepted level of significance is 5 percent so, we considered it insignificant. Moreover, the ‘time trend (t)’ and ‘break dummy (DT<sub>B</sub>)’ were also insignificant at 5 percent level. Therefore, following the ‘sequential procedure’ IO1 model was estimated next. Under Perron’s IO1 model, the ADF statistic for  $\{LNGDPr\}$  in level form is also not found significant, but is significant in its difference form at 5 percent level. Moreover, coefficients of both ‘time trend’ and ‘intercept’ are also found significant. Therefore, LNGDPr is nonstationary in level form, integrated of order 1 or I(1). The structural break is found to exist in the series in year 2002 (Table II).

*Series: Real domestic value added exports (LNDVA\_EXGRr)*

The test statistics of IO2 model for  $\{LNDVA\_EXGRr\}$  suggest that it is integrated of order (0). Time trend (t), ‘dummy break (DTB)’ and ‘intercept break (DU)’ are found significant, while ‘trend break (DT)’ is

insignificant. In such situation, the ‘sequential procedure’ suggests estimating IO1 model. Under IO1 model, the ADF statistic is significant at 1 percent level, thus confirming stationary in level form, I(0). Moreover, all parameters are found significant at 5 percent level. It suggests presence of structural break in the series in year 2008 (table 2). Thus the dependent variable (LNGDPr) is integrated of order one, I(1) while the independent variable (LNDVA\_EXGRr) is integrated of order zero, I(0). This perfectly matches the necessary condition for applying ARDL (autoregressive distributed lag) approach to examine the long-run relationship between GDP and exports (i.e. order of integration of the variables shall not be of order I(2), and the dependent variable must be I(1).

**5.2 Estimating ARDL Models and Checking their Robustness**

To estimate a sound ARDL model, we tried various

permutations setting the maximum lag length of 4 on both dependent variable and regressor. In the end, a maximum lags of 2 on dependent variable and 4 on regressor under specification of ‘unrestricted constant and no trend’; and setting ‘one time break dummy variable’ on LNGDPr as fixed regressor yielded statistically valid model that is ARDL (1, 4). After this, we have applied Breusch-Godfrey LM test to confirm that the errors of this model are not serially correlated; results of which have been presented in Table III .

The ‘observed R- square’ value is not found significant at 5 percent level. Therefore, the null hypothesis that ‘there is no serial correlation in the model residual’ cannot be rejected; it means the chosen model ARDL (1, 4) is free from serial correlation. Hence, the outcomes of the selected ARDL models are desirable to go ahead for the next level of analysis.

**Table II: Results of Breakpoint Unit Root Tests**

Perron (1997) Model									
Variable	Type	Level			First Difference			I(p)	Remarks
		T <sub>B</sub>	k	ADF statistic	T <sub>B</sub>	k	ADF statistic		
LNGDPr	IO2	2004	0	-3.838891	2003	1	-4.95469*	I(1)	Time trend (t) and break dummy (DT <sub>B</sub> ) were not found significant in IO2 model.
LNGDPr	IO1	2002	0	-3.018388	2002	1	-6.643501***	I(1)	Time trend (t) and intercept break (DU) are found significant.
LNDVA_EX-GRr	IO2	2008	4	-5.66457**	-	-	-	I(0)	Both time trend (t) and dummy break (DT <sub>B</sub> ) are found significant. Intercept break (DU) is also significant, but trend break (DT) is insignificant.
LNDVA_EX-GRr	IO1	2008	2	-5.949359***	-	-	-	I(0)	

\*\*\*, \*\* & \* indicate significant at 1 percent, 5 percent and 10 percent level, T<sub>B</sub> = Break time, k = lag length selected automatically by the software.

Source: Researchers’ estimates.

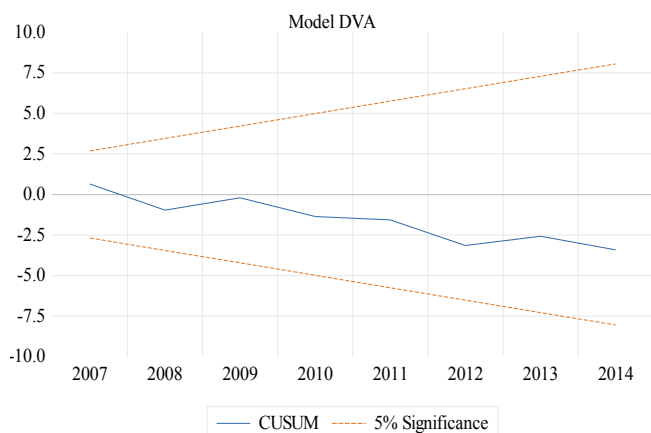
**Table III: Results of Breusch-Godfrey Serial Correlation LM Test**

F-statistic	1.165934	Prob. F(4,4)	0.4427
Obs*R-squared	8.612887	Prob. Chi-Square(4)	0.0715

Source: Researchers’ estimates.

Next, we have diagnosed the stability of the ARDL model using CUSUM test. This test plots the cumulative sum together within 5 percent critical lines. Guideline is that if the cumulative sum remains inside the area between the two critical lines, the selected model must be stable, otherwise unstable. As the CUSUM statistic for the

chosen model lies within 5 percent critical bands (figure 3), means absence of any instability of the coefficients in the ARDL model.



**Figure III: CUSUM Test for the Chosen ARDL (1, 4) Model**

### 5.3 Bounds Test of Cointegration and Error Correction model

For determination of long-run relationship between GDP and exports, we have applied ‘bounds test’, the results of which are presented in Table IV. The F-statistic for the bounds test for the estimated ARDL (1, 4) model has been found bigger than the asymptotic critical value (7.84) from Pesaran et al. (2001) and finite sample critical value (9.28) from Narayan (2005) at 1 percent level. It means the null hypothesis that ‘no long-run relationship exists’ can be rejected at 1 percent level of significance. This validates existence of a long-run relation between GDP and exports in their level forms.

**Table IV: Results of Bounds Test**

F-statistic	Significance Asymptotic: n=1000 Pesaran et al. (2001)		Significance Finite sample: n=30 Narayan (2005)					
	1%		5%		1%		5%	
	I0	I1	I0	I1	I0	I1	I0	I1
44.617***	6.84	7.84	4.94	5.73	8.17	9.28	5.39	6.35

\*\*\* Significant at 1 percent level, k = the number of independent variable in the model.

After establishing the long-run relationship between GDP and exports, we have estimated the long-run cointegration equation, the results of which have been presented in Table V.

**Table V: Results of Cointegration Equation**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNDVA_EXGRr	0.734173***	0.008525	86.12359	0.0000
ECT(-1)	-0.331045***	0.033040	-10.01947	0.0000

\*\*\* Significant at 1 percent level

The coefficient of LNDVA\_EXGR is found positive (0.73) and highly significant, thus confirms the positive effect of gross exports on GDP. It can be interpreted as ‘one percent change in domestic value added exports in real terms results into a long-run increase in real GDP of Vietnam by 0.73 percent’. This can also be viewed as the proportional change in GDP is 73 percent of the change in domestic value added exports such that when domestic value added exports rise, GDP tends to lag behind, creating disequilibrium. Such disequilibrium is corrected by 33.1 percent (which is the coefficient of ‘error correction term’ ECT, Table V) per year in order to maintain the long-run equilibrium relation with domestic value added exports, *ceteris paribus*. With this speed, the

economy would take 3 years (i.e. one divided by absolute value of coefficient of ECT) to absorb the full effect of value added exports’ shock on GDP.

The short-run causality in the model has been examined using Wald coefficients test, which is used to confirm the joint significance of lagged regressors on GDP. The results are reported in Table VI. To confirm the result, the estimated value of F-statistic in Wald test shall be compared with the Pesaran et al. (2001) critical value bounds. The guideline is that if F-statistic is greater than the upper bound value (i.e. I1) within 5 percent level of significance, the short-run causality runs from exports to GDP.

**Table VI: Results of Wald Test**

Test Statistic	Value	df	Asymptotic critical value bounds for the F-statistic <sup>#</sup> , k=1			
			(Case III: Unrestricted intercept and no trend)			
			1% Significance		5% Significance	
F-statistic	17.895***	(5, 8)	I0	I1	I0	I1
Chi-square	89.473	5	11.79	11.79	4.94	5.73

\*\*\* & \*\* Significant at 1 percent and 5 percent level respectively. <sup>#</sup> Pesaran et al. (2001, p.300), k= number of regressor.

Interestingly, the estimated F statistic is greater than the upper values at 5 percent level of significance, thus qualify the guideline. Hence, it can be concluded that causality exists between exports and GDP in the short-run i.e. ‘exports short-run causes GDP’.

**6. Conclusion**

Vietnam prioritized export expansion since its adoption of ‘Doi Moi’ in 1986, following the footsteps of Japan, Singapore, Hong Kong, Taiwan, and South Korea. To enhance its access to foreign markets and promote exports, Vietnam also did some notable developments in the 1990s in signing bilateral and multilateral trade agreements. Visibly, since 1995 Vietnam has consistently achieved higher economic growth relying on exports, and been reaping the benefit of export-based strategy in terms of job creation, foreign reserves, and improving living standard. The ARDL bounds test of cointegration establishes existence of both short-run and long-run relationship between exports and GDP of Vietnam and shows a substantial contribution of exports in the real GDP, as much as 0.73 percent for one percent changes in the domestic value added exports. This is a fascinating number. However, a huge question is whether Vietnam can sustain this growth. To answer this question, we shall look at the growth prospective of Vietnam from two perspectives:

i. **Inherent bottleneck in the export-led growth model:**  
The overall exports pattern of Vietnam portrays it following the footsteps of export-led growth model of Mexico, whereby it has also turned itself into export production platforms for foreign multi-nationals by suppressing the wages, rather than developing own indigenous industrial capacity. Mexico model of export-led growth strategy is different from the

one adopted by Germany or Japan or Asian Four Tiger countries or China. These countries’ export strategies led to enhance their own industrial capacity. Nonetheless, the Mexico model has been less successful so far. Mexico has not yet recovered its strong performance of 1960–1980. Since 1980, GDP growth has been sluggish, labor productivity has been unchanged, and total factor productivity growth has been negative.

Considering the prerequisites for the Mexico model to work, it seems challenging for Vietnam to sustain its export-led growth which it has achieved so far. With the rising living standards, ultimately the comparative advantages of cheap labour force would vanish in the future, which means a wave of assembly jobs would flow out of Vietnam leaving masses of workers without jobs, creating dark days in the country. In addition, two other low-cost countries in the region, Cambodia and Myanmar are likely to rise as close competitors of Vietnam in the low cost assembly works in the near future. By that time, in case Vietnam fails to enter into higher value added tasks due to lack of adequate skills or technologies or both, it will drag itself into ‘middle income trap’ (a situation when a country cannot compete in low value added stages due to rising labour costs, and also cannot compete in higher value added stages due to lack of adequate skills and technologies).

ii. **Changing political and macroeconomic situations:**  
Another challenge in the existing model is to manage risks that would originate from ‘supply shocks’ and ‘demand shocks’. Though Government of Vietnam has initiated to get into deeper international integration by signing new generation of deep

preferential trade agreements (PTAs) with major trading partners such as Japan, Korea, EU and CPTPP apart from ASEAN-China FTA (2002), ASEAN-Japan Comprehensive Economic Partnership (2003), and ASEAN-South Korea FTA (2005), the changing macroeconomic situations that has developed across major trading partners of Vietnam in past few years has led to believe that the export-led growth strategy will fray for Vietnam. For instance, US consumers are debt saturated, and the US government is now more concerned about imports from outside. Europe is constrained by fiscal austerity. Japan continues to suffer from weak internal demand, and is also still hooked on export-oriented growth. That means if these macroeconomic conditions sustain the foreign demand for Vietnam's exports would weaken for sure that might have catastrophic impact on its economic growth.

Therefore, the 'assembling platform' strategy shall be bonded with strategy to develop own indigenous industrial capacity, and national technological base. These will help Vietnam to upgrade its activities along value chains in forms of (i) product upgrading, (ii)

process upgrading, (iii) functional upgrading, and/or (iv) sectoral upgrading so that it can switch its role of 'assembling agent' to 'indigenous producer'. Of course, these do not seem feasible in a short term since a large proportion of Vietnamese labour forces lack adequate skills and expertise that are necessary to carry out such activities. In addition, Vietnam also lacks 'Vietnamese brand name' in international market at present time that has made it relying on foreign companies for marketing abroad. Therefore, in the meantime, government shall also prioritize involvement of domestic firms in global value chains. All of these require prompt initiatives in order to bring changes in the existing 'education and vocational training' related policies so that knowledge, skills and know-how of young generations can be enhanced. Likewise, Vietnam shall enter into more deep preferential trade agreements (PTAs) with its trading partners to be able to manage the supply and demand shocks to exports. In addition, it shall also focus on diversification of its export products and markets; and building up strong domestic demands for its products in order to sustain its economic growth.

### References

- Ahmad, J., & Harnhirum, S. (1995). Unit roots and Cointegration in Estimating Causality between Exports and Economic Growth: Empirical Evidence from the ASEAN Countries. *Economic Letters*, 49, 329-334.
- Ahmad, J., & Kwan, A.C.C. (1991). Causality between Exports and Economic Growth. *Economic Letters*, 37, 243-248.
- Balassa, B. (1985). Exports, Policy Choices, and Economic Growth in developing Countries After the 1973 oil Shock. *Journal of Development Economics*, 18, 23-35.
- Banerjee, A., Lumsdaine, R.L., & Stock, J.H. (1992). Recursive and Sequential Tests for a Unit Root: Theory and International Evidence. *Journal of Business & Economic Statistics*, 10(3), 271-287.
- Bhatt, P.R. (2013). Causal Relationship between Exports FDI and Income: the case of Vietnam. *Applied Econometrics and International Development*, 13(1), 161-176.
- Chenery, H.B. (1979). *Structural Change and Development Policy*. New York, USA: Oxford University Press.
- Chow, P.C.Y. (1987). Causality between Export Growth and Industrial Performance: Evidence from the NICs. *Journal of Development Economics*, 26, 55-63.
- Christiano, L.J. (1992). Searching for a Break in GNP. *Journal of Business & Economic Statistics*, 10(3), 237-250.
- Dodaro, S. (1993). Exports and Growth: A Reconsideration of causality. *The Journal of Developing Areas*, 27, 227-244.
- Duong, T.H. (2016). The Interrelationship among Foreign Direct Investment Domestic Investment and Export in Vietnam: A Causality Analysis. *Vietnam Economist Annual Meeting (VEAM)*. Retrieved from: <http://veam.org/wp-content/uploads/2016/08/102.-Duong-Hanh-Tien.pdf> accessed on 04.05.2017.

- Fosu, A.K. (1990). Export Composition and the Impact of Export on Economic Growth of Developing Economies. *Economic Letters*, 34, 67-71.
- General Statistics Office (GSO) (2006). *20 Years of Doi Moi (1986-2005)*. Hanoi, Vietnam: Author.
- Jung, W.S., & Marshall, P.J. (1985). Exports, Growth and Causality in Developing Countries. *Journal of Development Economics*, 18, 1-12.
- Kavoussi, R.M. (1984). Export Expansion and Economic Growth: Further Empirical Evidence. *Journal of Development Economics*, 14, 241-250.
- Kawan, A.C.C, & Cotsomitis, J. (1990). Economic growth and the Expanding Export Sector: China 1952-1985. *International Economic Review*, 5, 105-117.
- Krueger, A. (1978). *Foreign Trade Regimes and Economic Development: Liberalization attempts and Consequences*. New York, USA: National Bureau of Economic Research.
- Ling, T.Y., Nor, A.H.S.M., Saud, N.A., & Ahmad, Z. (2013). Testing for Unit Roots and Structural Breaks: Evidence from Selected ASEAN Macroeconomic Time Series. *International Journal of Trade Economics and Finance*, 4(4), 230-237.
- Narayan, P. (2005). The Saving and Investment Nexus for China: Evidence from Cointegration Tests. *Applied Economics*, 37(17), 1979-1990.
- Nelson, C.R., & Plosser, C.I. (1982). Trends and Random Walks in Macroeconomic Time Series: Some Evidence and Implications. *Journal of Monetary Economics*, 10, 139-162.
- Nguyen, T.K.N. (2017). The Long Run and Short Run Impacts of Foreign Direct Investment and Export on Economic Growth of Vietnam. *Asian Economic and Financial Review*, 7(5), 519-527.
- Nguyen, T.N., Le, H.A., & Mai, D.B. (2017). The Relationship between Foreign Direct Investment, Trade and Economic Growth in Vietnam. *Imperial Journal of Interdisciplinary Research*, 3(3), 1152-1160.
- OECD stat (2017). *Trade in value added (TiVA): Database (2016 edition)*. Paris, France: Organisation for Economic Co-operation and Development.
- Oxley, L. (1993). Cointegration, Causality and Export-led growth in Portugal, 1865- 1985. *Economic letters*, 43, 163-166.
- Perron, P. (1989). The Great Crash the Oil Price Shock and the Unit Root Hypothesis. *Econometrica*, 57(6), 361-1401.
- Perron, P. (1994). Further Evidence on Breaking Trend Functions in Macroeconomic Variables. *Research Paper; No. 9421*. Montreal, Canada: Department of Economics, University de Montreal.
- Perron, P. (1997). Further Evidence on Breaking Trend Functions in Macroeconomic Variables. *Journal of Econometrics*, 80(2), 355-385.
- Perron, P., & Vogelsang T. (1992). Nonstationarity and Level Shifts with an Application to Purchasing Power Parity. *Journal of Business & Economic Statistics*, 10(3). 301-320.
- Pesaran, M.H., Shin, Y., & Smith, R.J. (2001). Bounds Testing Approaches to the Analysis of Level Relationships. *Journal of Applied Econometrics*, 16, 289-326.
- Pham, A.M. (2008). Can Vietnam's Economic Growth be Explained by Investment or Export: A VAR Analysis. *Working Paper 0815*, Vietnam Development Forum. Retrieved from: <http://www.vdf.org.vn/workingpapers/vdfwp0815> accessed on 04.05.2017.
- Pillips, P.C.B., & Perron, P. (1988). Testing for a unit root in time series regression. *Biometrika*, 75(2), 335-346.
- Salvatore, D., & Hatcher, T. (1991). Inward Oriented and Outward Oriented Trade Strategies. *The Journal of Development Studies*, 27, 7-25.
- Shrestha, M.B., & Chowdhury, K. (2005). ARDL Modelling Approach to Testing the Financial Liberalisation Hypothesis. *Working Papers, WP 05-15*. Wollongong, Australia: Department of Economics, University of Wollongong.
- Tyler, W.G. (1981). Growth and Export Expansion in Developing Countries: Some Empirical Evidence. *Journal of Development Economics*, 9, 121-130.
- UNCTAD (2017). International Trade. *Data Centre*. Geneva, Switzerland: United Nations Conference on Trade and Development. Retrieved from: [http://unctadstat.unctad.org/wds/ReportFolders/reportFolders.aspx?sCS\\_ChosenLang=en](http://unctadstat.unctad.org/wds/ReportFolders/reportFolders.aspx?sCS_ChosenLang=en) accessed on 04.05.2017.

- UNDP (2016). *Human Development for Everyone (Briefing note for countries on the 2016 Human Development Report)*. New York, USA: United Nations Development Programme. Retrieved from: [http://hdr.undp.org/sites/all/themes/hdr\\_theme/country-notes/VNM.pdf](http://hdr.undp.org/sites/all/themes/hdr_theme/country-notes/VNM.pdf) accessed on 13.05.2017.
- Vogelsang, T.J., & Perron, P. (1994). Additional Tests for a Unit Root Allowing for a Break in the Trend Function at an Unknown Time. *Research Paper, No. 9422*. Montreal, Canada: Department of Economics University de Montreal.
- Waheed, M., Alam, T., & Pervaiz, S. (2006). Structural Breaks and Unit Root: Evidence from Pakistani Macroeconomic Time Series. MPRA, No. 1797. Munich, Germany: Munich Personal RePEc Archive. Retrieved from: [https://mpa.ub.uni-muenchen.de/1797/1/MPRA\\_paper\\_1797.pdf](https://mpa.ub.uni-muenchen.de/1797/1/MPRA_paper_1797.pdf) accessed on 07.02.2017.
- Yaghmaian, B. (1994). An Empirical Investigation of Exports, Development, and Growth in Developing Countries: Challenging the Neoclassical Theory of Export- Led Growth. *World Development, 22*, 1977-1995.
- Zivot, E., & Andrews, K. (1992). Further Evidence on the Great Crash, the Oil Price Shock and the Unit Root Hypothesis. *Journal of Business and Economic Statistics, 10* (10), 251–70.



PAPER • OPEN ACCESS

## A biomechanical model for the idiopathic scoliosis using robotic traction devices

To cite this article: Joao Fialho 2018 *J. Phys.: Conf. Ser.* **1141** 012022

View the [article online](#) for updates and enhancements.

### You may also like

- [Mechanics of external fixation device of spine: reducing the mounting stress](#)  
V V Piven, S V Lyulin, P I Kovalenko et al.
- [Fully automatic measurements of axial vertebral rotation for assessment of spinal deformity in idiopathic scoliosis](#)  
Daniel Forsberg, Claes Lundström, Mats Andersson et al.
- [Automated generation of curved planar reformations from MR images of the spine](#)  
Tomaž Vrtovec, Sébastien Ourselin, Lavier Gomes et al.



**ECS** The Electrochemical Society  
Advancing solid state & electrochemical science & technology

**243rd Meeting with SOFC-XVIII**

Boston, MA • May 28 – June 2, 2023

**Accelerate scientific discovery!**

**Learn More & Register**

# A biomechanical model for the idiopathic scoliosis using robotic traction devices

Joao Fialho<sup>1,2</sup>

<sup>1</sup> British University of Vietnam, Hanoi, Vietnam

<sup>2</sup> Centro de Investigacao em Matematica e Aplicacoes (CIMA-UE), Universidade de Evora, Rua Romao Ramalho, 59, Evora, Portugal

E-mail: joao.f@buv.edu.vn

**Abstract.** The mathematical modeling of idiopathic scoliosis has been studied throughout the years. The models presented on those papers are based on the orthotic stabilization of the idiopathic scoliosis, which are based on a transverse force being applied to the human spine on a continuous form. When considering robotic traction devices, the existent models cannot be used, as the type of forces applied are no longer transverse nor applied in a continuous manner. In robotic devices, vertical traction is applied and in addition, parameters such as magnitude, direction and angle of the force applied are required and essential, if the best therapy plan is to be administered. In this study, we propose a mathematical model to the idiopathic scoliosis, using robotic traction devices, and with the parameters obtained from the mathematical modeling, set up a case-by-case individualized therapy plan, for each patient. To the best of our knowledge, modeling involving these assumptions was never investigated before, neither was the usage of modeling to establish viable and effective bounds for all the possible parameters in a robotic traction device.

## 1. Introduction

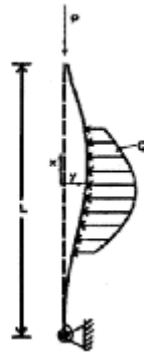
Biomechanical models of the human spine, including idiopathic scoliosis, have been studied by several authors such as [1, 2] or even more recently in [6, 7]. In the classic [9], the portion of the human spine involved in a scoliotic curve is modeled as a uniform flexible column of homogeneous isotropic material, creating a curved beam column as mechanical analog. This proposed model failed to include the interaction between the human spine and the spinal musculature and other supporting structures. This interaction was later included in [3]. By introducing the flexural rigidity (or bending stiffness) factor (EI), the author shows that the behavior of the articulated human spine could be simulated by a continuous spine model. In [8] a spine-orthosis model is presented. This two-dimensional model describes the interaction of the spine with the orthotic stabilization device and is viewed in the frontal pane. Throughout the paper the authors establish the mathematical model comprised by a differential equation and assumptions on the boundary conditions. However the mathematical model used cannot explain or cover the forces involved in a robotic spinal traction device, such as the Antalgic Trak Technology. This type of devices have very specific features and characteristics that must be incorporated in the model, or read from the model as a specific output in order for the therapy to be as successful as possible. The methods used throughout this paper rely on mathematical modeling of the forces involved in robotic spinal traction devices, through the use of differential equations. To model such devices a



differential equation, along with the appropriate boundary conditions are presented. Analytical methods are used to obtain the solution and an analytical approach on the relation between the parameters is also presented. To better illustrate this relation, an individual test case is presented, where all the parameters, such as angle, force and point of incidence are presented. To the best of the authors knowledge, no existing model incorporates all of these features.

## 2. The spine-orthosis model

The spine orthosis model presented in [8] is based on the assumption that the portion of the human spine involved in a scoliotic curve is assumed to be biomechanically analogous to an initially curved beam-column, as shown in figure 1



**Figure 1.** A biomechanical model of the spine orthosis-model

One can notice the inclusion in this model of  $Q$ , which represents a distributed lateral load. This is introduced to simulate, in the same general solution, the stabilizing transverse load of the orthotic device used. This model is viewed in the frontal plane, hence the total lateral displacement,  $y(x)$ , is expressed as the sum of the initial lateral displacement,  $y_0(x)$  and the lateral displacement due to axial and transverse loads,  $y_1(x)$ . Therefore,

$$y(x) = y_0(x) + y_1(x) \quad (1)$$

The initial lateral displacement,  $y_0(x)$ , is assumed to be calculated by a curve-fitting technique based on an anteroposterior radiography, for each individual patient. As per  $y_1(x)$ , it is given by the solution of the differential equation

$$EI \frac{d^4 y_1}{dx^4} + P \frac{d^2 y_1}{dx^2} = Q(x) - P \frac{d^2 y_0}{dx^2}, \quad x \in \left[ -\frac{L}{2}, \frac{L}{2} \right]$$

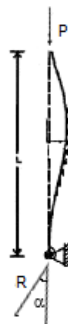
where  $EI$  is the flexural rigidity or bending stiffness of the human spine,  $P$  is the axial load,  $L$  is the length of the beam column and  $Q(x)$  is the transverse load imposed by the orthotic device. The boundary conditions to be coupled with the above differential equation are

$$\begin{aligned} y_1 \left( -\frac{L}{2} \right) &= y_1 \left( \frac{L}{2} \right) = 0, \\ EI \frac{d^2 y_1}{dx^2} \left( -\frac{L}{2} \right) &= k_s \frac{d^2 y_1}{dx^2} \left( -\frac{L}{2} \right), \\ EI \frac{d^2 y_1}{dx^2} \left( \frac{L}{2} \right) &= k_i \frac{d^2 y_1}{dx^2} \left( \frac{L}{2} \right), \end{aligned}$$

where  $k_s$ ,  $k_i$  are the torsional spring constants of the springs that are part of the orthotic device. These are adjusted for each specific case and for each orthotic device. The combination between the parameters in the differential equation and on the boundary conditions are very general in nature and are supposed to be used to model several different types of orthotic devices, such as, the lumbar and thoracic pads of the Milwaukee brace, the built-in pad of the Boston brace, among others. Ideally, for each type of orthotic device, a different set of values for both  $k_s$  and  $k_i$  would be determined, depending on the setup and characteristics used, making this model a highly individualized and customizable model.

### 3. The biomechanical model for robotic traction devices

Robotic traction devices are one of the available methods to use as therapy for patients that have mild scoliotic spine. These noninvasive devices are designed to take most of the weight of the spine, while simultaneously applying a downward or upward traction force that will impact the original alignment of the spine. However, the effects of traction therapy on lumbar spine biomechanics are not well known and, to the best of the authors knowledge, there are no mathematical models that incorporate all the features of these devices. The robotic traction devices considered here are robotic traction chairs, where the patient takes a seated position in the chair, with his head fixed and the waist strapped to the chair. An example of these chairs is the Robotic Antalgic-Trak device. These chairs are designed to provide stabilization to the posterior thoracic rib arch, while simultaneously incorporating decompression and traction to the spine. This type of devices requires a great deal of different inputs from the operator. Some might appear to be standard, such as force to apply and session duration, whilst others require a much more detailed and thorough analysis, like the angle and point of application. However, without any model to calculate the force required, the adjustment of the traction depends solely on the patient feedback and levels of comfort. Therefore these inputs should be calculated from a model and determined on an individual level. However, no existent model takes all of these features and characteristics in consideration. The following model, as shown in figure 2, is now proposed.



**Figure 2.** The proposed biomechanical model of the spine for traction devices

In this model,  $P$  represents the axial load,  $R$  represents the traction force applied via the device and  $\alpha$ , the angle under which the pull is made, measured between the  $x$ -axis and vector  $R$ . This angle can vary between  $0^\circ$  and  $90^\circ$ . One should also emphasize that this angle is to be applied in opposite direction of the curvature due to the idiopathic scoliosis. As in the model presented in [8],  $x$  represents position in the spine measuring  $L$ . Hence the mathematical model proposed is given by the differential equation

$$EI \frac{d^4 y_1}{dx^4} + P \frac{d^2 y_1}{dx^2} = -P \frac{d^2 y_0}{dx^2} - R \cos(\alpha), \quad x \in \left[ -\frac{L}{2}, \frac{L}{2} \right] \quad (2)$$

along with the boundary conditions

$$y_1 \left( -\frac{L}{2} \right) = y_1 \left( \frac{L}{2} \right) = 0, \quad (3)$$

$$EI \frac{d^2 y_1}{dx^2} \left( -\frac{L}{2} \right) = 0,$$

$$EI \frac{d^2 y_1}{dx^2} \left( \frac{L}{2} \right) = k_i \frac{d^2 y_1}{dx^2} \left( \frac{L}{2} \right),$$

where  $k_i$  is given by

$$k_i = \frac{3EI}{L_i},$$

as suggested in [8] and  $L_i$  represents the length of the inferior portion of the spine not included in the scoliotic curve. Also  $k_i = 0$ , as the upper portion of the spine is considered to be unsupported or subject to any force/pressure from the device. In robotic traction devices similar to this one, the traction force,  $R$ , can be applied downwards or upwards. In this particular case, we assume the force is being applied downwards. A similar model can be obtained if the force is applied upwards. Also, the angle  $\alpha$ , is an adjustable parameter on the device. We consider, as in the device,  $\alpha$  to be the angle between the  $x$  and  $y$  axis. The interaction between  $R$  and  $\alpha$  make it possible for the traction force to be applied on a wide range of angles. To better illustrate the full link between all the variables, parameters and applicability of the model, a test case is presented next.

#### 4. Modeling a test case on a robotic traction device

As in most applications, adapting the theoretical model to a specific case requires a great combination of techniques. The objective of this section is to show how the parameters can interact and on top of that, how the model can be obtained and constructed for each individual. For this particular test case we consider a 43 year old male with a mild scoliotic initial curvature, as shown in the figure 3. The details of the specific parameters are shown in table 1.

Parameter	Value
Age	43
Weight	78 kg
Gender	Male
Spine length (L)	58 cm
Bending stiffness (EI)	15.1 Nm <sup>2</sup>
Angle ( $\alpha$ )	0°
Inferior portion of the spine $L_i$	5 cm
Axial load (P)	37 N
R (maximum load advised)	255 N

**Table 1.** Specific parameters for the test case

The value for the bending stiffness,  $EI$ , has been the subject of several different studies. In this paper we consider the value proposed in both [4, 5], which is the mean value for a 43 year old male. Later in this paper a discussion in terms of the angle,  $\alpha$ , and its impact will be considered, however initially for the first simulation we assume that the traction force applied is strictly downward, making  $\alpha = 0$ .



**Figure 3.** Subject MRI - test case

As shown by (2), in order to obtain  $y_1$ , which is the solution of the problem (2)-(3),  $y_0$ , the initial displacement must be determined first. This process was done using a curve fitting process. The value obtained for this particular individual was

$$y_0(x) = -1.0798x^3 + 0.0364x^2 + 0.1883x + 0.0276. \quad (4)$$

In addition, since due to the seating position, a portion of the weight of the head still impacts on the spine, the axial load  $P$ , was not excluded from the model and was considered to have the same impact as in [7]. This value, which is calculated taking in consideration the subject's weight, was estimated to be  $P = 36.9312216 \text{ N}$ . Therefore, considering all the specific parameters, equation (2) becomes

$$15.1 \frac{d^4 y_1}{dx^4} + 36.9312216 \frac{d^2 y_1}{dx^2} = -36.9312216 \frac{d^2 y_0}{dx^2} - R \cos(\alpha), \quad x \in \left[ -\frac{L}{2}, \frac{L}{2} \right], \alpha \in [0, 90] \quad (5)$$

Similarly, the boundary conditions become

$$y_1(-0.29) = y_1(0.29) = 0,$$

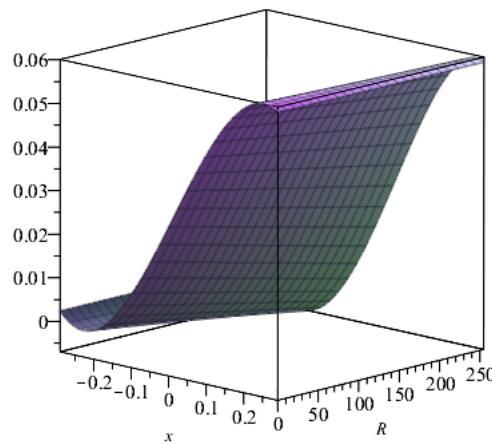
$$15.1 \frac{d^2 y_1}{dx^2}(-0.29) = 0, \quad (6)$$

$$15.1 \frac{d^2 y_1}{dx^2}(0.29) = 906 \frac{d^2 y_1}{dx^2}(0.29).$$

The total lateral displacement,  $y(x)$ , can then be determined and is given by

$$\begin{aligned}
y(x) = & -0.00186717139 xR + 1.751291904 \sin\left(\frac{49\sqrt{5806554}x}{75500}\right) \\
& -0.034101777 \cos\left(\frac{49\sqrt{5806554}x}{75500}\right) + 0.01166819341 R \\
& +0.00123585514 \sin\left(\frac{49\sqrt{5806554}x}{75500}\right) R - 0.01171378479 \cos\left(\frac{49\sqrt{5806554}x}{75500}\right) R \\
& +1.686067906 \times 10^{-11}x^2 - 2.548421660 x - 0.01353868023 x^2 R \\
& +0.0613155274
\end{aligned} \tag{7}$$

Let us emphasize that the function,  $y(x)$ , depends on  $x$ , the point of application and also on  $R$ , the traction force to be applied. This interaction can be illustrated by the graph shown in figure 4, where  $x \in [-\frac{L}{2}, \frac{L}{2}]$  and  $R \in [0, 255]$



**Figure 4.** Solution in terms of location,  $x$  and traction force,  $R$

From the analysis of the solution (4) one can identify the maximum to be attained when  $x = 0.2526$ , for any value of  $R$ . Plugging this information back in (4), we obtain the total lateral displacement,  $y$ , but in terms of  $R$ , as shown below

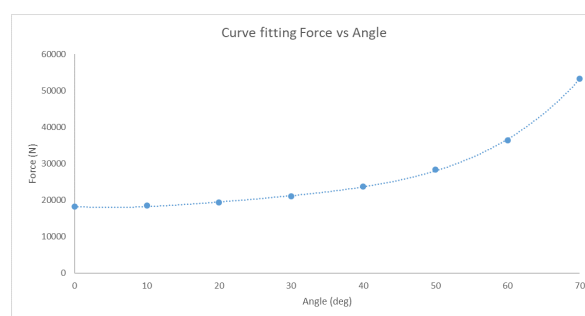
$$\begin{aligned}
y(R) = & 0.01033267910 R + 1.751291904 \sin\left(0.0001639396319\sqrt{5806554}\right) \\
& -0.034101777 \cos\left(0.0001639396319\sqrt{5806554}\right) \\
& +0.00123585514 \sin\left(0.0001639396319\sqrt{5806554}\right) R \\
& -0.01171378479 \cos\left(0.0001639396319\sqrt{5806554}\right) R - 0.5824179791.
\end{aligned}$$

Equation (4) provides then the total lateral displacement, in terms of the traction force,  $R$ . Bearing this in mind, one can now determine the total traction force necessary, for this specific

individual, so that the total lateral displacement of the spine, both initial and the one due to the axial and transverse loads, to be 0. For this specific case, the total traction force to be applied is then

$$R = 18207 \text{ N.}$$

Let us recall that this simulation was obtained for  $\alpha = 0^\circ$ , however,  $\alpha$  is one of the adjustable parameters in the robotic traction devices. The seating chair of the device can have the angle of application changed, ranging from  $0^\circ$  to  $70^\circ$ . These angle variations can be used for some patients where the aligned position at  $0^\circ$  is not comfortable. However, the change in the angle of application has a real impact in the total traction force to be applied. Once the angle is changed, the total traction force to be applied increases, as shown in the graph 5.



**Figure 5.** Graph showing the relation between the angle,  $\alpha$  and the traction force,  $R$ .

As one can see from the graph, the relation between the two variables is highly nonlinear and the higher the angle applied, the higher the total traction force to be applied.

## 5. Conclusion

In this study, it was possible to obtain the model for robotic traction devices, based on equations (2)-(3). The advantage of such a model lies on the fact that each individual feature can be measured and the therapy plan can be designed, based on each patient's characteristics, without the usage of any invasive technique and with minimal knowledge of the subject, since for the model application only age, gender and an MRI or radiography showing the scoliotic curve are necessary. By doing so, one can obtain the total value of the traction force to be applied, necessary for the scoliotic curve to be eliminated. This total value obtained is a threshold value, meaning that for instance in our test case, a total force of 18207 N, would have to be applied in total for the scoliotic curve to be eliminated. For each therapy session, a maximum traction force of 40% of the body weight is recommended. Meaning that in our test case a maximum of 410 N is recommended per therapy session. This means that the patient would have to take sessions in the traction device, until a total threshold of 18207 N of force is accumulated. This information can and should be used to clearly identify *a priori*, from the diagnosis stage, which cases can be considered for therapy using robotic traction devices. In this test case, it clearly shows that the traction device alone cannot be seen as a therapy to eliminate the scoliotic curve. However, for mild cases of scoliosis, the total traction force is considerably smaller. For those, the robotic traction device can be seen as a valid therapy. One of the future points of this research focus on determining the exact amount of force that is transferred after each session and what percentage is carried forward for the next sessions. In this way, the exact number of sessions can, in future, be determined, for each patient.



## References

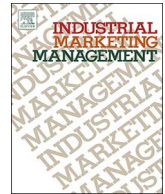
- [1] Andriacchi, T., Schultz, A., Belytschko, T. & Galante, J. *A model for studies of mechanical interactions between the human spine and rib cage*, (1974) *Journal of Biomechanics*, **7**, 497-507.
- [2] Ashton-Miller, J. & Schultz, A.B. *Biomechanics of the human spine and trunk*, (1988) *Exercise and Sport Sciences Reviews*, **16**.
- [3] Daniele, M. W. *A computer simulation of spinal correction*, (1983) in: M.S. Thesis, Illinois Institute of Technology, Department of Mechanical Engineering.
- [4] Lee, R., Tsung, B., Tong, P., Evans, J. *Bending stiffness of the lumbar spine subjected to posteroanterior manipulative force*, (2005) *Journal of Rehabilitation Research & Development*, **42**, 167-174.
- [5] El Masri, F., Sapin de Broses, E., Rhissassi, K., Skalli, W. & Mitton, D. *Apparent Young's modulus of vertebral cortico-cancellous bone specimens*, (2012) *Comput Methods Biomech Biomed Engin*, **15**, 1091-1098.
- [6] Koptan, W. & ElMiligui, Y. *Three-staged correction of severe rigid idiopathic scoliosis using limited halo-gravity traction*, (2012) *European Spine Journal*, **21**, 1091-1098.
- [7] Park, W. M., Kim, K., & Kim, Y. H. *Biomechanical analysis of two-step traction therapy in the lumbar spine*, (2014) *Manual Therapy*, **19**, 527-533.
- [8] Patwardhan, A. G., Bunch, W. H., Meade, K. P., Vanderby, R., & Knight, G. W. *A biomechanical analog of curve progression and orthotic stabilization in idiopathic scoliosis*, (1986) *Manual Therapy*, **19**, 103-117.
- [9] Timoshenko, S., & Gere, J. M. *Theory of elastic stability*, (1961) New York: McGraw-Hill.



ELSEVIER

Contents lists available at ScienceDirect

## Industrial Marketing Management

journal homepage: [www.elsevier.com/locate/indmarman](http://www.elsevier.com/locate/indmarman)

Target and position article

# Knowledge configurations of small and medium-sized knowledge-intensive firms in a developing economy: A knowledge-based view of business-to-business internationalization

Kais Mejri<sup>a</sup>, Jason Alexander MacVaugh<sup>b</sup>, Dimitrios Tsagdis<sup>c,\*</sup><sup>a</sup> IHEC Sousse, Sousse, Tunisia<sup>b</sup> University of East Anglia, Norwich Business School, UK<sup>c</sup> KEDGE Business School, Talence, France

## ARTICLE INFO

## Keywords:

Internationalization  
 Knowledge  
 SME  
 Developing economy  
 Qualitative  
 B2B

## ABSTRACT

This paper explores knowledge configurations (i.e. combinations of knowledge types and sources) in the business-to-business internationalization of knowledge-intensive small and medium-sized enterprises (SMEs) in a developing economy. Semi-structured interviews were conducted with 33 owners/managers of 22 such firms that internationalized from Tunisia; so to establish their knowledge configurations and other key characteristics. In spite of their many differences (e.g. firm age, host markets, entry modes, resource endowments, products and services) they share an interesting empirical regularity; they have not developed internationalization knowledge. That is, a knowledge type portrayed as key in the extant theorizing. The findings show the knowledge configurations of these SMEs and how they compensated for their knowledge shortcomings. The implications for industrial marketing management theory and practice are discussed, along with several viable avenues for further context-specific and practice-oriented research.

## 1. Introduction

Resource availability, and knowledge/learning in particular, play a pivotal role in SME internationalization (Autio, Sapienza, & Almeida, 2000; Casillas, Moreno, Acedo, Gallego, & Ramos, 2009; Johanson & Vahlne, 1977, 2009); especially in business-to-business (B2B) settings (Karlsen, Silseth, Benito, & Welch, 2003; Lindsay, Rod, & Ashill, 2017). Internationalizing SMEs face smallness, newness, foreignness, and outsidership liabilities (Almodóvar & Rugman, 2015; Buckley, 1989; Johanson & Vahlne, 2009; Knight & Cavusgil, 2004; Oviatt & McDougall, 1994). In addition SMEs internationalizing from developing economies<sup>1</sup> face severe home-liabilities. For example: weak institutions, elevated levels of economic and political instability/risk, poor infrastructure, shortage of specialised financial intermediaries, malfunctioning markets, and underdeveloped industrial linkages (Kiss, Danis, & Cavusgil, 2012; Meyer, Estrin, Bhaumik, & Peng, 2009; Schwens, Eiche, & Kabst, 2011).

The knowledge and learning needs of SMEs internationalizing from such home-settings have been well documented (Ibeh & Kasem, 2011; Nguyen, Ngoc, & Bryant, 2013; Thai & Chong, 2008; Yamakawa, Peng,

& Deeds, 2008; Zhu, Hitt, & Tihanyi, 2007). Yet none of these studies examined the respective knowledge configurations (i.e. combinations of knowledge types and sources), which have emerged as an increasingly important explanation for the ability of SMEs to internationalize from developed economies (Deligianni, Voudouris, & Lioukas, 2015; Fletcher & Harris, 2012; Fletcher, Harris, & Richey, 2013; Weerawardena, Mort, & Liesch, 2017).

This paper is a response to on-going calls for further study into SME internationalization from developing economies (Ibeh & Kasem, 2011; Kiss et al., 2012; Zahra & George, 2002), answering the research question: ‘how do the knowledge configurations of SMEs from a developing economy enable them to engage in international B2B markets?’

The answer to this question has significant implications for industrial marketing management (IMM) theory and practice. It has been argued for example that internationalization knowledge (IK), is a fundament of a firm's ability to effectively operate in foreign industrial markets (Weerawardena et al., 2017). However, the transformation of situation-specific experiential knowledge into IK (i.e. codified principles and effective organizational routines) is costly (Eriksson, Johanson,

\* Corresponding author at: KEDGE Business School, 680 cours de la Libération, Talence Cedex 33405, France.

E-mail address: [dimitrios.tsagdis@kedgebs.com](mailto:dimitrios.tsagdis@kedgebs.com) (D. Tsagdis).

<sup>1</sup> In this study we use developing as shorthand for any economy that is not developed; e.g. emerging, less/under-developed, third world. More precise classification systems are introduced in the research context section (3.2).

<https://doi.org/10.1016/j.indmarman.2017.12.018>

Received 26 March 2017; Received in revised form 17 October 2017; Accepted 28 December 2017  
 0019-8501/ © 2018 Elsevier Inc. All rights reserved.

Majkgard, & Sharma, 1997: 340). The key sources of IK (e.g. consultants and lawyers) are expensive (Fletcher et al., 2013; Fletcher & Harris, 2012). In addition, maintaining strategic alignment with an ever-evolving base of IK requires on-going investments (Autio et al., 2000; Fletcher et al., 2013; Fletcher & Harris, 2012; Prashantham & Young, 2011; Weerawardena et al., 2017). Our findings demonstrate how B2B SMEs may avoid such costly affairs and internationalize on a 'shoe-string' with some measure of success (e.g. more than 56% of foreign sales, firm survivability, and continued engagement with internationalization).

Given the central role of knowledge and learning in knowledge-intensive firms (Brennan & Garvey, 2009) this study like many others before it (Deligianni et al., 2015; Ibeh & Kasem, 2011; Moen, Gavlen, & Endresen, 2004; Nummela, Saarenketo, & Puumalainen, 2004; Saarenketo, Puumalainen, Kylaheiko, & Kuivalainen, 2008; Voudouris, Dimitratos, & Salavou, 2011) focuses on Information and Communication Technology (ICT) SMEs. In particular 22 ICT SMEs that are dependant solely upon B2B markets, and that have been internationalizing from Tunisia during the 1992–2009 period; i.e. prior to the 'Arab Spring'.<sup>2</sup> This is a particularly interesting context for answering our research question as it allows us to investigate knowledge configurations of B2B SME internationalizing with meagre resources, from an underprivileged home-setting, at the periphery of the ICT industry.

The research objectives of this study can therefore be summarised as: 1) to explore the knowledge configurations of B2B ICT SMEs internationalizing with meagre resources from such a home-setting, 2) given that these have not been studied before, identify any novel empirical regularities that could enhance the extant theorizing in this area, and 3) develop respective recommendations on the basis of this new found knowledge.

The rest of the paper is organized as follows. In the next section we review the relevant literature. In the methods section, we discuss further our research context and why it is particularly pertinent along with our qualitative research design and analysis. In the penultimate section we detail the main findings concerning the knowledge configurations of our SMEs. We conclude by discussing some key areas for further research and the implications of our study.

## 2. Literature review

Internationalizing SMEs need different kinds of knowledge (Johanson & Vahlne, 1977). Satisfying this need requires the pursuit of multiple forms of knowledge acquisition (Autio et al., 2000; Eriksson, Majkgård, & Sharma, 2000; Fernhaber, McDougall-Covin, & Shepherd, 2009). By conceptualizing internationalization as a process of organizational learning and knowledge development (Autio et al., 2000; Eriksson et al., 2000; Johanson & Vahlne, 1977, 2009) a range of knowledge configurations have been explored in the literature (Fletcher & Harris, 2012; Hilmersson, 2014; Huber, 1991).

There is, thus, a history of attempts to classify knowledge configurations pertaining to SME internationalization with varying degrees of specificity. These range from the forms of knowledge specific to new international ventures (Park, LiPuma, & Prange, 2015), to the finer types of experiential knowledge in incremental internationalizers (Eriksson et al., 2000; Hilmersson, 2014), and the differentiated learning mechanisms of early versus late internationalizers (Schwens & Kabst, 2009). The Fletcher and Harris (2012) framework is adopted in this study as it:

a) has been used successfully with cases of internationalizing ICT SMEs,

- b) not only does it classify the knowledge types popularised in the extant literature but also intersects them with an adequate set of source categories, and
- c) has been demonstrated to be able to identify "knowledge content and sources that are critical for internationalization, but that may be absent" (Fletcher & Harris, 2012: 631).

The framework was developed by drawing extensively on Huber's (1991) conceptualisation of knowledge acquisition. It synthesizes insights from SME internationalization and organizational learning to identify knowledge configurations. These can comprise three types of knowledge (technological, market, and internationalization) and five categories of sources (direct, vicarious experience, grafted experience, external search, and internal information). The importance of these knowledge types in SME internationalization from developed economies is well documented (e.g. Deligianni et al., 2015; Sullivan & Marvel, 2011; Voudouris et al., 2011; Weerawardena et al., 2017). They are discussed next in turn.

*Technological knowledge* confers firm-specific advantages in developing and adapting products and services that are transferable across borders (Kogut & Zander, 1993). Technological knowledge also includes organizational awareness of technological change across the broader market, and the relative position of competitors, thus informing positioning (Sullivan & Marvel, 2011). A growth in the organizational stock of technological knowledge will result in enhanced products and services, creating new opportunities both at home and abroad (Dhanaraj & Beamish, 2003; Oviatt & McDougall, 1994; Zahra, Ireland, & Hitt, 2000). Technological knowledge has been shown to be related positively to international diversity and high-control entry modes (Zahra et al., 2000: 944).

*Market knowledge* is specific to each host market, including knowledge of potential customers, distribution channels, institutions, legal and regulatory conditions, and risks (Burgers, Van Den Bosch, & Volberda, 2008; Johanson & Vahlne, 1977, 2009). A growth in the organizational stock of market knowledge will reduce uncertainty and risk (Fletcher & Harris, 2012), assist in exploiting growth opportunities (Wiklund & Shepherd, 2003), and help to better respond to market needs (Deligianni et al., 2015). Market knowledge has been shown to be related positively to variations in the experiences a firm has with different entry modes (Descotes & Walliser, 2010).

*Internationalization knowledge* (IK) is a firm-specific ability to understand and pursue multiple international opportunities (Blomstermo, Eriksson, Lindstrand, & Sharma, 2004). It assists in screening foreign markets, evaluating partners, and managing FDI (Prashantham & Young, 2011; Welch, Benito, & Petersen, 2007). IK has been shown to be related positively to variations in the experiences a firm has in different markets (Barkema & Vermeulen, 1998). It is formalised/codified in principles for evaluating and targeting new internationalization opportunities in general, as evidenced by enhanced organizational routines during subsequent market entries (Eriksson et al., 2000; Fletcher & Harris, 2012; Prashantham & Young, 2011). IK development is thus costly (Eriksson et al., 1997: 340) as it requires the transformation of situation-specific experiential knowledge into codified principles and effective organizational routines (Prashantham & Young, 2011). IK development is often enabled by expensive sources such as consultants, lawyers, new senior appointments, and/or government advisors, as reported in Fletcher and Harris (2012) and Fletcher et al. (2013). Such costs are further inflated by the time/effort needed to 'unlearn old IK' and in general by the need to maintain strategic alignment with an ever-evolving base of IK, which requires on-going investments (Autio et al., 2000; Fletcher et al., 2013; Fletcher & Harris, 2012; Prashantham & Young, 2011; Weerawardena et al., 2017).

Our discussion of IK already touched upon the first category of knowledge sources; namely *direct experience*. In SMEs this tends to originate from the owner (or senior management team's) previous international career, education, or business venture (Madsen & Servais,

<sup>2</sup> At the time an SME in Tunisia was defined as having less than 300 employees and/or USD 3,000,000 in assets (Conseil du Marché Financier, 2006).

1997). However, as introduced above, experiential knowledge is situation-specific (e.g. country, mode of entry), which makes it costly to develop and may impede its transfer (Eriksson et al., 1997: 340).

*Vicarious knowledge* acquisition refers to learning from the experience of others, for example through networking, licensing or joining export clubs. Networking provides an entry point for many SMEs and especially so for ICT ones (Coviello & Munro, 1995, 1997). However, some vicarious knowledge may be firm-specific and difficult to integrate with existing routines (Miner, Michael, Ciuchta, & Yan, 2008). Although SMEs internationalizing from developed economies utilise social networks (Kundu & Katz, 2003), the regional and/or cultural networks located in developing economies provide limited vicarious knowledge (De Clercq, Danis, & Dakhli, 2010; Menzies, Brenner, & Fillion, 2003). Even when vicarious knowledge may be available in these networks, the benefits to an SME may be denied or limited due to underdeveloped networking skills and behaviours (Tang, 2011), or by the tendency of dominant network members to appropriate a greater share of the created value (Pérez & Cambra-Fierro, 2015). In the absence of knowledge support in the home country, expensive formal external searches and time intensive codification of internal information may be eschewed in favour of a continued reliance on personal networks for market knowledge (Kiss & Danis, 2008). Vissak, Zhang, & Ukrainski (2012: 353) reported examples of SMEs originating from developing economies with deficiencies in (experiential) market knowledge that thrived when entering the market of developed economies. When seeking to access more developed markets, well-funded SMEs may invest in grafting knowledge to augment limited market and internationalization knowledge (Vissak et al., 2012).

*Grafting knowledge* involves recruiting experienced professionals or acquiring overseas business units through foreign direct investment (FDI). Recruitment is a potential source of grafting knowledge, but experienced international managers are costly and often prefer working in larger organizations (Li, 2008).

*External searched knowledge* is acquired from codified sources found by scanning the external environment. Such sources are crucial for internationalizing firms with limited experience (Casillas et al., 2009). In the absence of other sources, government advisors and consultants can provide this knowledge, but their contribution is context dependent (e.g. given prior experience or political preference for particular products, countries, or markets).

*Internal information* is to be found within the boundaries of a firm; e.g. residing and/or developed by its staff and systems (Borrás & Tsagdis, 2008; Huber, 1991). The ability of owners and/or managers to identify and make use of internal information sources is dependent upon communication, interpersonal relations, and ‘knowing who’ may have the requisite information or experience (Karlsen et al., 2003).

Thus SMEs internationalizing from developing economies are known to face severe knowledge shortcomings (Ibeh & Kasem, 2011; Nguyen et al., 2013; Thai & Chong, 2008; Yamakawa et al., 2008; Zhu et al., 2007). Often they cannot access knowledge sources at home due to hostile and/or malfunctioning domestic markets, state owned enterprise (SOE) bias, government censorship of foreign information, constrained access to libraries and information centres, prohibitively expensive Internet costs, and in general, knowledge-poor environments (Nguyen et al., 2013; Thai & Chong, 2008; Yamakawa et al., 2008). Accessing knowledge sources at home (e.g. business groups, or local government policy makers and advisors) requires the development of networks, aligning with the government (Zhu et al., 2007), and may even entail relocation (Nguyen et al., 2013). If the domestic transaction costs exceed the costs of crossing national borders, then SMEs in developing economies may seek more “efficient institutions” abroad (Boisot & Meyer, 2008: 349). For instance, by attending international industry exhibitions, by forming international joint ventures, and in general, through successful and unsuccessful relationships with (potential) non-domestic knowledge sources (Ibeh & Kasem, 2011; Yamakawa et al., 2008).

Internationalizing with severe knowledge shortages can force the founders of such SMEs to manage their businesses “autocratically”; with short-term survival shaping their internationalization choices, and their “managers [to] operate with far less information than managers in other countries would tolerate” (Thai & Chong, 2008: 94ff). Such SMEs need to create a series of temporary competitive advantages (i.e. value for their customers and owners) that allow them to maintain an active engagement with internationalization and the inflow of knowledge that they may be otherwise unable to source (Zhu et al., 2007).

Although the above studies provide some valuable insights into the knowledge and learning of SMEs internationalizing from developing economies, they do not go as far as detailing the knowledge configurations of their focal firms. Establishing this required a different kind of study as detailed in the following section.

### 3. Research methodology

#### 3.1. Research approach and generalizability

The methodological literature suggests the use of qualitative research, and case studies in particular, for theory development; whereas quantitative research is used for theory testing (Eisenhardt & Graebner, 2007: 26; Tsang, 2014: 373). As the critical review of the literature in the previous section identified, there seems to be no fully-fledged theory of the knowledge configurations in (*knowledge-intensive B2B*) SMEs internationalization (*from developing economies*) that is ripe enough for testing. This holds true even if its qualifiers (in *Italics*) are suspended.

What the literature review revealed instead is a growing interest from several quarters, including: international business (Fletcher & Harris, 2012) and non-linear internationalization (Vissak & Francioni, 2013), international entrepreneurship and ventures (Park et al., 2015), dynamic capabilities and growth-strategies (Deligianni et al., 2015), and industrial marketing (Lindsay et al., 2017; Weerawardena et al., 2017). Each contributes its own research design (e.g. longitudinal, cross sectional, ethnographic), lenses (e.g. network theory, institutional theory, resource based view), and theorizing<sup>3</sup> about this complex phenomenon.

This study therefore goes beyond differentiated replication (as per Uncles & Kwok, 2013: 1399ff) to find mechanisms used by our sample firms to compensate for the lack of knowledge configurations reported in Fletcher and Harris (2012). Had a mere differentiated replication or quantitative testing of extant theorizing been adopted (instead of our qualitative exploration), then these would have been impossible. That is, our findings aim to fill the aforementioned gap (as introduced in Section 1), and enhance the extant theorizing (as reviewed in Section 2).

We side with (Davies, 1999: 91) in our pursuit of *theoretical generalizability* by generalizing our findings in the context of the extant theorizing. So that the *reader* can “make inferences about extrapolating the findings to other settings” (Polit & Beck, 2010: 1453) we provide a detailed description of: a) our empirical setting (discussed next), b) the characteristics of the focal SMEs and their internationalization (in Table 1), and c) how the SMEs in our sample compare with the population (in Section 3.3). These aid in deciding the extent of within-population generalization. As the population of SMEs internationalizing from developing economies and their characteristics are unknown, it is impossible to provide similar aids to cross-population transferability.

Nonetheless, the review of the nascent literature of SMEs internationalizing from developing economies identified a few empirical reports from other populations; e.g. in China (Tang, 2011; Vissak et al., 2012), Costa Rica (Lopez, Kundu, & Ciravegna, 2009), Turkey (Inemek & Matthyssens, 2013), Syria (Ibeh & Kasem, 2011), and Vietnam

<sup>3</sup> Theorizing as a prequel to theory (Swedberg, 2016; Weick, 1995).

**Table 1**  
Sample characteristics.

Firm	Age	Pre	TLE	Assets	En	Sn	F%	Internationalization pathway (chronological order)	HS
A <sub>4</sub>	10	0	5	300,000	60	7	70	1999 FDI (Rwanda), 2002 EXP (Cameroun), 2004 SUB (France/Africa)	1, 1, 3/1
B <sub>4</sub>	22	15	12	ND	55	5	60	1995 EXP (Mauritania), 1997 FDI (Libya)	1, 1
C <sub>5</sub>	6	3	1	170,000	25	8	65	2006 LIC (MENA), 2007 LIC (Europe, N. America), 2008 EXP (Cameroun)	1–2, 3, 1
D <sub>2</sub>	7	0	2	38,000	30	5	55	2002 SUB (France), 2005 EXP (France), 2007 FDI (France)	3, 3, 3
E <sub>1</sub>	12	0	7	50,000	15	6	40	1997 SUB (France), 2000 EXP (Algeria), 2002 FDI (Algeria)	3, 1, 1
F <sub>1</sub>	7	0	7	10,000	4	3	70	2002 SUB (USA)	3
G <sub>1</sub>	10	0	10	100,000	25	3	60	1999 SUB (France)	3
H <sub>1</sub>	12	0	12	200,000	10	4	55	1997 SUB (France)	3
I <sub>1</sub>	8	0	8	ND	55	2	90	2001 SUB (Germany)	3
J <sub>1</sub>	16	0	16	561,000	20	5	80 <	1993 SUB (France)	3
K <sub>1</sub>	4	3	1	50,000	4	2	20	2008 EXP (Oman)	1
L <sub>1</sub>	17	6	11	170,000	40	2	30	1998 EXP (Rwanda)	1
M <sub>1</sub>	4	0	4	60,000	150	5	30	2005 SUB (France)	3
N <sub>1</sub>	6	3	3	10,000	6	10	80 <	2006 SUB (France)	3
O <sub>1</sub>	7	0	7	ND	10	2	80 <	2002 SUB (France)	3
P <sub>1</sub>	2	0	2	ND	10	1	80 <	2007 SUB (France)	3
Q <sub>1</sub>	9	9	0	ND	6	1	80 <	2009 SUB (Germany)	3
R <sub>1</sub>	8	0	8	10,000	5	7	80 <	2001 LIC (France)	3
S <sub>1</sub>	8	7	1	30,000	15	3	80 <	2008 EXP (Morocco)	1
T <sub>1</sub>	17	0	17	ND	150	5	80 <	1992 SUB (France)	3
U <sub>1</sub>	20	19	1	ND	1	7	30	2008 SUB (France)	3
V <sub>1</sub>	8	0	8	50,000	5	10	60	2001 SUB (Canada)	3

Note: subscripts denote the number of interviewees; Age of the SME at the time of primary data collection; Pre(cocity): SME age at first entry; Time lapsed since Last Entry (TLE); Assets (TND) 2009 average exchange rate USD to TND 1.35; Number of employees (En); Number of ICT services offered (Sn); Percentage of sales to foreign markets (F%) for some SMEs only a rough indication was provided, namely below 80%; Host economy stage of development (HS); No data (ND).

(Nguyen et al., 2013; Thai & Chong, 2008), that seem to support the possibilities of cross-population extrapolations. That is, these studies indicate resource limits in home-settings that have led SMEs to apply differentiated strategies and leverage meagre sources and/or types of knowledge/learning while internationalizing. Furthermore, anecdotal empirical evidence (discussed in Section 5) suggests that users of our findings are able to recognize their transferability across rather differing populations “that may or may not be superficially similar to those studied” (Maxwell & Chmiel, 2014).

Reflecting the exploratory nature of the present study, and the absence of any previous work on the knowledge configurations of B2B ICT SMEs internationalizing from Tunisia (or other developing economies for that matter), a qualitative research design was developed. Our design focused on a single country and industry because the SME knowledge configurations, internationalization, and their settings are rather complex.

We opted for the ICT industry in particular due to: a) its key role in the Tunisian economy (as discussed next), b) the rich stock of prior ICT studies (Deligianni et al., 2015; Ibeh & Kasem, 2011; Moen et al., 2004; Nummela et al., 2004; Saarenketo et al., 2008) that delineate a useful backdrop for our theorizing, and c) the fact that ICT provides a direct entry point for internationalization. In other industries, the use of technology for market entry may be alien. There may also be a lack of shared technology platforms and absence of international standards that raise barriers to foreign market entry. This would add unnecessary complications that lie beyond the tasks at hand.

### 3.2. Research context

We conducted this study in Tunisia, a transitional democracy of approximately 11 million people, which obtained its independence from France in 1956. Prior to the 2011 revolution that led to regime change and free elections, the domestic market had been volatile and institutionally weak. It should thus be made explicit that primary data collection was carried between January and July of 2010; i.e. before the revolution and was unaffected by it. This is not to say that the period the data refer to was trouble free. That is, between 1987 (birth of the oldest firm in our sample) and 2010 (when data collection took place) there had been: a coup d'état, corruption, plundering of state funds,

joblessness (unemployment rarely below 14%), high prices, socio-economic unrest, counter terrorism measures, use of security forces to suppress protests, human rights abuses, suppression of media and humanitarian groups, legal system failures, low levels of FDI and GDP growth, crony capitalism and domestic market protection through barriers to entry (i.e. large domestic corporations with government ties have been dominating the domestic market), and the broader repercussions of the 2008 financial crisis (Human Rights Watch, 2008; OECD, 2012; World Bank, 2015; World Economic Forum, 2012). Moreover, during this period Tunisia was listed by the World Bank as a lower-middle income economy; and by the World Economic Forum as a stage 2: efficiency driven economy<sup>4</sup> (World Bank, 2015; World Economic Forum, 2009).

Developing economies however, are not merely resource, institutionally, stability, transparency, or otherwise deprived (e.g. as introduced in Section 1). Instead it might be more insightful to consider that their endowments are rather imbalanced, inconsistent, or idiosyncratic.

Thus, although the above have plagued Tunisia, it also benefits greatly from its geographical position and its highly educated, low-cost workforce, who are often multilingual. It is also of note that in ICT services, the sector focused on in this study, labour costs can account for 80% of production costs (Neumann, 2006).

Although we did not find any assistance programmes targeting B2B ICT SMEs in particular; during the study period there have been a number of initiatives to aid the internationalization of Tunisian ICT SMEs. These include: the development of ICT infrastructure, provision of venture capital and finance, export promotion, and wider (including international) business development support. Neumann (2006) provides an overview of such programmes and suggests uncertain results for ICT SMEs.

Nonetheless, Tunisian ICT companies have been internationalizing during this period; mainly to Europe (France, Germany, and Italy), the

<sup>4</sup> The World Economic Forum (WEF) classifies economies into three stages of development. Countries falling in between these three stages are considered to be “in transition” from one stage to the next (World Economic Forum, 2009: 11). Several studies, this one included, adopt the WEF classification system; for an example within the international entrepreneurship field see Kiss et al. (2012).

Middle East, and Africa. In particular computer, communication, and other ICT services exports accounted for about 30% of total service exports in 2010 (World Economic Forum, 2012). The contribution of the ICT industry to the Tunisian GDP has been growing for two decades, including an increasing share of sales abroad (Ministry of Communication Technologies and Digital Economy, 2015).

There have been a few studies of SMEs internationalizing from Tunisia and ICT ones in particular. Although none of them focused explicitly on B2B SMEs, nor explored their knowledge configurations, they provide some relevant insights. For example concerning the dominance of the mono-destination exporting tendencies of Tunisian SMEs (Koubaa & EpKoubaa, 2012) and the statistically insignificant relation of product complexity, managerial characteristics, attitudes, and environmental variables to the Tunisian SMEs entry model choice (Khemakhem, 2010).

### 3.3. Sampling

Our study adopted a purposeful (i.e. non-probability) sampling technique. We identified Tunisia and the ICT industry as key parameters for developing our sampling frame (as discussed in the previous section). This sampling technique was extended to the selection of participants. The usual criticism (cf. Saunders, Lewis, & Thornhill, 2012) of this approach to sampling is bias, and the fact that the extent to which the sample is representative of the entire population cannot be attested with a particular level of confidence. Sampling bias can cause the data (and therefore any results/findings) to differ (e.g. be skewed) from those of the entire population. The methodological advice when using purposeful samples, is to describe how the selected participants differ from a random sample that one could hypothesise (for the sake of such a comparison) to have been selected from the population. This is considered after the discussion of our sampling procedure (and there are respective supplementary material freely available upon request).

Thus, in line with prior studies of Tunisian SMEs engaged in internationalization (e.g. Bellouma, 2011; Zaiem & Zghidi, 2011) our study also used the CEPEX<sup>5</sup> directory as a sampling frame. In the 2009 edition of the CEPEX directory 333 ICT SMEs were listed (CEPEX, 2009).

These were all contacted via email (with a reminder two weeks after the initial email) and 22 agreed to participate in our study. We decided to include them all in our study, as we wanted to theorize knowledge configurations on the basis of all available instances; instead of those that fitted some preconceived criteria. Their characteristics can be seen in Table 1.

Although our sampling method resulted in a 7% participation rate, it yielded sufficient variety for the purposes of this study. Moreover, sampling bias was tested against in the following manner. Quantitative comparisons between our sample and the population characteristics (e.g. age, assets, size in terms of employees, specialisation, ownership, and targeted markets) were undertaken (supplementary material available upon request). We found that, apart from having 60% fewer assets (an advantage for this study as we are interested in internationalizing SMEs with meagre resources), our 22 SMEs do not appear to differ considerably and/or consistently from the CEPEX population. Follow up calls were also made to 25 non-respondents whose characteristics fell inside as well as outside the sample's variety (e.g. too large, too international) seeking to rule out qualitatively any systematic bias.

<sup>5</sup> Centre for the Promotion of EXport, is a governmental institution providing export assistance (e.g. information provision, promotion) for SMEs in Tunisia ([www.cepex.net.tn](http://www.cepex.net.tn)). Tunisian SMEs with exports are automatically listed to the CEPEX directory free of charge.

### 3.4. Data collection

Face-to-face semi-structured interviews were conducted with 33 owners/managers from the 22 firms listed in Table 1. Retrospective accounts were used as the main interview approach (Golden, 1992, 1997; Miller, Cardinal, & Glick, 1997) combined with key informant strategies (Rao & Perry, 2003). Owners/managers were initially targeted as the most likely persons to be knowledgeable about the firm operations and its knowledge acquisition efforts from birth.

Interview questions were informed by the literature and started by profiling the interviewees and their companies, progressing to open-ended questions about their internationalization, knowledge, and learning. Firm-specific documentation, relating to international operations (e.g. administrative documents, brochures, contracts, progress reports, newspaper articles and company websites) was also collected and studied. These helped to: develop general background information prior to an interview, better understand the firm products and services, obtain information on the history of the firm, and augment and validate the data collected through the interviews (e.g. overcome memory bias).

All interviews were conducted in French, in an area of the workplace where interviewees could not be overheard. As recommended by Guba and Lincoln (1994), all interviews were digitally recorded and transcribed. The average length of the recorded interviews was 90 min.

A pilot study was conducted with a handful of interviewees during which telephone and video-conferencing based interviews were also experimented with, and the pilot results were utilised to fine tune the primary data collection protocols. The fieldwork commenced six months after the pilot.

Five of our firms (A-E), selected on the basis of having more than one international market entry, were investigated at greater depth. In particular, their knowledge changes during their subsequent foreign market entries. For example, in four of them (see Table 1) additional staff members (e.g. general managers, marketing managers, technical managers, and senior engineers) were interviewed and additional documents were gathered and reviewed (e.g. past annual reports). The subscript next to each SME alias indicates the number of interviewees in each company. The interviews in these firms spanned approximately a month. Their recordings varied between three and 12 h; with saturation used to indicate the end of data collection in each case (Yin, 2009).

Given the focus on SME-elites, a single-respondent bias was unavoidable in some cases, albeit not particularly harmful, as it was ameliorated through the additional secondary and primary data sources. For example, in 18% of our SMEs (A-D) where more than one individual was interviewed (denoted by the subscript next to the SME alias), no single respondent bias was detected.

### 3.5. Data coding and analysis

The interviews were transcribed in French and sent to the interviewees for review and approval. They were then translated into English by the leading author (native-speaker). Another multi-lingual academic partner in Tunisia supported back translation. After a textual review, the transcripts and other secondary data were coded and entered to Nvivo7 and Excel for analyses.

Themes and codes originally gleaned from the literature (e.g. knowledge sources and types, mode of entry) provided a preliminary framework for the analysis. This allowed, as a first step, the mapping of SME internationalization (e.g. as summarised in Table 1), which alerted us that we maybe witnessing some atypical internationalization patterns (e.g. Alpha's FDI as a first entry a birth) and that thus we could expect some unusual knowledge configurations.

Still, nothing prepared us for finding no evidence of IK. At first we thought that the respective data might have been overlooked during coding. Thus, a different combination of authors coded the data for IK a second time, and still could not identify any terminology relating to IK as defined in our literature review. Being forced to accept the lack of IK

evidence raised two important questions: a) how could this be explained? and b) what do our firms use instead?

Answering these questions required the adoption of a systematic combining approach (Dubois & Gadde, 2002, 2014) familiar in IMM studies (cf. Aaboen, Laage-Hellman, Lind, Öberg, & Shih, 2016; Halineen & Törnroos, 2005). Systematic combining is a non-linear approach involving a number of iterations between framework, data, and analyses. Pursuing this placed additional emphasis on the five cases of ‘repeat’ internationalizers (i.e. those SMEs that had more than one entry) reported in Section 4.2.

We pursued both within and cross-firm analyses as well as comparisons with the literature in a non-linear manner. Within-firm analysis allowed us to delve into each SME knowledge configuration to explain how this came about, as well as the manner through which they compensated for their knowledge shortcomings and the absence of IK in particular.

Cross-firm analysis was applied to sets of firms (e.g. single vs. multiple foreign market entries, old/late vs. young/early firms/internationalizers, internationalizing to countries at the same vs. different stages of development, single vs. multiple product/service specialisations) in order to test the explanations developed by the within-firm analysis and to moderate their generalization (Dubois & Gadde, 2014: 1281). While both types of analyses were being pursued, any ongoing findings were contrasted with the literature. To that effect, it also needs to be clarified that the literature review (in Section 2) was finalised following the completion of the analyses.

## 4. Findings and discussion

### 4.1. Knowledge configurations

Table 2 summarises the sources and types of knowledge used by our SMEs during internationalization.

Starting with knowledge sources, our SMEs accessed four of the five sources indicated in Fletcher and Harris (2012). That is, internal information was not used as a source for any type of knowledge. The most frequently accessed sources were those of direct experience and vicarious knowledge. Both can be categorised as experiential, the key source firms are said to access when pursuing internationalization, and which also supports the validity of our findings.

Grafted experience and external search were only used by two firms (namely Alpha and Bravo). This is understandable, given that such sources are hardly affordable for most SMEs originating from developing economies. Upon closer inspection it appears that Alpha and Bravo are responsible for a large proportion of the identified patterns and could thus be construed as outliers. They will be further discussed in the following section (4.2).

Technological knowledge was the most frequently occurring type of knowledge in our sample. Having said that, market knowledge was the

most widely sought, as it was pursued from twice as many sources as technological knowledge. Customers were a major source of market knowledge, whereas contractors were the most common source of technological knowledge.

Looking at the resultant knowledge configurations as a whole, it appears that the majority of our firms develop their technological knowledge through vicarious experience, and that a significant minority relies in addition to direct experience. This situation is somewhat reversed when it comes to market knowledge. It appears that the majority of our firms develop their market knowledge through direct experience and that a significant minority relies in addition to vicarious experience.

Having provided an overview of the knowledge configuration patterns in our sample of SMEs, the somewhat simplistic argument could be made that IK did not develop because these firms made only a single foreign market entry, and that the five firms that had more than one entry are the exception that proves the existence of this rule. This is doubtful for several reasons. For one, there is empirical evidence from SMEs internationalizing from a developed economy that develop IK proactively; i.e. before they sell abroad (Fletcher & Harris, 2012). So, in principle, entry is not required to develop IK; just an intention of entry seems enough. The focal firm must also be able and willing to meet the high costs of IK as introduced in Sections 1 and 2. This maybe the case for SMEs originating from developed home-settings, but seems unlikely for their underprivileged-counterparts with meagre resources. This makes it pertinent to deepen our investigation of the five SMEs that had more than one foreign market entry.

### 4.2. Repeat internationalizers

The founders/owners of the repeat internationalizers have been actively managing their SMEs (A-E) from inception. Their SMEs are at the lower end of the size scale, with a workforce between 15 and 60 employees. The owners have bilingual capabilities (French and Arabic), and most of them have ICT engineering backgrounds, and prior experiences/networks in France. Alpha and Bravo exhibit the richest knowledge configurations (as depicted in Table 2).

In line with the rest of our firms, these five firms were motivated to internationalize to increase revenues; using as their main advantages cultural and technical competences at low cost (i.e. leveraging their home advantages). Although counterfactuals are notoriously difficult to establish, it should stand to reason that for several of our firms (e.g. those with elevated share of foreign sales), sole reliance on the domestic market was simply not a viable option. They thus entered relatively proximate markets during their first entry, which was triggered by being alerted of an opportunity from the owner's personal network. Charlie is the only exception to this last cross-case pattern in that it actively sought to create an opportunity through developing a new network. Charlie also poses a further exception, as it is our only case

**Table 2**  
Sources and types of knowledge.

	Technological knowledge	Market knowledge	Internationalization knowledge
Direct experience	Customers (A, B, D, E, G, I, L) Sales offices in host markets (A, B)	Customers (A, C, E, G, H, I, K, L, O, T, U) Prospecting (D, S) Sales offices in host markets (A, B)	
Vicarious experience	Contractors in host markets (C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, T, U, V) Partners in targeted markets (A, B) Licensees (R, C) Partners in home market (O)	Partners in targeted markets (A, B) Licensees (R, C) Contractor's network in host markets (E, H) ICT firms internationalization club (I) General manager's foreign network (A) General manager's local network (B)	
Grafted experience		Recruited director in host market (A) Recruited staff in host market (A, B)	
External search		Market databases and reports (A, B)	
Internal information			

where the same entry mode has been used more than once.

In the remaining paragraphs of this section we delve deeper into their cases using verbatim quotations to provide insights on the key dynamic interactions that have taken place in each case, and which resulted to the knowledge configurations (established in Section 4.1). In particular, the discussion will draw attention to their lack of IK, and conclude with a summary of what these SMEs used instead during their continued engagement with internationalization.

Alpha entered three different markets using a different mode of entry each time. This suggests that any IK that could have been developed proactively, or reactively, from each of these entries would have been of limited benefit as there is little that is generic across the markets and/or modes of entry. In particular, they internationalized at birth with an FDI to Rwanda to provide software as part of a successful bid by a French hardware company with which the owner of Alpha had prior experience. The general manager affirms:

*'We made our first internationalization by chance through a French friend who brought us a deal in Rwanda...He trusted me and moreover we had technical knowledge of what we were asked for...We also speak French which helps us communicate easily with our customers. We decided to make a very small branch there to be a base for expansion to other countries in the region. The software developed in Rwanda had become a reference to show to potential customers elsewhere in Francophone Africa.'*

So within three years they successfully exported to Cameroon, and two years later they signed a contract with the French company to provide such software to its customers in other African countries. Thus, developing IK seems redundant, as their first entry was by chance; their second entry utilised a different entry mode, while the internationalization nuances of their subsequent entries were taken care of by their French partners.

Moving to Bravo, which had 15 years of *'technical experience'* in its home market prior to its first export to Mauritania, and was triggered by an opportunity notified *'by a Tunisian friend'*. Prior to the notification of the opportunity they had never developed any IK, and upon notification of the opportunity the owner simply *'took the airplane and went to sign the deal'*. Two years later: *'we were solicited by potential customers from Libya... that operation was also pure opportunism like the previous one.'* Bravo, has not been actively seeking internationalization opportunities, not even after their first successful internationalization. This more than justifies their lack of developing IK proactively or reactively.

Delta internationalized at birth, and over a seven-year period it simply increased its control over the mode of servicing the same market. It entered France through a contract, improved its product/services through a customised website for potential French customers, and exports increased. A commercial branch (FDI) was then established to prospect more customers and seek sales in other European countries. Its owner stated: *'We started by subcontracting to learn and improve our financial situation to go to the next level: exporting. Having done that, we went to the third level, which is FDI. We are learning and growing.'* However, at the time of the interview, they had not developed any IK nor serviced any customers outside France. Given the relative success of deepening in the same market (55% of all sales) it would take a rather heroic argument to convince that the benefits of developing IK proactively or reactively could have outweighed its costs.

Echo started its internationalization also at birth, as a contractor to a French company due to some personal contacts. As a result, its technological knowledge got enhanced and over a three-year period its products and services got improved; to the point that Echo started exporting its products and services to Algeria with little product and/or organizational adaptation. As the Algerian market was growing, Echo subsequently altered its mode of servicing this market by opening a local branch. Although this greenfield FDI could be seen as more risky, it is also a more beneficial and controllable mode of servicing this growing market. As in the previous cases there seems little that Echo could have benefited from developing costly IK proactively or reactively.

Last, but not least, Charlie is somewhat exceptional as it is our only firm not to be using pre-existing social and business networks, but creating new ones for each entry as well as the only one to have used the same entry method more than once. Thus, it had the potential to benefit from the development of IK. That is, Charlie's case held the key to understanding why even firms with more than one entry do not develop IK even when theoretically it may appear cost-effective to do so. The answer lies in the combination: a) of good knowledge of the product/service offerings and the organizational arrangements that make them possible, b) aided by the fact that these are relatively standardized products whose final customers around the world are culturally similar, and perhaps most importantly, c) by the owner's centralization of decision making powers on all matters pertaining to internationalization and their direct and often sole involvement in initiating and/or completing entry. In the case of Charlie, every entry was preordained by the owner visiting international exhibitions, meeting the potential licensees and importers, and negotiating the terms. After that, given the adopted entry mode, it was mainly the licensees and importers that had to undertake the bulk of the work, leaving Charlie to manage the internationalization process by exception. Thus, the proactive and/or reactive development of IK in Charlie's case would have incurred unnecessary costs.

Following this key realisation, it was possible to see a similar pattern in all of our repeat internationalizers. For example, it was the owner that got notified (A, B), that got on the plane the next day (B), that had developed the product on the basis of which the first foreign entry was made (D, E).

So, if we were to summarise some of the key patterns and insights from this study, it appears that the development of IK may be counterproductive in cases where firms target one or a few markets and/or do not use the same entry mode more than once. Moreover, it appears that firms can maintain an active engagement with internationalization, even in the absence of IK. Therefore, we posit that it is possible to make up for knowledge shortages and in particular the absence of IK by:

- 1) Centralizing strategic and operational internationalization decisions to the owner/CEO. Reducing the demand for IK any other staff may have had if internationalization decisions were decentralized to them, while also reducing uncertainty for the firm as a whole.
- 2) Having CEOs/owners with extensive knowledge of the products/services and the arrangements involved in their production. It helps if products are standardized, but as our cases illustrate, given the right owner/CEO background this can also work with highly customised products. This also ameliorates any unforeseen side effects of (1).
- 3) Developing niche strategies using modes for entering and servicing the foreign markets that do not require extensive and/or on-going owner/CEO input; so that 1 and 2 above can be maintained indefinitely and inexpensively.
- 4) Following international (technological) standards. That is, making this kind of knowledge part of the company's lifeworld, and thus also reducing uncertainty as well as aiding 2 and 3 above.
- 5) Having social and/or professional networks the CEO/owner can trust (and vice versa) and/or operating in markets where the owner/CEO trusts third party enforcement (i.e. substituting IK with trust in social and/or formal relations).
- 6) Leveraging home advantages (such as low cost labour, cultural competencies) and available knowledge configurations to compensate for internationalization and/or other knowledge shortcomings.

## 5. Future research directions and limitations

Our study offers several new and viable avenues for future research of context-specific and practice-oriented studies of B2B internationalization knowledge. Starting with the prevalence of mono-destination/single entry internationalizers, which (as introduced in Section



3.2) has been identified in previous studies (e.g. Koubaa & EpKoubaa, 2012). This does not pose a particular limitation of our design. Such SMEs could have been excluded from our study, however, this would have been an arbitrary methodological decision, that would have resulted in omitting something integral to the research context and the manner in which SMEs from this context internationalize. Various reasons have been conjectured for this mono-destination/single entry empirical regularity, ranging from culture to resources (Koubaa & EpKoubaa, 2012; Marchesnay, 2011). Obviously some further research in this area is needed, which should also take into account the following.

The dominant perspective in this study has been knowledge/learning (resource-based) (Kuivalainen, Puumalainen, Sintonen, & Kyläheiko, 2010; Westhead, Wright, & Ucbasaran, 2001); with the relational/network perspective (Chetty & Blankenburg Holm, 2000; Coviello & Munro, 1995, 1997; Ibeh & Kasem, 2011; Moen et al., 2004) playing a more minor role. That is, where we felt the role played by social relations and/or business networks made a difference to our findings and theorizing, we made that explicit (e.g. cases A-E, with regards to IK compensation). Nonetheless, given our main focus on knowledge, the dominance of a knowledge perspective seems defensible in this study as a first step. Still, we are aware of the beneficial insights additional and multiple perspectives could bring; e.g. a combination of knowledge and network perspectives as in Sandberg (2014) and/or combining industry-strategy-institutional perspectives as in Yamakawa et al. (2008). Thus, we can foresee benefits in subsequent steps, from future studies in the areas detailed in this section, that combine such additional perspectives and/or from the experimentation with different dominant ones.

Although this study did not focus on the role played by policy, it surfaced during the interviews that three of our SMEs (A-C), received both hard (e.g. finance to attend international exhibitions) and soft (e.g. market information) policy support. They claimed that such policy support was very helpful, and had there been more policy support, they could have been able to further expand their activities abroad. As these three SMEs employed between 25 and 60 members of staff and made 60–70% of their sales in foreign markets, this provides some evidence, as suggested by Durmuşoğlu, Apfelthaler, Nayir, Alvarez, and Mughan (2012), that SMEs of these sizes can participate in such programmes with some positive results. Nonetheless, uncertainty still remains for SMEs at the smaller-end of the size spectrum (European Commission, 2015: 68; Neumann, 2006). Thus in line with Durmuşoğlu et al. (2012), further research is suggested with a more explicit focus on SMEs to establish their ability to benefit from policy support, as well as the kind of policy support that may be better suited to their predicaments.

The lack of IK evidence suggests that the notion itself needs to be problematized and placed under the microscope. It may be the case, somewhat contrary to the extant theorizing (e.g. Eriksson et al., 2000; Fletcher & Harris, 2012; Prashantham & Young, 2011) that IK may be tacit, and thus less costly, but still useful. Further research is thus suggested in tacit IK varieties. In general this study adopted the Fletcher and Harris (2012) framework that makes use of a rather coarse knowledge classification schema. Although not a limitation for this study, investigating the knowledge types popularised as pivotal in the extant theorizing we reviewed a number of finer classification schemes (e.g. Hilmersson, 2014; Park et al., 2015) that could be utilised in subsequent studies investigating more nuanced understandings of each knowledge type. For example, three of the four finer types of experiential knowledge identified by Hilmersson (2014: 813), namely: institutional, business, and social network knowledge can act as indicators of a firm's liability of foreignness, outsidership, and psychic distance providing a direct interface to the area of further research discussed next.

This study also encountered some interesting empirical regularities concerning the foreign market locations during first entry. For example, France (of which Tunisia was a former colony) with its large market,

familiar language and institutions has been, unsurprisingly, by far the most popular first foreign market entry destination (by D, E, G-H, J, M-P, T). Nonetheless, France only accounts for 50% of our firms' first market entry destination (i.e. no better than chance if these were to be decided by the toss of a coin). There were thus some notable exceptions. For example, Alpha's FDI in Rwanda as its first foreign market entry, or the US and Germany as the first entry destination for subcontracting by F and I respectively. We know that psychic distance applies at the level of the decision maker, and is a synthetic concept relating to cultural, structural, and language differences (Johanson & Vahlne, 2009; O'Grady & Lane, 1996). Outsidership on the other hand, is a firm level concept relating to a network of relationships (Johanson & Vahlne, 2009). In the case of SMEs, and our SMEs in particular, there is an extensive overlap between the individual and firm levels. Thus, further research is suggested on the interplay of these levels, the entrepreneur's perceptions of outsidership and psychic differences. Moreover, such research is also likely to provide useful insights for the demarcation of the relevant geography; as in the Born Global versus Regional debate (Lopez et al., 2009).

Finally, this study focused on a single home-country and industry context. In other industries, the use of technology for market entry may be alien, and there may be lack of shared technology platforms and absence of international standards that raise the barriers to foreign market entry. Moreover, other home-countries may have differing predicaments, history, and geography. As no two countries are the same Becker's (1990: 240) seminal work needs to be kept in mind, suggesting that the generalization of our findings is not about if the knowledge configurations in (knowledge-intensive B2B) SMEs internationalizing (from developing economies) are the same or vary in some manner that may be predicted on the basis of our theorizing. Instead the value in the generalization of our findings is about how variations in home-settings (e.g. levels of stability, resources, security, safety, development) create (unusual) knowledge configurations and (atypical) forms of internationalization (in terms of the extant theorizing), give birth to (idiosyncratic) solutions to compensate for knowledge shortages (and in general reduce uncertainty) while maintaining a continued successful (e.g. in terms of firm viability and share of revenues from exports) engagement with internationalization. These radically different cases (when measured up against the extant theorizing) produce enriched cognitive schemas that allow for "intellectual generalization even when settings are radically different" (Donmoyer, 2008: 372).

The feedback to earlier versions of this paper from a number of international audiences in France, Japan, the UAE, the USA, and the UK (MacVaugh, Mejri, & Tsagdis, 2014; Mejri, MacVaugh, & Tsagdis, 2015, 2016; Tsagdis, 2016; Tsagdis, Mejri, & MacVaugh, 2016a, 2016b) suggests that our findings can be extrapolated to the SME experiences from a number of industries and developing economies (e.g. traditional carpet making in Bangladesh, clothing in Colombia). Obviously, such impromptu and informal accounts can be no substitute for rigorous research. Thus, we cannot but suggest further research in this area across multiple industries and developing economies so to enhance the value in the generalizability of our findings.

## 6. Conclusions and implications

This paper answers ongoing calls to study SME internationalization from developing economies at a greater depth (Ibeh & Kasem, 2011; Kiss et al., 2012; Zahra & George, 2002). It provides one of the first accounts of the knowledge configurations of internationalizing (knowledge-intensive B2B) SMEs from a developing economy. These SMEs internationalize in the face of liabilities relating to their home-specificities, in the absence of IK held as fundamental so far (Fletcher et al., 2013; Kuivalainen et al., 2010) and in general with meagre access to knowledge sources.

Our study makes some of the first steps in redressing the limitations of extant theorizing by demarcating a space for the study of these

businesses. This is also why we embraced a maximum diversity approach to our sampling instead of theoretical sampling that relies on a fit with pre-conceived theoretical categories. As the research progressed, it became clear that in actual fact SMEs with knowledge shortages are the majority rather than the exception, at least, in our sample.

We found that our SMEs accessed few sources of knowledge and developed even fewer types of knowledge. In particular, none of them: a) used internal sources of information for achieving internationalization goals, b) used grafted experience and external search to acquire technical knowledge, and c) developed IK. Customers were the most common source of market knowledge, and together with contractors (in the respective host markets) the most common sources of technological knowledge.

Our repeat internationalizers (A–E), accounted for a large proportion of these patterns so we decided to investigate them further. We argued that developing IK proactively or reactively, given their internationalization history, would have been more of a cost and less of a benefit. We also delineated the mechanisms they used to compensate for their knowledge shortcomings (e.g. centralizing decision making, leveraging home advantages, trust).

We found that most of our firms remain in much the same nascent internationalization phase many years after first entry. The few that progress in their internationalization often do so on a quasi-serendipitous basis. Still, none of our interviewees indicated that they were unhappy with the results of their internationalization.

Therefore, our findings carry some implications for IMM theory/research, practice, and policy. Concerning theory/research, the limits of the extant theorizing were identified throughout this study and the way it needs to be augmented to take into account our findings was discussed. A mechanism was proposed to compensate for knowledge shortages and IK absence in particular. Moreover, a number of viable avenues for further research were delineated in the previous section.

Moving to IMM practice, owners/managers could vary the position of their SMEs in the trade-off between costly knowledge development and internationalization. This could prove beneficial in certain markets, which may not provide the high returns to justify the requisite knowledge development costs. In particular, for SMEs with meagre resources in underprivileged home-settings and/or at the periphery of their sector, the implication is that they can compensate for knowledge shortages and choose a position in the aforementioned trade-off that ensures a suitable knowledge flow to their organization. As we demonstrated, a number of idiosyncratic positions in these trade-offs are viable; as long as a dynamic linkage is maintained between the knowledge configurations (which could be missing several types and sources) of a firm and its continued engagement in the internationalization process.

There are also thus implications for policy makers. Even in developed economies the extent to which the smallest firm sizes benefit from a rather extensive and rich range of internationalization policy measures is still uncertain (European Commission, 2015: 68). We thus wish to suggest a more explicit policy focus on finding ways to help SMEs leverage their existing knowledge configurations more efficiently and effectively.

Finally, we wish to conclude this paper with a message of hope to aspiring entrepreneurs and policy makers around the world in that our study finds that it is viable for SMEs to internationalize with some measure of success (e.g. 56% of foreign sales on average across our sample), even in the face of severe (firm and home) liabilities.

## References

Aaboen, L., Laage-Hellman, J., Lind, F., Öberg, C., & Shih, T. (2016). Exploring the roles of university spin-offs in business networks. *Industrial Marketing Management*, 59(November), 157–166.

Almodóvar, P., & Rugman, A. M. (2015). Testing the revisited Uppsala model: Does

insidership improve international performance? *International Marketing Review*, 32(6), 686–712.

Autio, E., Sapienza, H. J., & Almeida, J. G. (2000). Effects of age at entry, knowledge intensity, and imitability on international growth. *Academy of Management Journal*, 43(5), 909–924.

Barkema, H. G., & Vermeulen, F. (1998). International expansion through start-up or acquisition: A learning perspective. *Academy of Management Journal*, 41(1), 7–26.

Becker, H. S. (1990). Generalizing from case studies. In E. Eisner, & A. Peshkin (Eds.). *Qualitative inquiry in education: The continuing debate* (pp. 233–242). New York: Teachers College Press.

Bellouma, M. (2011). The impact of working capital management on profitability: The case of small and medium-sized export companies in Tunisia. *Management International*, 15(3), 71–116.

Blomstermo, A., Eriksson, K., Lindstrand, A., & Sharma, D. (2004). The perceived usefulness of network experiential knowledge in the internationalizing firm. *Journal of International Management*, 10(3), 355–373.

Boisot, M., & Meyer, M. W. (2008). Which way through the open door? Reflections on the internationalization of Chinese firms. *Management and Organization Review*, 4(3), 349–365.

Borrás, S., & Tsagdis, D. (2008). *Cluster policies in Europe: Firms, institutions, and governance*. Cheltenham: Edward Elgar.

Brennan, L., & Garvey, D. (2009). The role of knowledge in internationalization. *Research in International Business and Finance*, 23(2), 20–133.

Buckley, P. J. (1989). Foreign direct investment by small and medium sized enterprises: The theoretical background. *Small Business Economics*, 1(2), 89–100.

Burgers, J., Van Den Bosch, F., & Volberda, H. (2008). Why new business development projects fail: Coping with the differences of technological versus market knowledge. *Long Range Planning*, 41(1), 55–73.

Casillas, J. C., Moreno, A. M., Acedo, F. J., Gallego, M. A., & Ramos, E. (2009). An integrative model of the role of knowledge in the internationalization process. *Journal of World Business*, 44(4), 311–322.

CEPEX (2009). *Annuaire professionnel des technologies de l'information et de la communication en Tunisie 2008/2009*. Tunis: Symboles Média.

Chetty, S., & Blankenburg Holm, D. (2000). Internationalisation of small to medium-sized manufacturing firms: A network approach. *International Business Review*, 9(1), 77–93.

Conseil du Marché Financier (2006). Communiqué du Conseil du Marché Financier relatif à la définition de la notion des petites et moyennes entreprises opérant dans les secteurs libres à la constitution au sens de l'article 21 bis du Décret N° 77-608 du 27 Juillet 1977. *Bulletin du CMF 2588, Tunis*.

Coviello, N. E., & Munro, H. (1995). Growing the entrepreneurial firm: Networking for internal market development. *European Journal of Marketing*, 29(7), 49–61.

Coviello, N. E., & Munro, H. (1997). Network relationships and the internationalisation process of small software firms. *International Business Review*, 6(4), 361–386.

Davies, C. (1999). *Reflexive ethnography: A guide to researching selves and others*. London: Routledge.

De Clercq, D., Danis, W. M., & Dakhli, M. (2010). The moderating effect of institutional context on the relationship between associational activity and new business activity in emerging economies. *International Business Review*, 19(1), 85–101.

Deligianni, I., Voudouris, I., & Lioukas, S. (2015). Growth paths of small technology firms: The effects of different knowledge types over time. *Journal of World Business*, 50(3), 491–504.

Descotes, R., & Walliser, B. (2010). The impact of entry modes on knowledge resource and the international performance of SMEs. *Management International*, 15(1), 73–110.

Dhanaraj, C. A., & Beamish, P. W. (2003). Resource-based approach to the study of export performance. *Journal of Small Business Management*, 41(3), 242–261.

Domnayer, R. (2008). Generalizability. In L. Given (Ed.). *The SAGE encyclopedia of qualitative research methods* (pp. 371–372). Thousand Oaks, CA: Sage.

Dubois, A., & Gadde, L. E. (2002). Systematic combining: An abductive approach to case research. *Journal of Business Research*, 55(7), 553–560.

Dubois, A., & Gadde, L. E. (2014). "Systematic combining"—A decade later. *Journal of Business Research*, 67(6), 1277–1284.

Durmuşoğlu, S. S., Apfelthaler, G., Nayir, D. Z., Alvarez, R., & Mughan, T. (2012). The effect of government-design export promotion service use on small and medium-sized enterprise goal achievement: A multidimensional view of export performance. *Industrial Marketing Management*, 41(4), 680–691.

Eisenhardt, K. M., & Graebner, M. E. (2007). Theory building from cases: Opportunities and challenges. *Academy of Management Journal*, 50(1), 25–32.

Eriksson, K., Johanson, J., Majkgård, A., & Sharma, D. D. (1997). Experiential knowledge and cost in the internationalization process. *Journal of International Business Studies*, 28(2), 337–360.

Eriksson, K., Majkgård, A., & Sharma, D. D. (2000). Path dependence and knowledge development in the internationalization process. *Management International Review*, 40(4), 307–328.

European Commission (2015). *Internationalisation of European SMEs: Final report*. Brussels: Entrepreneurship Unit, Directorate-General for Enterprise and Industry. [online] Available at <http://ec.europa.eu/DocsRoom/documents/10008/attachments/1/translations/>, Accessed date: 10 May 2016.

Fernhaber, S. A., McDougall-Covin, P. P., & Shepherd, D. A. (2009). International entrepreneurship: Leveraging internal and external knowledge sources. *Strategic Entrepreneurship Journal*, 3(4), 297–320.

Fletcher, M., & Harris, S. (2012). Knowledge acquisition for the internationalization of the smaller firm: Content and sources. *International Business Review*, 21(4), 631–647.

Fletcher, M., Harris, S., & Richey, R. G. (2013). Internationalization knowledge: What, why, where, and when? *Journal of International Marketing*, 21(3), 47–71.

Golden, B. R. (1992). The past is the past-or is it? The use of retrospective accounts as indicators of past strategy. *Academy of Management Journal*, 35(4), 548–560.

- Golden, B. R. (1997). Further remarks on retrospective accounts in organizational and strategic management research. *Academy of Management Journal*, 40(5), 1243–1252.
- Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In N. K. Denzin, & Y. S. Lincoln (Eds.). *Handbook of qualitative research* (pp. 105–117). Thousand Oaks, CA: Sage.
- Halineen, A., & Törnroos, J. A. (2005). Using case methods in the study of contemporary business networks. *Journal of Business Research*, 58(9), 1285–1297.
- Hilmersson, M. (2014). Experiential knowledge types and profiles of internationalising small and medium-sized enterprises. *International Small Business Journal*, 32(7), 802–817.
- Huber, G. P. (1991). Organizational learning: The contributing processes and the literature. *Organization Science*, 2(1), 88–115.
- Ibeh, K., & Kasem, L. (2011). The network perspective and the internationalization of small and medium sized software firms from Syria. *Industrial Marketing Management*, 40(3), 358–367.
- Inemek, A., & Matthyssens, P. (2013). The impact of buyer–supplier relationships on supplier innovativeness: An empirical study in cross-border supply networks. *Industrial Marketing Management*, 42(4), 580–594.
- Johanson, J., & Vahlne, J. E. (1977). The internationalisation process of the firm: A model of knowledge development and increasing foreign market commitments. *Journal of International Business Studies*, 8(1), 23–32.
- Johanson, J., & Vahlne, J. E. (2009). The Uppsala internationalization process model revisited: From liability of foreignness to liability of outsidership. *Journal of International Business Studies*, 40(9), 1411–1431.
- Karlsen, T., Silseth, P. R., Benito, G. R. G., & Welch, L. S. (2003). Knowledge, internationalization of the firm, and inward–outward connections. *Industrial Marketing Management*, 32(5), 385–396.
- Khemakhem, R. (2010). Explaining the entry mode choice among Tunisian exporting firms: Development and test of an integrated model. *European Journal of Marketing*, 44(1/2), 223–244.
- Kiss, A. N., & Danis, W. M. (2008). Country institutional context, social networks, and new venture internationalization speed. *European Management Journal*, 26(6), 388–399.
- Kiss, A. N., Danis, W. M., & Cavusgil, S. T. (2012). International entrepreneurship research in emerging economies: A critical review and research agenda. *Journal of Business Venturing*, 27(2), 266–290.
- Knight, G., & Cavusgil, S. (2004). Innovation, organizational capabilities, and the born-global firm. *Journal of International Business Studies*, 35(2), 124–141.
- Kogut, B., & Zander, U. (1993). Knowledge of the firm and the evolutionary theory of the multinational corporation. *Journal of International Business Studies*, 24(4), 625–645.
- Koubaa, Y., & EpKoubaa, A. E. (2012). Determinants of Tunisian SMEs exporting behavior: An empirical investigation. *Journal of Global Business and Technology*, 8(1), 46–59.
- Kuivalainen, O., Puumalainen, K., Sintonen, S., & Kyläheiko, K. (2010). Organisational capabilities and internationalisation of the small and medium-sized information and communications technology firms. *Journal of International Entrepreneurship*, 8(2), 135–155.
- Kundu, S. K., & Katz, J. A. (2003). Born-international SMEs: Bi-level impacts of resources and intentions. *Small Business Economics*, 20(1), 25–47.
- Li, J. J. (2008). How to retain local senior managers in international joint ventures: The effects of alliance relationship characteristics. *Journal of Business Research*, 61(9), 986–994.
- Lindsay, V., Rod, M., & Ashill, N. (2017). Institutional and resource configurations associated with different SME foreign market entry modes. *Industrial Marketing Management*. <http://dx.doi.org/10.1016/j.indmarman.2017.07.014>.
- Lopez, L. E., Kundu, S. K., & Ciravegna, L. (2009). Born global or born regional? Evidence from an exploratory study in the Costa Rican software industry. *Journal of International Business Studies*, 40(7), 1228–1238.
- MacVaugh, J. A., Mejri, K., & Tsagdis, D. (2016). Knowledge and SME internationalisation: A developing economy perspective. *Annual Tokyo business research conference Tokyo, Japan: Waseda University* (15–16/12/14).
- Madsen, T. K., & Servais, P. (1997). The internationalization of born globals: An evolutionary process? *International Business Review*, 6(6), 561–583.
- Marchesnay, M. (2011). Fifty years of entrepreneurship and SME: A personal view. *Journal of Small Business and Enterprise Development*, 18(2), 352–365.
- Maxwell, J. A., & Chmiel, M. (2014). Generalization in and from qualitative analysis. In U. Flick (Ed.). *The SAGE handbook of qualitative data analysis* (pp. 540–553). London: Sage.
- Mejri, K., MacVaugh, J. A., & Tsagdis, D. (2015). SME internationalization knowledge: A developing economy perspective. *18th McGill international entrepreneurship conference on new frontiers in international entrepreneurship Al-Ain, UAE: United Arab Emirates University* (27/02–02/03/15).
- Mejri, K., MacVaugh, J. A., & Tsagdis, D. (2016). SME internationalisation from a developing economy: Knowledge and pathways. *Management department reading group research seminar Talence, France: KEDGE Business School* (11/02/16).
- Menzies, T. V., Brenner, G. A., & Filion, L. J. (2003). Social capital, networks and ethnic minority entrepreneurs: Transnational entrepreneurship and bootstrap capitalism. In H. Etamad, & R. Wright (Eds.). *Globalization and entrepreneurship* (pp. 125–151). Cheltenham: Edward Elgar.
- Meyer, K., Estrin, S., Bhaumik, S., & Peng, M. (2009). Institutions resources and entry strategies in emerging economies. *Strategic Management Journal*, 30(1), 61–80.
- Miller, C. C., Cardinal, L. B., & Glick, W. H. (1997). Retrospective reports in organizational research: A re-examination of recent evidence. *Academy of Management Journal*, 40(1), 189–204.
- Miner, A. S., Michael, P., Ciuchta, P., & Yan, G. (2008). Organizational routines and organizational learning. In M. C. Becker (Ed.). *Handbook of organizational routines* (pp. 152–186). Cheltenham: Edward Elgar.
- Ministry of Communication Technologies and Digital Economy (2015). Investors in ICT industry in Tunisia. [online] Available at <http://www.mincom.tn/index.php?id=1570> >, Accessed date: 21 June 2015.
- Moen, Ø., Gavlen, M., & Endresen, I. (2004). Internationalization of small, computer software firms: Entry forms and market selection. *European Journal of Marketing*, 38(9–10), 1236–1251.
- Neumann, A. (2006). Strategies of ICT firms in developing countries: Strategic group analysis on Tunisia's software and IT service industry. *M@n@gement*, 9(1), 1–42.
- Nguyen, T. V., Ngoc, T. B., & Bryant, S. E. (2013). Sub-national institutions, firm strategies, and firm performance: A multilevel study of private manufacturing firms in Vietnam. *Journal of World Business*, 48(1), 68–76.
- Nummela, N., Saarenketo, S., & Puumalainen, K. (2004). A global mindset—A prerequisite for successful internationalization. *Canadian Journal of Administrative Sciences*, 21(1), 51–64.
- OECD (2012). *Investment policy reviews: Tunisia*. Paris: OECD publishing.
- O'Grady, S., & Lane, H. W. (1996). The psychic distance paradox. *Journal of International Business Studies*, 27(2), 309–333.
- Oviatt, B., & McDougall, P. P. (1994). Toward a theory of international new ventures. *Journal of International Business Studies*, 25(1), 45–64.
- Park, S., LiPuma, J. A., & Prange, C. (2015). Venture capitalist and entrepreneur knowledge of new venture internationalization: A review of knowledge components. *International Small Business Journal*, 33(8), 901–928.
- Pérez, L., & Cambra-Fierro, J. (2015). Value generation in B2B contexts: The SMEs' perspective. *European Business Review*, 27(3), 297–317.
- Polit, D. F., & Beck, C. T. (2010). Generalization in quantitative and qualitative research: Myths and strategies. *International Journal of Nursing Studies*, 47(11), 1451–1458.
- Prashantham, S., & Young, S. (2011). Post-entry speed of international new ventures. *Entrepreneurship Theory and Practice*, 35(2), 275–292.
- Rao, S., & Perry, C. (2003). Convergent interviewing to build a theory in under researched areas: Principles and an example investigation of internet usage in inter-firm relationships. *Qualitative Market Research*, 6(4), 236–247.
- Saarenketo, S., Puumalainen, K., Kyläheiko, K., & Kuivalainen, O. (2008). Linking knowledge and internationalisation in small and medium-sized enterprises in the ICT sector. *Technovation*, 28(9), 591–601.
- Sandberg, S. (2014). Experiential knowledge antecedents of the SME network node configuration in emerging market business networks. *International Business Review*, 23(1), 20–29.
- Saunders, M., Lewis, P., & Thornhill, A. (2012). *Research methods for business students* (6th ed.). Harlow: Pearson.
- Schwens, C., Eiche, J., & Kabst, R. (2011). The moderating impact of informal institutional distance and formal institutional risk on SME entry mode choice. *Journal of Management Studies*, 48(2), 330–351.
- Schwens, C., & Kabst, R. (2009). How early opposed to late internationalizers learn: Experience of others and paradigms of interpretation. *International Business Review*, 18(3), 509–522.
- Sullivan, D. M., & Marvel, M. R. (2011). Knowledge acquisition, network reliance, and early-stage technology venture outcomes. *Journal of Management Studies*, 48(6), 1169–1193.
- Swedberg, R. (2016). Before theory comes theorizing or how to make social science more interesting. *The British Journal of Sociology*, 67(1), 5–22.
- Tang, Y. K. (2011). The influence of networking on the internationalization of SMEs: Evidence from internationalized Chinese firms. *International Small Business Journal*, 29(4), 374–398.
- Thai, M. T. T., & Chong, L. C. (2008). Born-global: The case of four Vietnamese SMEs. *Journal of International Entrepreneurship*, 6(2), 72–100.
- Tsagdis, D. (2016). Internationalization pathways and knowledge of small and medium-sized information and communications technology firms: A developing economy perspective. *Regional and international business research group seminar Kingston-Upon-Hull, UK: University of Hull Business School* (14/03/16).
- Tsagdis, D., Mejri, K., & MacVaugh, J. A. (2016a). SME internationalization knowledge: A developing economy perspective. *Academy of management 76th annual conference, Anaheim, CA, USA* (5/08–09/08/16).
- Tsagdis, D., Mejri, K., & MacVaugh, J. A. (2016b). Knowledge cost and SME internationalisation from a developing economy. *Academy of international business annual conference, New Orleans, LA, USA* (27/06–30/06/1).
- Tsang, E. W. K. (2014). Generalizing from research findings: The merits of case studies. *International Journal of Management Reviews*, 16(4), 369–383.
- Uncles, M. D., & Kwok, S. (2013). Designing research with in-built differentiated replication. *Journal of Business Research*, 66(9), 1398–1405.
- Vissak, T., Zhang, X., & Ukrainski, K. (2012). Successful born globals without experiential market knowledge: Survey evidence from China. In M. Gabriellsson, & V. H. Kirpalani (Eds.). *Handbook of research on born globals* (pp. 353–368). Cheltenham: Edward Elgar.
- Vissak, T., & Francioni, B. (2013). Serial nonlinear internationalization in practice: A case study. *International Business Review*, 22(6), 951–962.
- Voudouris, I., Dimitratos, P., & Salavou, H. (2011). Entrepreneurial learning in the international new high technology venture. *International Small Business Journal*, 29(3), 700–726.
- Human Rights Watch (2008). Tunisia: Events of 2008. [online] Available at <https://www.hrw.org/world-report/2009/country-chapters/tunisia>, Accessed date: 3 May 2017.
- Weerawardena, J., Mort, G., & Liesch, P. (2017). Capabilities development and deployment activities in born global B-to-B Firms for early entry into international markets. *Industrial Marketing Management*. <http://dx.doi.org/10.1016/j.indmarman.2017.06.004>.
- Weick, K. E. (1995). What theory is not, theorizing is. *Administrative Science Quarterly*,

- 40(3), 385–390.
- Welch, L. S., Benito, G. R. G., & Petersen, B. (2007). *Foreign operation methods: Theory, analysis, strategy*. Cheltenham: Edward Elgar.
- Westhead, P., Wright, M., & Ucbasaran, D. (2001). The internationalization of new and small firms: A resource-based view. *Journal of Business Venturing*, 16(4), 333–358.
- Wiklund, J., & Shepherd, D. (2003). Aspiring for, and achieving growth: The moderating role of resources and opportunities. *Journal of Management Studies*, 40(8), 1919–1941.
- World Bank (2015). Tunisia overview. [online] Available at <http://www.worldbank.org/en/country/tunisia> >, Accessed date: 21 June 2015.
- World Economic Forum (2009). *The global competitiveness report 2009–2010*. Geneva: World Economic Forum.
- World Economic Forum (2012). Arab world competitiveness report 2011–2012. [online] Available at [http://www3.weforum.org/docs/wef\\_awc\\_report\\_2011-12.pdf](http://www3.weforum.org/docs/wef_awc_report_2011-12.pdf) >, Accessed date: 21 June 2015.
- Yamakawa, Y., Peng, M. W., & Deeds, D. L. (2008). What drives new ventures to internationalize from emerging to developed economies? *Entrepreneurship Theory and Practice*, 32(1), 59–82.
- Yin, R. K. (2009). *Case study research: Design and method*. London: Sage.
- Zahra, S. A., & George, G. (2002). International entrepreneurship: The current status of the field and future research agenda. In M. A. Hitt, R. D. Ireland, S. M. Camp, & D. L. Sexton (Eds.). *Strategic entrepreneurship: Creating a new mindset* (pp. 255–288). Oxford: Blackwell.
- Zahra, S. A., Ireland, R. D., & Hitt, M. A. (2000). International expansion by new venture firms: International diversity, mode of market entry, technological learning and performance. *Academy of Management Journal*, 43(5), 925–950.
- Zaiem, I., & Zghidi, A. B. Y. (2011). Product adaptation strategy and export performance: The impacts of the internal firm characteristics and business segment. *Contemporary Management Research*, 7(4), 291–312.
- Zhu, H., Hitt, M., & Tihanyi, L. (2007). The internationalization of SMEs in emerging economies: Institutional embeddedness and absorptive capacities. *Journal of Small Business Strategy*, 17(2), 1–26.

# Understanding the Relationship between Language Ability and Plagiarism in Non-native English Speaking Business Students

Mike Perkins<sup>1</sup>  · Ulas Basar Gezgin<sup>2</sup> · Jasper Roe<sup>1</sup>

© Springer Nature B.V. 2018

**Abstract** Despite a continued focus exploring the factors related to plagiarism, the relationship between English language ability and plagiarism occurrences is not fully understood. Multiple studies involving student or faculty self-reporting of plagiarism have shown that students often claim English language ability is one of the main reasons why they commit plagiarism offences; however, little research has tested these claims in a rigorous, quantitative manner. This paper presents the findings of an analysis of data collected in a private, international university located in Vietnam, from non-native English speaking students studying business degrees. Analysis of the data builds on previous studies by showing that there are statistically significant differences in the English language abilities of students who have previously committed plagiarism offences, compared to students who have not, suggesting that programmes designed to improve the academic English skills of non-native English speaking students may help reduce incidences of plagiarism.

**Keywords** Plagiarism · Academic misconduct · English language ability · Non-native English speaker (NNES) · English as a second language · Turnitin

## Introduction

Over the last several decades, there has been a clear rise in the number of overseas students studying in international universities (Burns 1991; Verbik and Lasanowski 2007), as well as an

---

✉ Mike Perkins  
mgperkins@gmail.com; <https://www.linkedin.com/in/mgperkins>

Ulas Basar Gezgin  
ulasbasar@gmail.com

Jasper Roe  
jasper.r@buv.edu.vn; <https://www.linkedin.com/in/jasper-roe-894571102>

<sup>1</sup> British University Vietnam, 193 Ba Trieu, Hanoi, Vietnam

<sup>2</sup> Duy Tan University, 54 Nguyen Van Linh St., Danang City, Vietnam

increasing number of private offshore universities offering degrees accredited by foreign institutions in overseas countries (Altbach and Knight 2007). Due to this growing internationalisation of higher education, all institutions need to be aware of the different needs that students who are non-native English speakers (NNES) have when compared to the needs of native English speakers (NES) when studying in an academic environment where English is the language of instruction and assessment (Miller and Endo 2004; Reid 1987).

Coupled with these required changes is the problem of student plagiarism in these groups, particularly a lack of understanding as to the factors that lead to NNES students engaging in plagiarism behaviours. As a number of studies (detailed below) suggest that there is a suggested link in the literature between English language ability and plagiarism, any institution which has NNES students enrolled in its programmes must be aware of these links, and take steps in order to support and educate these students to ensure that plagiarism incidents are minimised wherever possible. We do not suggest that simply because a student is a NNES that they are more likely to plagiarise, but it is more likely that there will be a wider range of English language abilities in this group of students when compared to NES students.

By clearly identifying the relationship between English language ability and plagiarism amongst NNES students, this research sets out to assist institutions who have populations of NNES students present. In doing this, we demonstrate that students whose English language abilities are weak may require more support in this area if institutions are to help them avoid the pitfalls of plagiarism and be successful in their academic journeys. In order to do this, this research explores the case of an offshore private institution where English is the language of instruction. We present the statistical analysis of data which the institution has collected as part of its plagiarism reduction initiatives, including the English language ability of students. This data is then matched to student records of plagiarism to explore whether there is a difference in the English language abilities of students who plagiarise compared to students who do not plagiarise. We begin by presenting the current state of the literature in this area to highlight the need for further research, before detailing the methods and results of the present study.

## Literature Review

Before we explore the factors leading to plagiarism occurring, we must first explain what we mean by this term. Although authors including Bennett et al. (2011), Park (2004) and Mozgovoy et al. (2010) have presented detailed categories of what constitutes plagiarism, for the purposes of this study, we define plagiarism as ‘the act of submitting an assignment that belongs partially or completely to somebody else without due reference’. For the purpose of the data analysis, a plagiarising student is one who, at some point during their study, has had one or more pieces of work identified as worthy of investigation under suspicion of plagiarism, and has been found guilty of this offence by an academic misconduct panel. This plagiarism may be a deliberate, transgressive attempt to gain an unfair advantage, or an accidental, non-transgressive offence which has occurred due to either a lack of knowledge or misunderstanding of the relevant rules and conventions of academic writing. As it is not possible to determine with any degree of confidence which type of offence has occurred during the plagiarism investigations, we do not differentiate between these two categories of plagiarism in this study.

A number of empirical studies, both quantitative and qualitative, have sought to identify the factors which may cause students to be accused of plagiarism, regardless of intent. Excluding the English language ability of students, these factors include:

- Poor time management/procrastination
- Fear of failure/pressures to succeed
- Wish to improve grades
- Personal/family problems
- Lack of knowledge of referencing/plagiarism policies
- Misunderstanding as to what constitutes plagiarism
- Attempting to keep up with the demands of instructors
- Lack of understanding of, or interest in the material
- Likelihood of being caught or penalties being applied
- Not considering plagiarism to be a problem
- Broader cultural views relating to plagiarism
- Personality traits
- Level of study and academic integration in the university
- Ease of accessing online materials
- Gender

The above list is a summary of the factors shown to have had some effect on students' propensity to plagiarism and is drawn from Batane (2010), Bennett (2005), Currie (1998), Fazel and Kowkabi (2013), Flowerdew and Li (2007), Goh (2015), Guo (2011), Hensley et al. (2013), Howard et al. (2010), Jones (2011), Martin (2011), Martin et al. (2011) Okoro (2011), Payan et al. (2010), Pecorari (2003, Pennycook (1996), Stowers and Hummel (2011), Walker (2010), and Walker and White (2014).<sup>1</sup> Regarding English language ability, this has been highlighted by multiple authors as a potential factor which is related in some way to plagiarism offences, especially in NNES students.

In research carried out in institutions where NNES and NES students are jointly presented in the studies, language abilities appear as one reason behind plagiarism, but not the primary reason (Goh 2015; Walker 2010). However, when the focus of the discussion relates to NNES students, the primary reason given for plagiarism occurring appears to be the lack of language ability (Currie 1998; Bretag 2007; Chen and Ku 2007). While it is not in the scope of this paper to identify causal factors, it is possible to hypothesize reasons that may contribute to this relationship. Jones' (2011) research for example, found that a lack of understanding and inability to comprehend information was a contributing factor in both unintentional and intentional plagiarism. It is therefore possible that a lower ability in the target language correlates with a lower ability to comprehend and understand information. This may lead to students engaging in transgressive, deliberate plagiarism by engaging in contract cheating/passing off the work of others as their own, or alternatively, to unintentional plagiarism through a lack of understanding of academic policies and regulations. Identifying causal factors, through fraught with difficulties, is therefore a promising avenue for future research.

Studies which have explored plagiarism with specific reference to NNES students and found a negative relationship between levels of English language ability and plagiarism

<sup>1</sup> Although we will not discuss these other factors in more detail here, for a thorough review of the broader plagiarism literature see Pecorari and Petrić (2014).

include Bretag (2007), Li (2015), Pennycook (1996), Marshall and Garry (2006), and Chen and Ku (2007). However, many studies exploring this relationship are based on self-reported data from both students (Goh 2015; Jones 2011) and faculty (Abasi and Graves 2008; Bretag 2007; Li 2015; Walker and White 2014). Attempting to unpick any direct relationship between language ability and plagiarism in this way is challenging for three reasons. Firstly, there are methodological limitations to asking faculty to provide reasons for student plagiarism, as it is not possible for faculty to know with any degree of certainty why a particular student has engaged in plagiarism. Secondly, if a student is asked to provide explanations of why they have committed plagiarism, the social desirability bias may persuade the student to explain this as a language/understanding issues, when the real reason may be related to other factors explored above. Finally, in studies where the language abilities of student have not actually been tested, explanations from students that low levels of language abilities are a factor behind plagiarism may represent a lack of confidence in using academic English as opposed to a lack of ability: a student may have sufficient language skills to create an assessment without any assistance, but if they are not confident in their skills, they may be more likely to seek out alternative methods of completing assignments.

All of the studies identified above have found a generally negative relationship between English language ability and plagiarism, however Soto et al. (2004) found a positive relationship between these factors. They performed a chi-square test of independence in order to analyse relationships between plagiarism in student submissions, and responses to demographic questionnaires, and found that NES students were more likely to engage in plagiarism than NNES students. The reason why NNES students engaged in less plagiarism was explained as a lower level of ability in 'blending their writing with improperly paraphrased technical text' (p. 47). Although this study explored differences in levels of plagiarism between NES and NNES speakers, it did not seek to directly test differences in English language abilities, but relied upon the categorisations of whether students spoke another language at home, or whose first language was not English as a proxy for whether or not a student was a native speaker of English. As multilingualism is certainly not a factor which we are suggesting is associated with plagiarism, we do not accept this as suitable evidence of the suggested negative relationship between language and plagiarism.

Following our review of the current research, we have noticed a number of gaps in the literature. Firstly, there appear to be no studies which have specifically sought to explore the relationship between language ability and plagiarism as a key research objective. All studies presenting any links between language abilities and plagiarism do this as one of a number of factors associated with plagiarism. Although this is helpful in gaining an overall understanding of the factors relating to plagiarism, without collecting the appropriate data relating to how English language ability affects plagiarism, it is difficult to carry out a rigorous analysis of this particular factor. Pecorari and Petrić (2014), highlight the focus in plagiarism-related research to use qualitative research methods rather than quantitative research methods to explore this area. After carrying out our review of the literature, we find this statement to be true, and see that the number of studies which use statistical techniques to explore the relationship between English language ability and plagiarism is extremely small. This suggests that the field could warrant being explored more thoroughly from the quantitative methodological perspective. With the exception of Soto et al. (2004) discussed above, we have identified no other studies using a quantitative approach, suggesting that the relationship being explored is not as clearly identified in the literature as it could otherwise be. Finally, none of the identified studies have used direct assessments of the English language capabilities of students in their research.



Instead, they use proxies of whether a student is a NNES as opposed to a NES (Soto et al. 2004), an international student as opposed to a home student (Walker 2010) or self-reported language difficulties (Goh 2015; Jones 2011). Without having objectively measured the English language ability of students, it is not possible to correctly identify any relationship between this, and incidences of plagiarism, due to the high likelihood of measurement error having occurred.

Based on the above identified gaps in the literature, we seek to determine what relationship exists between plagiarism offences committed by students and their tested English language ability. In doing so, we provide three key contributions to the literature:

1. This study is the first to directly examine the relationship between English language abilities of students and plagiarism thus enabling a closer exploration of any relationships present.
2. In using statistical methods to test these relationships we offer a methodological contribution by taking a quantitative approach as opposed to a qualitative approach to this problem.
3. By directly testing the English language ability of the students in the study and comparing this to recorded university plagiarism data, we offer a more accurate analysis of any relationship which may be present, as well as not relying on potentially inaccurate self-reported student responses with regard to plagiarism offences.

## Data Collection

British University Vietnam (BUV) is a private university operating since 2009 in Hanoi, Vietnam. The university offers a number of business-focused degree programmes which are awarded by British universities, including The University of London and Staffordshire University. The vast majority of students are Vietnamese nationals and Non-Native English Speakers (NNES). All students who begin a course of study have achieved an English language proficiency score, either an official IELTS preparation score, or an alternative English language qualification equivalent to an IELTS 6.0 with no sub-skill below 5.5.

In order to curb 'second-generation' plagiarism threats (Malesky Jr. et al. 2016), including ghostwriting, and to improve the English for Academic Purposes (EAP) skills of our students, BUV operates an Academic English Masterclass (AEM) module, compulsory for all students. This module focuses on teaching academic English skills including paraphrasing, locating and using sources effectively, and academic honesty. The module culminates in an exam under timed conditions, written by hand, and with the compulsory use of provided sources. As such, it is a wholly representative sample of their ability to utilise sources and synthesise information, as well as testing their grammatical and communicative writing ability.

This sample then acts as a 'control text' for comparison against future submitted assessments. While there may be discrepancy between a timed written exam and a long-form essay, and this is an acknowledged limitation of the initiative, comparison of the two texts as a 'fingerprint' is still revealing; ghostwritten papers tend to be markedly different in style, content, and expression. This therefore provides a degree of evidence (though not conclusive proof) either that the student is academically honest or has submitted plagiarised work.

These essays are marked with a framework inspired by, although different from, the International English Language Testing System (IELTS), produced under The British Council,

IDP Australia, and Cambridge English. This is then used to assign students a numerical score on a scale from 0 to 9. Further rationale for this system of grading is addressed in the discussion section of this paper.

The single numerical mark scoring system is essential in comparing submitted written work with work produced in the exam. As an example, if a student were to be assigned a mark of '4.0' in the controlled written assignment, yet submitted a piece of writing well above this level, at a '7.0' or above, this may be seen as reasonable grounds for suspicion of academic misconduct.

The marks of the AEM exam are then recorded by BUV's team of English for Academic Purposes (EAP) teachers in a database, marked and distributed to teaching faculty along with the marking criteria and rubric. Marking practices for consistency are employed, including group marking sessions, second marking practices, and regular training sessions.

Although these AEM exam results are used in order to detect any potential cases of contract cheating in the student body, for the purpose of this study, it is the AEM Assessment Scores which are relevant. Data relating to whether or not students have been found guilty of plagiarism offences were taken from university records of Academic Misconduct Panels which had been convened between August 2014 and February 2017. These panels are convened every academic semester following the grading period and are consistent in their membership. They evaluate all potential cases of plagiarism which have been highlighted by examiners during the grading process in order to determine whether plagiarism as defined by the standards of the university has occurred. Intent is not considered in the decision that a plagiarism offence has occurred, only in the punishment of the offence.

## Data Analysis

In order to determine whether students who had been caught committing plagiarism demonstrated any statistically significant differences in English language abilities from students who had not been caught plagiarising, records of the outcomes from academic misconduct panels were matched with the output from the AEM exams described above and conducted at the end of the April 2015 and October 2016 semesters. During these exams, 244 students had their English language ability tested, and they were assigned a band score modelled on, although not equivalent to, an IELTS band score. IELTS was selected as inspiration for the assessment grading framework for a number of reasons. Although it has been recognised that there are important differences between academic writing and the IELTS writing tasks (Moore and Morton 2005), there are many important similarities in register, tasks given, and grading criteria. Furthermore, IELTS provides a high-quality, generic framework for assessing writing tasks, encompassing task achievement, cohesion and coherence, lexical resource, and grammatical range and accuracy. For these purposes, a further category, of academic skills ability (including referencing and citation) was included in the marking rubric developed using an IELTS-inspired model. Finally, due to the English department's familiarity with the IELTS system of scoring, using a model inspired by this framework was considered to lead to greater internal consistency and harmonisation between markers, which was complemented with peer-marking sessions, training sessions, and second-marking practices.

Student ID numbers from plagiarism records were used to match up this data with the scores obtained by these students in the AEM exams. In order to ensure the anonymity of students, all names were removed from records of both plagiarism and language scores and only student ID numbers were used for the matching process. As some students had two

recorded AEM scores, in these cases, the highest AEM score was chosen in order to give a fairer estimate of the language skills the student was truly capable of attaining. As the focus of this test was on the language abilities of students whose first language was not English, all students whose first language was English was removed from the analysis by cross referencing ID numbers with university records. This only resulted in the removal of one case.

From these 243 recorded AEM scores, 67 plagiarism matches were found from the total record of 125 plagiarising students. The inability to find matching student records for all 125 cases was primarily due to some of the plagiarising students having graduated prior to the introduction of the AEM exams. Based on the AEM and plagiarism records available, students were split into two groups: students who had plagiarism offences recorded against them (plagiarisers), and students who had not been found to have committed plagiarism (non-plagiarisers). In order to test whether there were significant differences in the language abilities between the two groups, we performed a two-tail independent samples t-test (t-test) using IBM SPSS (Version 23).

## Statistical Analysis Results

Prior to carrying out the t-test, tests for outliers, variance and normality were carried out. Data are mean  $\pm$  standard deviation, unless otherwise stated. An independent-samples t-test was run to determine if there were differences between the English language abilities of students who were found to have previously committed plagiarism, compared to students who had not previously committed plagiarism. One outlier was found in the non-plagiarism group with an AEM score of 3.0. As the minimum English score for entry into BUVA is IELTS 6.0 or an equivalent English language qualification, this was judged a non-effort by the student concerned and the record was removed, leaving 175 non-plagiarising students, and 67 plagiarising students.

Normality of the AEM scores for both groups was assessed using z-scores, a Shapiro-Wilk test, and a graphical analysis of Q-Q plots. AEM z-scores were normally distributed for plagiarisers with a skewness of 2.048 (standard error = 0.293), and kurtosis of 0.29 (standard error = 0.578), and for non-plagiarisers with a skewness of 1.342 (standard error = 0.184), and kurtosis of -1.173 (standard error = 0.365). Graphical analysis of Q-Q plots also showed that data was approximately normally distributed, however, both groups failed to pass the Shapiro-Wilk test. Although t-tests have been shown to be robust to non-normally distributed data (Lumley et al. 2002; Heeren and D'Agostino 1987), a Mann Whitney-U test was also performed to confirm the results of the t-test.<sup>2</sup>

There was homogeneity of variances, as assessed by Levene's test for equality of variances ( $p = 0.082$ ), but due to the large differences in the sample sizes between the two groups Welch's t-test (Welch 1974) was used to conduct the analysis as recommended by Howell (2010).

The English language ability amongst the non-plagiarising students ( $6.21 \pm 0.98$ ) was higher than amongst the plagiarising students ( $5.85 \pm 0.83$ ), a statistically significant difference of 0.36 (95% CI, 0.111 to 0.605),  $t(140.632) = 2.86$ ,  $p = 0.005$ , effect size ( $d$ ) = 0.40.

<sup>2</sup> The Mann-Whitney U test showed that distributions of the IELTS scores for plagiarisers and non-plagiarisers were similar, as assessed by visual inspection. Median IELTS scores were statistically significantly higher in non-plagiarising students (6.0) than in plagiarising students (5.5),  $U = 4563.5$ ,  $z = -2.703$ ,  $p = 0.007$ .

Analysis from both the Welch t-test and the Mann Whitney-U test show that there are significant differences in language abilities between the two groups of students with students who committed plagiarism showing significantly lower levels of English abilities than students who were not found to have committed plagiarism.

## Discussion

As the extant literature suggests, our data clearly shows that the English language ability of students is negatively related to a student's propensity to commit plagiarism offences.

However, in order to interpret these results appropriately and therefore recommend appropriate intervention strategies, we must seek to understand *how* language ability is connected to plagiarism. It is possible that a lower English language ability correlates with a lower ability to comprehend and understand information. This may lead to students engaging in transgressive, deliberate plagiarism by engaging in contract cheating/passing off the work of others as their own, or alternatively, to unintentional plagiarism through a lack of understanding of academic policies and regulations.

A key consideration when interpreting the results of this study is therefore one of intent. If we assume that all students who plagiarise do this deliberately and are just 'caught in the act', this could give a different interpretation to any set of results than if we believe that all students who plagiarise do this unintentionally, and just needed more education as to what truly constitutes plagiarism. If we take the first view, we could interpret this as showing that plagiarising students with lower English language ability are more likely to decide to commit plagiarism than those whose English skills are higher. However, taking the second view would provide an alternative interpretation; that plagiarising students with poorer language skills are less likely to understand the academic regulations relating to plagiarism and therefore unintentionally commit plagiarism. Fazel and Kowkabi (2013) are optimistic with regard to unintentional plagiarism as they do not consider plagiarism as an ethical problem, but rather a writing problem. They believe that "*a student's inappropriate textual borrowing is not intentional unless proven otherwise*" (p.87). Although this view does not take into account intentional cheating practices such as contract cheating, it is interesting to consider that even though there may be clear evidence (in the eye of faculty) of plagiarism having taken place, the issue of intent to plagiarise should be considered when deciding on interventions to reduce plagiarism.

During the preliminary examination of the plagiarism records, it was clear from the explanations given by students that many of them did not realise what they were doing was wrong, and that their usage of other people's work was not permitted. Although it is certainly possible that these students understand the academic regulations perfectly well, this unintentional plagiarism is something that the AEM intervention was specifically designed to address by both improving the English language abilities of the students, as well as educating them on the academic standards that must be complied with. Unintentional plagiarism has been previously identified as a specific problem for NNES students in studies such as Deckert (1993), Fazel and Kowkabi (2013), Marshall and Garry (2006), Pecorari (2003) and Pennycook (1996) and has also been identified as an important point of consideration for plagiarism cases in general (Howard 1995; Sutherland-Smith 2005). In our set of results, the presence of students with strong English language capabilities (students with estimated AEM score bands of 7.0 and above) in the plagiarising group, suggests that the most likely scenario

is that the plagiarising students constitute a mix of some students who chose to commit plagiarism, and some who did this accidentally.

One important distinction that must be made when exploring plagiarism among NNES students is between cultural backgrounds and language abilities. Although many studies detailed in the literature review discuss language abilities as a factor leading to plagiarism, it is recognised that the cultural background of students may also have an effect on plagiarism views (Guo 2011; Hu and Lei 2016; Martin et al. 2011; Pennycook 1996; Stowers and Hummel 2011). Therefore, we must be careful not to conflate these two separate factors when exploring incidences of plagiarism amongst NNES students to ensure that when we see incidences of students committing plagiarism, this is not explained away as simply a language issue. These cultural aspects are also related to the causes of accidental plagiarism: whilst one student may borrow textually from other sources or engage in 'patchwriting' (Howard 1995) because of their inability to accurately express academic concepts in their own words, another may do so because they do not consider this textual borrowing to be a form of plagiarism (Pennycook 1996; Rinnert and Kobayashi 2005). In the present study, the enculturation aspects of the AEM programme could therefore be as effective in reducing plagiarism amongst students as the EAP elements of the programme.

Even if we accept the possibility that all of the plagiarising students intentionally committed plagiarism, the continued use of interventions such as the BUV Academic English Masterclass should serve to reduce this type of plagiarism by enabling students to communicate their own ideas in better ways, improve their language abilities and reduce many of the factors connected to plagiarism as discussed in the literature. At the time of analysis, only two semesters of the AEM programme had been run, therefore the potential future benefits of this programme are yet to be fully realised.

Aziz et al. (2012) highlight the difficulties present in communicating the ethical aspects of plagiarism to students, however in this case, the explanations and surprise expressed by many students in the plagiarising group suggest that many plagiarism incidences in BUV are unintentional plagiarism stemming from a lack of knowledge, as opposed to intentional plagiarism due to a lack of morals. Indeed, when confronted with their plagiarism, many students in the misconduct panels seem aghast that they were being accused of academic misconduct, despite freely admitting to having taken the work from other sources. Although the information the students receive throughout their time studying at BUV and in the AEM is designed to make them aware that plagiarism is not an acceptable academic practice, the continued presence of these unintentional plagiarisers suggest that this issue is not yet resolved. What is needed to resolve this may be a sustained institutional approach to improving awareness of what acceptable academic practice is, and what is not. The AEM initiative which BUV has been using serves to assist in this informational transfer, but also provides students with a genuine opportunity to improve their EAP skills as they progress through their university programme.

Due to the complex inter-relationships between language, intent and cultural issues discussed above, we do not believe that it is possible, or desirable, to completely separate language issues from these, and other potential factors which may be linked to plagiarism, and we do not seek to do so. Instead, the results of this research serve only to demonstrate that a lower level of English language ability does exist in students who plagiarise when compared to students who have not plagiarised (or have not been caught). Therefore improving the language ability of students may be of benefit in reducing incidents of plagiarism.

## Conclusion

With the exception of the research by Bennett (2005) utilising Partial Least Squares analysis, and Guo's (2011) study using Structural Equation Modelling, researchers using qualitative data from student or faculty are unable to fully determine which factors affect plagiarism the most, as respondents tend to offer many reasons as to why they plagiarise. By analysing language ability as a separate factor in this study, we clearly show the effect that this may have on students' propensity to plagiarise. This study is first of its type to demonstrate the negative relationship between English language ability and plagiarism through the use of tested English language ability, as opposed to student self-reporting of how their language ability is a factor leading to plagiarism.

Further research in this particular area could include the examination of whether there is any relationship between the severity of plagiarism (as identified by Turnitin) and the tested English language ability of students. Due to the non-linearity and non-normality of the data available from BUVA records, it was not possible to run any correlation analysis on the data from the plagiarising students ( $n = 45$ ). Transformation of the relevant variables was attempted in order to achieve this, but no transformations resulted in data suitable for analysis. As visual inspection of this data did not reveal any form of linear relationship between the two variables, despite the plagiarising students having significantly lower mean AEM scores than the non-plagiarising students, this could suggest that when a student commits a plagiarism offence (whether unintentionally or deliberately), their English language ability has no influence on how severe their plagiarism is. Although no firm conclusions can be drawn using this data set, we recommend that other researchers explore this particular area for confirmation of this theory. The higher education environment within Vietnam may also provide many other opportunities for exploration in this field. As this current research was performed in a private university with a British educational culture, it would be interesting to compare the data with that from a public university to explore whether this relationship between English language ability and plagiarism is also present in the wider student population of Vietnam.

Although this paper takes a quantitative methodological approach, we recognise the value of existing and future qualitative investigation in this field. Performing a deeper investigation into the relationship between language and plagiarism by carrying out interviews with students of differing language abilities would be beneficial in truly understanding why differences in language ability exist between plagiarising and non-plagiarising students.

The findings of our study suggests that one method to help reduce incidences of plagiarism is to develop the language skills of all students through initiatives designed to assist students in their EAP skills, such as that described in the AEM initiative by BUVA reported in this paper. Due to the increasing internationalisation of higher education, as well as the reliance on overseas students to make up student numbers on many programmes, ensuring a high quality experience by NNES students is becoming even more important. By reducing the likelihood of NNES students plagiarising (whether intentional or unintentional) and therefore being caught and punished for plagiarism offences, initiatives such as this may increase the recruitment and retention rates of NNES students. Understanding this may allow universities reliant on such groups of students to maintain future revenue streams whilst at the same time increasing the academic standards and rigour of all students. It is not enough, however, simply to create initiatives for 'International students' in an attempt to assist these students with plagiarism prevention. Rather, there needs to be a clear identification of student needs dependent on their culture, language skills and past experience of 'Western' notions of appropriate academic conduct.

## Compliance with Ethical Standards

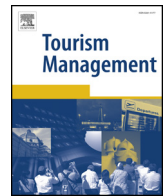
**Conflict of Interests** All authors were employed by the university in question during the time of authorship of the paper.

## References

- Abasi, A. R., & Graves, B. (2008). Academic literacy and plagiarism: conversations with international graduate students and disciplinary professors. *Journal of English for Academic Purposes*, 7(4), 221–233.
- Altbach, P. G., & Knight, J. (2007). The internationalization of higher education: motivations and realities. *Journal of Studies in International Education*, 11(3–4), 290–305.
- Aziz, J., Hashim, F., & Razak, N. A. (2012). Anecdotes of plagiarism: some pedagogical issues and considerations. *Asian Social Science*, 8(10), 29–34.
- Batane, T. (2010). Turning to Turnitin to fight plagiarism among university students. *Educational Technology & Society*, 13(2), 1–12.
- Bennett, R. (2005). Factors associated with student plagiarism in a post-1992 university. *Assessment & Evaluation in Higher Education*, 30(2), 137–162.
- Bennett, K. K., Behrendt, L. S., & Boothby, J. L. (2011). Instructor perceptions of plagiarism: are we finding common ground? *Teaching of Psychology*, 38(1), 29–35.
- Bretag, T. (2007). The emperor's new clothes: yes, there is a link between English language competence and academic standards. *People and Place*, 15(1), 13–21.
- Burns, R. B. (1991). Study and stress among first year overseas students in an Australian university. *Higher Education Research and Development*, 10(1), 61–77.
- Chen, T., & Ku, N. K. T. (2007). EFL students: Factors contributing to online plagiarism. In T. S. Roberts (Ed.), *Student plagiarism in an online world: Problems and solutions* (pp. 77–91). New York: IGI Global.
- Currie, P. (1998). Staying out of trouble: apparent plagiarism and academic survival. *Journal of Second Language Writing*, 7(1), 1–18.
- Deckert, G. D. (1993). Perspectives on plagiarism from ESL students in Hong Kong. *Journal of Second Language Writing*, 2(2), 131–148.
- Fazel, I., & Kowkabi, N. (2013). Students' source misuse in language classrooms: sharing experiences. *TESL Canada Journal*, 31(1), 86–95.
- Flowerdew, J., & Li, Y. (2007). Language re-use among Chinese apprentice scientists writing for publication. *Applied Linguistics*, 28(3), 440–465.
- Goh, E. (2015). Exploring underlying motivations behind extreme cases of plagiarism in tourism and hospitality education. *Journal of Hospitality and Tourism Education*, 27(2), 80–84.
- Guo, X. (2011). Understanding student plagiarism: an empirical study in accounting education. *Accounting Education*, 20(1), 17–37.
- Heeren, T., & D'Agostino, R. (1987). Robustness of the two independent samples t-test when applied to ordinal scaled data. *Statistics in medicine*, 6(1), 79–90.
- Hensley, L. C., Kirkpatrick, K. M., & Burgoon, J. M. (2013). Relation of gender, course enrollment, and grades to distinct forms of academic dishonesty. *Teaching in Higher Education*, 18(8), 895–907.
- Howard, R. M. (1995). Plagiarisms, authorships and the academic death penalty. *College English*, 57(7), 788–806.
- Howard, R. M., Serviss, T., & Rodrigue, T. K. (2010). Writing from sources, writing from sentences. *Writing and Pedagogy*, 2(2), 177–192.
- Howell, D. C. (2010). *Statistical methods for psychology*. (7th ed.). Belmont: Wadsworth.
- Hu, G., & Lei, J. (2016). Plagiarism in English academic writing: a comparison of Chinese university teachers' and students' understandings and stances. *System*, 56, 107–108.
- Jones, D. L. R. (2011). Academic dishonesty: are more students cheating? *Business Communication Quarterly*, 74(2), 141–150.
- Li, Y. (2015). Academic staff's perspectives upon student plagiarism: a case study at a university in Hong Kong. *Asia Pacific Journal of Education*, 35(1), 14–26.
- Lumley, T., Diehr, P., Emerson, S., & Chen, L. (2002). The importance of the normality assumption in large public health data sets. *Annual review of public health*, 23(1), 151–169.
- Malesky Jr., L. A., Baley, J., & Crow, R. (2016). Academic dishonesty: assessing the threat of cheating companies to online education. *College Teaching*, 64(4), 178–183.

- Marshall, S., & Garry, M. (2006). NESB and ESB students' attitudes and perceptions of plagiarism. *International Journal for Educational Integrity*, 2(1), 26–37.
- Martin, D. E. (2011). Culture and unethical conduct: understanding the impact of individualism and collectivism on actual plagiarism. *Management Learning*, 43(3), 261–273.
- Martin, D., Rao, A., & Sloan, L. (2011). Ethnicity, acculturation, and plagiarism: a criterion study of unethical academic conduct. *Human Organization*, 70(1), 88–96.
- Miller, P. C., & Endo, H. (2004). Understanding and meeting the needs of ESL students. *Phi Delta Kappan*, 85(10), 786–791.
- Moore, T., & Morton, J. (2005). Dimensions of difference: a comparison of university writing and IELTS writing. *Journal of English for Academic Purposes*, 4(1), 43–46.
- Mozgovoy, M., Kakkonen, T., & Cosma, G. (2010). Automatic student plagiarism detection: future perspectives. *Journal of Educational Computing Research*, 43(4), 511–531.
- Okoro, E. A. (2011). Academic integrity and student plagiarism: guided instructional strategies for business communication assignments. *Business Communication Quarterly*, 74(2), 173–178.
- Park, C. (2004). Rebels without a clause: towards an institutional framework for dealing with plagiarism by students. *Journal of Further and Higher Education*, 28(3), 291–306.
- Payan, J., Reardon, J., & McCorkle, D. E. (2010). The effect of culture on the academic honesty of marketing and business students. *Journal of Marketing Education*, 32(3), 275–291.
- Pecorari, D. (2003). Good and original: plagiarism and patchwriting in academic second-language writing. *Journal of Second Language Writing*, 12(4), 317–345.
- Pecorari, D., & Petrić, B. (2014). Plagiarism in second-language writing. *Language Teaching*, 47(03), 269–302.
- Pennycook, A. (1996). Borrowing Others' words: text, ownership, memory, and plagiarism. *TESOL Quarterly*, 30(2), 201–230.
- Reid, J. M. (1987). The learning style preferences of ESL students. *TESOL Quarterly*, 21(1), 87–111.
- Rinnert, C., & Kobayashi, H. (2005). Borrowing words and ideas: insights from Japanese L1 writers. *Journal of Asian Pacific Communication*, 15(1), 15–29.
- Soto, J. G., Anand, S., & McGee, E. (2004). Plagiarism avoidance. *Journal of College Science Teaching*, 33(7), 42.
- Stowers, R. H., & Hummel, J. Y. (2011). The use of technology to combat plagiarism in business communication classes. *Business Communication Quarterly*, 74(2), 164–169.
- Sutherland-Smith, W. (2005). Pandora's box: academic perceptions of student plagiarism in writing. *Journal of English for Academic Purposes*, 4(1), 83–95.
- Verbik, L., & Lasanowski, V. (2007). International student mobility: patterns and trends. *World Education News and Reviews*, 20(10), 1–16.
- Walker, J. (2010). Measuring plagiarism: researching what students do, not what they say they do. *Studies in Higher Education*, 35(1), 41–59.
- Walker, C., & White, M. (2014). Police, design, plan and manage: developing a framework for integrating staff roles and institutional policies into a plagiarism prevention strategy. *Journal of Higher Education Policy and Management*, 36(6), 674–687.
- Welch, B. L. (1947). The generalization of student's problem when several different population variances are involved. *Biometrika*, 34(1/2), 28–35.





# The role of iconic-historic commemorative events in event tourism: Insights from the 20<sup>th</sup> and 25<sup>th</sup> anniversaries of the fall of the Berlin Wall



Maren Viol<sup>\*,1</sup>, Louise Todd, Eleni Theodoraki, Constantia Anastasiadou

*The Business School, Edinburgh Napier University, Craiglockhart Campus, 219 Colinton Road, Edinburgh, EH14 1DJ, UK*

## ARTICLE INFO

### Keywords:

Commemorative events  
Iconic-historic events  
Event tourism  
Berlin Wall  
Hallmark events  
Event portfolios

## ABSTRACT

The role of commemorative events for event tourism has received marginal attention. Existing research primarily considers commemorative events for their social and political significance within the nation. This paper argues that commemorative events defined as ‘iconic-historic’ can play an important role for event tourism. Using the 20<sup>th</sup> and 25<sup>th</sup> anniversaries of the fall of the Berlin Wall as archetypical examples, this in-depth qualitative study contends that such iconic-historic commemorative events may be as significant as hallmark events within strategic event portfolios. The contributions of this paper are the definition of iconic-historic events as distinct forms of commemorative events; the recognition of the potential significance of these events to event tourism; and the development of a commemorative portfolio which can inform the established event portfolio for strategic event tourism management. The paper concludes by making recommendations for the use of such events in event tourism settings.

## 1. Introduction

Events are important devices for making places more attractive to visit and creating economic benefits for destinations (e.g. Hodur & Leistriz, 2006; Richards & Palmer, 2010). In an image-saturated society and in a competitive globalised world, where effective destination brands are becoming increasingly important, events can be used for destination promotion as well as the construction of a destination brand (e.g. Dinnie, 2011; Mackellar, 2014; Mendes, Valle, & Guerreiro, 2011). The widespread use of events for tourism-related outcomes such as the above has given rise to the study and strategic implementation of event tourism. The concept of event tourism refers to the process of using planned events for the development and marketing of destinations for tourism (Getz, 2008). In the academic literature this phenomenon has recently been investigated from perspectives such as destination branding (Mackellar, 2014; Mendes et al., 2011), tourism strategy and product development (Connell, Page, & Meyer, 2015; McKercher, 2016; Stokes, 2008) as well as stakeholders and partnerships (Mariani & Giorgio, 2017; Todd, Leask, & Ensor, 2017).

In destination and event tourism planning, the development and maintenance of an event portfolio is seen as good strategic practice. This management approach sees hallmark events as being particularly desirable devices for achieving long-term event tourism benefits (Getz, 2008; Getz, Svensson, Petersson, & Gunnervall, 2012; Ziakas, 2014).

Hallmark events are commonly defined as recurring events which are inextricably linked to their location and are usually also valued for their potential for community-building (Getz et al., 2012; Todd et al., 2017). Well-known examples include the Calgary Stampede, Munich Oktoberfest or the Edinburgh Festival Fringe.

Recent research indicates an increase in the study of event tourism as a phenomenon, reflecting the adoption of strategic event tourism and portfolio management approaches in practice. Getz and Page (2016a) propose five basic propositions underpinning event tourism to illustrate its significance. The first and primary claim is that events can attract tourists which creates economic benefits. Four further propositions cascade from this statement. These are that events can create positive images for the destination and help brand or re-position cities. They further contribute to place marketing by making places more attractive. Additionally, events can animate cities, resorts, parks, urban spaces and venues of all kinds. Finally, event tourism acts as a catalyst for other forms of desired development, such as improved infrastructure. The implication is that once events successfully attract tourists, they can be leveraged to fulfil the ensuing four propositions. According to Getz and Page (2016a) many previous studies support the core propositions, but further assessment of claims to knowledge, concepts and terms in relation to event tourism is needed to develop the field.

This paper contributes to the field of event tourism by exploring the event tourism potential of particular forms of commemorative events,

<sup>\*</sup> Corresponding author.

E-mail addresses: [maren.v@buv.edu.vn](mailto:maren.v@buv.edu.vn) (M. Viol), [l.todd@napier.ac.uk](mailto:l.todd@napier.ac.uk) (L. Todd), [e.theodoraki@napier.ac.uk](mailto:e.theodoraki@napier.ac.uk) (E. Theodoraki), [c.anastasiadou@napier.ac.uk](mailto:c.anastasiadou@napier.ac.uk) (C. Anastasiadou).

<sup>1</sup> Current address: British University Vietnam, 193 Ba Trieu, CDC Building, Hai Ba Trung, Hanoi, Vietnam.

newly defined here as ‘iconic-historic’. The paper further introduces the idea of a commemorative portfolio that can be linked to the existing event portfolio framework for strategic event tourism planning and management. Commemorative events more generally can be defined as ‘memorial services, specific ceremonies or broader events (even festivals) designed to honour the memory of someone or something’ (Getz, 2007, p. 34) or as those events that ‘are staged so that society may remember and reflect upon past occurrences and their relationship to today’ (Frost & Laing, 2013, p. 1). Whilst sports, business and leisure events as well as different types of cultural festivals have been investigated for their roles and potentials for event tourism development purposes (see Getz & Page, 2016a), commemorative events have so far received marginal attention in this context. With only limited previous research on commemorative events from a tourism point of view (most notably Frost & Laing, 2013), the role of commemorative events for event tourism remains under-researched.

A major contribution of the paper is therefore to help understand the event tourism role of particular forms of commemorative events. These events are presently defined as iconic-historic and are characterised as such based upon their alignment with existing definitions of iconic events and their commemorative underpinning. Sharing a growth in numbers and significance similar to that of hallmark events, iconic events are deemed as those that hold high symbolic value and have a strong appeal (Getz & Page, 2016b). Similar to iconic tourism sites being symbolic of their host destination, for example the Eiffel Tower and Paris, iconic events represent their host destination and become a community’s most recognised event. This is in part due to functional aspects such as reputation and scale; but iconic events differ from other forms of events in the sense of symbolising ‘something of potentially global significance’ (Getz & Page, 2016b, p. 58). The meanings of iconic events therefore are cause for people attending: being drawn by what they represent, rather than the physical and functional form of event. Some examples of iconic events are the Mardi Gras being symbolic of Rio or New Orleans and the Homecoming Celebrations of 2009 being symbolic of Scotland. Another feature of iconic events that differentiates them from other recognised distinct forms of events is they are not necessarily repeated or one-time only, which is once again due to their symbolic value.

This paper builds upon the understanding of iconic events and of commemorative events by defining ‘iconic-historic’ events as a sub-category spanning both types of events. Such events are by nature symbolically and historically momentous and, as such, grounded in commemorative practices. Iconic-historic events resonate internationally due to their symbolic meaning and value, as do general iconic events. However, these events differ from the more generic definition of iconic events due to their unique, globally significant historical context. Through studying the archetypal iconic-historic setting of the 20th and 25th anniversary events of the fall of the Berlin Wall, this study demonstrates that, while serving a unique role and purpose within their host destinations, iconic-historic commemorative events can be as significant as sought-after hallmark events to the strategic event portfolio approach and event tourism.

The paper applies the five propositions (Getz & Page, 2016a) as a tool to demonstrate the significance of such events to event tourism. It then discusses how iconic-historic events may fit into an event portfolio. It argues that, in certain contexts, such as that of Berlin, such iconic-historic commemorative events display similar characteristics to hallmark events, and can therefore be of comparable event tourism significance. The paper further situates these events within a proposed portfolio approach to commemoration which feeds into the event portfolio framework (Getz & Page, 2016a). The paper is based on constructionist research consisting of qualitative interviews with event organisers and analysis of key documents. All data were analysed with an overarching thematic analysis.

The fall of the Berlin Wall on 9<sup>th</sup> November 1989 was an event of worldwide political, socio-cultural and media significance (Manghani,

2008). In this sense, the commemorative events staged in 2009 and 2014 for the 20<sup>th</sup> and 25<sup>th</sup> anniversaries of the fall of the Berlin Wall may be considered archetypal iconic-historic commemorative events. They held high symbolic value, were representational of an internationally recognised historical occurrence and underpinned by commemoration. Whilst leading to unification of East and West Germany in October 1990, the historical event is also commonly seen as the event that became emblematic of the fall of communism in Eastern Europe as well as marking the end of the Cold War and the division of the world into two opposing ideologies (Drechsel, 2010). Due to its instant international broadcasting the fall of the Wall was immediately engrained as a defining moment in history in its global audience (Manghani, 2008). Moreover, the peaceful protests in East Germany played an important role for the fall of the Wall and the event has now become a symbol for the idea that any government or ideology can be overcome through the power of the people (Detjen, 2011). Due to the international political implications of its fall and as the city’s most famous landmark, the demands of the tourist industry played an important role for the development of Berlin Wall commemoration (Tölle, 2010). While the Berlin Wall itself as well as places of permanent commemoration are the subjects of a large body of existing literature (see, for example, Feversham & Schmidt, 1999; Frank, 2009; Harrison, 2011; Henke, 2011; Klausmeier & Schlusche, 2011; Knischewski & Spittler, 2006; Ladd, 1997; Tölle, 2010; Ullrich, 2006) the recent commemorative events associated with it have so far barely received any academic attention. With the 2009 and 2014 anniversary celebrations being the first and only large-scale internationally recognised public commemorative events of the fall of the Berlin Wall, they constitute an interesting and relevant context in which to explore the event tourism potential of iconic-historic commemorative events.

This paper starts by reviewing the relevant literature in relation to event tourism and commemorative events by drawing on previous studies from a tourism and events management perspective, but also on literature on commemoration from anthropology and sociology. The literature review also explores the extent of existing literature on commemorative events and event tourism. The paper further outlines the research context in regards to commemoration of the Berlin Wall more generally, as well as the two anniversary years more specifically. Following that, the methodology is outlined, including philosophical underpinnings. The findings of this study present the potential of iconic-historic events to event tourism management and propose a commemorative portfolio which can be linked to the strategic event portfolio approach (Getz & Page, 2016a). In addition to these theoretical contributions, the paper is therefore of tourism industry significance to destination marketers, event managers, and other professionals involved in the management of commemoration.

## 2. Literature review

### 2.1. Event tourism

According to Getz and Page (2016a), planned events not only add to destination attractiveness but are now established strategic resources used for marketing purposes in order to remain competitive. Therefore, event tourism development is an increasingly popular choice for destination marketers and policy makers. The use of festivals and events for explicit event tourism goals may aim at, for example, attracting tourists off-season, dispersing economic benefits derived from tourism, marketing and branding of the destination, using events as a catalyst for urban (re-)development and animating specific areas or attractions (e.g. Getz, 1991, 2005, 2008; Allen, O’Toole, Harris, & McDonnell, 2011; Connell et al., 2015; Getz & Page, 2016a; Hall, 1992; Mackellar, 2014; Mariani & Giorgio, 2017). All of these outcomes are embedded in the underlying key propositions presented by Getz and Page (2016a), mentioned in the introduction of this paper. In line with this, the first and foremost proposition is that events can attract tourists who may

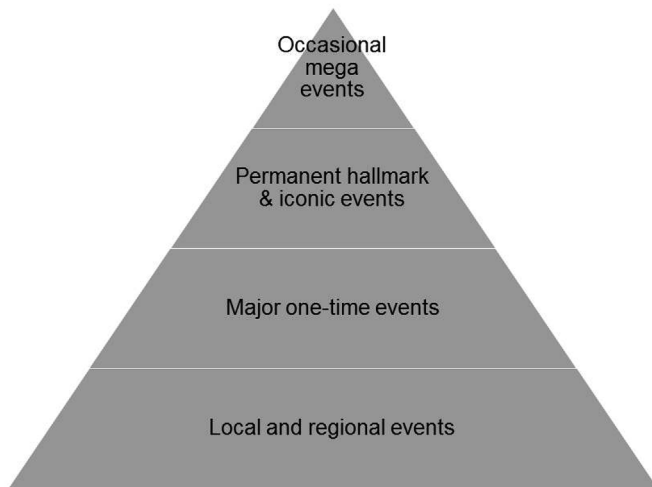


Fig. 1. The (revised) portfolio approach to events (based on Getz, 2016; Getz & Page, 2016a).

otherwise not have visited the destination, bringing along potential economic benefits as well. This ‘observable phenomenon’ (Getz & Page, 2016a, p. 596) can be leveraged for outcomes such as the aforementioned.

Event tourism strategies may require the development of existing events, bidding for mobile events or new event creation (Allen et al., 2011). In this context, an event portfolio approach is usually recommended, which refers to a strategic and goal-driven approach to the management of complementary and inter-related events of different size, impact, theme, timing and frequency within one destination (Allen et al., 2011; Getz, 2008; Getz & Page, 2016a; Ziakas, 2014). An event portfolio is thus different from the coincidental collection of events within a destination and helps leverage the benefits of events (Ziakas, 2014; Ziakas & Costa, 2011). A portfolio approach favours a balanced development of occasional mega events, few periodic hallmark events, major one-time events as well as a wide range of regional and local events, thus forming a pyramid of events of different status, scale and reach as represented in Fig. 1 below (Andersson, Getz, & Mykletun, 2013; Getz, 2005; Getz & Page, 2016a).

The event tourism potential of different events within a portfolio has been considered in relation to event size or status and in relation to theme or content. In regards to size or status, particularly mega and hallmark events have received attention (Getz & Page, 2016a). Mega events are events of high tourist demand and value, such as the Olympic Games or the FIFA World Cup (Getz & Page, 2016a). Whilst there is some disagreement in the literature as to how large an event has to be to be classified as ‘mega’, these events are commonly defined in regards to the number of tourists attracted, media coverage generated, costs involved and transformative power on local environment (Müller, 2015). Mega events are often perceived to be a useful means for event tourism development (Florek & Insch, 2011).

Hallmark events do not have a clearly agreed definition, but, as aforementioned, are now commonly seen to be recurring events which are inextricably linked to their location (Getz et al., 2012; Todd et al., 2017). In fact, hallmark events can be large and share some characteristics with mega events, but their defining characteristic is that, whereas mega events tend to be peripatetic, successful hallmark events are long-standing events that contribute to or reflect the destination's identity (Getz et al., 2012). Whilst hallmark events successfully attract tourists, they moreover enjoy widespread acceptance and support amongst the local community; over time, hallmark events become taken-for-granted institutions (Getz & Andersson, 2008). In this sense, hallmark events can contribute to community building (Getz et al., 2012). It is suggested that, in comparison to one-time mega events,

successful hallmark events can be a more cost-effective tool for gaining long-term event tourism benefits whilst also catering to the needs and interests of the local community (Getz & Page, 2016a; Getz et al., 2012). However, hallmark status is not easily reached; it usually requires an evolutionary process that institutionalises the event through wide-ranging support and relationship building within the destination (Getz & Andersson, 2008). Therefore, events conceptualised as hallmark events may not materialise whilst other events may organically develop towards hallmark status. As discussed earlier, iconic events share similar characteristics with hallmark events and can be of equal significance within event portfolios (Getz, 2016), but have elevated symbolic significance on an international basis. Finally, regional and local events have the least power for achieving event tourism outcomes, although some events might have potential whereas others are deliberately protected from commercialisation and commodification and primarily carry meanings for the local community (Getz & Page, 2016a). Therefore, in terms of size and status, hallmark events and iconic events may be the most desirable and valuable elements within an event portfolio.

In regards to event theme or content, the event tourism literature is primarily focused on business events, sport events, festivals and cultural celebrations as well as entertainment events (Getz, 2008; Getz & Page, 2016a). For this paper, the role of festivals and other cultural celebrations for event tourism is particularly pertinent as Getz and Page (2016a) describe commemorations as a type of festival or cultural event. However, they primarily focus on past research on arts and music festivals as well as traditional cultural and religious celebrations (Getz & Page, 2016a). Such festivals have been considered for their event tourism potential, for example, in relation to attraction of tourists or marketing a destination, but also attract critical studies in relation to issues such as identity (e.g. Crespi-Vallbona & Richards, 2007; De Bres & Davis, 2001; Merkel, 2015) or politics (e.g. Atkinson & Laurier, 1998; Jeong & Santos, 2004; Merkel, 2014).

Overall, it can be seen that event tourism has emerged as a significant field of research but has so far neglected commemorative events. As work by Frost and Laing (2013) illustrated, these commemorative events are plentiful in the Western world and consequently, it is of interest to explore how they can become iconic and therefore significant within event tourism planning whilst also considering how such events may fit into a strategic event portfolio. The following sections of the literature review outline how existing research into commemorative events may help illuminate these issues.

## 2.2. Commemoration and commemorative events

When an event or a person is commemorated, it is given particular importance in a group's history (Schwartz, 1982). Turner (2006) argues that commemoration includes all devices through which a collective such as a nation negotiates and remembers its past. This repertoire of devices consists of public and private acts of remembrance, the construction of monuments, museums and other places of memory as well as associated debates over their meaning (Turner, 2006). Overall, the existing literature on commemoration is primarily rooted in social science disciplines such as sociology and anthropology and considers these practices predominantly for their social and political roles within communities such as the nation. Here, commemoration is seen as a key resource for the construction of (often contested) shared identities (e.g. Connerton, 1989; Elgenius, 2011b; Gillis, 1994; Jedlowski, 2001; Spillman, 1997; Zerubavel, 1995). This section explores the nature and purpose of commemoration with particular reference to commemorative events, before investigating in more detail how such events can play a role for event tourism.

Commemoration at places of historical significance differs from commemorative events in that these places permanently ‘fix’ collective memories by providing tangible links to the past they refer to and are available for people to visit at any time (Barthel, 1996; Foote & Azaryahu, 2007; Turner, 2006). In contrast to that, commemorative

events tend to mark crucial dates instead of places in a community's history. Furthermore, some argue that monuments can develop into unnoticed banal features of the urban landscape and can encourage forgetting more than remembering (Gapps, 2010; Turner, 2006), expressed aptly by Robert Musil: 'there is nothing so invisible as the monument' (cited in Kattago, 2015, p. 179). In contrast to this, ceremonies have the potential to generate a strong sense of belonging through creating a shared experience (Turner, 2006). Gapps (2010) also illustrates how events can create more widespread interest in historical events through focused attention on key anniversaries as well as through offering an immersive entertainment experience. However, their temporary nature might make these events easily forgettable, only involving short-term impacts. Furthermore, there is more scope for ambiguity in regards to the meaning of commemorative events, and places of permanent commemoration are often considered clearer and more direct in their messages through their 'fixed' nature (Gapps, 2010). It has to be acknowledged though, that the meaning of places of permanent commemoration is also by no means 'fixed', as meanings are subjective and can shift depending on context and interpretation (Foote & Azaryahu, 2007). Gapps (2010), however, argues that this may be a positive way forward for contemporary commemoration in that commemorative events can offer open-ended, inclusive and participatory approaches.

Getz (2007) states that commemorative events mostly take place in the context of national days, birthdays of kings or queens, battles or wars. Frost and Laing (2013) propose a broader view of commemorative events by incorporating a range of non-political events, such as cultural anniversaries (e.g. the bicentenary celebrations of writer Hans Christian Anderson in Denmark in 2005 studied by Liburd, 2003), anniversaries linked to the construction or completion of buildings and other structures (e.g. the 125<sup>th</sup> anniversary of the UNESCO inscribed Forth Bridge in Scotland in 2015), corporate and product anniversaries (e.g. the 50<sup>th</sup> birthday of the Barbie Doll in 2007) as well as anniversaries of various other historical events (e.g. the centenary of the sinking of the Titanic studied by Frost & Laing, 2013). However, as the fall of the Berlin Wall is at the core of this study, existing literature in relation to commemoration of political historical events is particularly relevant.

Just like commemorative practices more generally, commemorative events are often researched in relation to their social and political roles in the context of the nation. In this regard, Frost and Laing (2013) suggest that commemorative events are effective for promoting unity, loyalty and a sense of belonging. St-Onge (1991) states that particularly governments' interests include education and the fostering of social cohesion or national morale. Hobsbawm and Ranger's (1983) influential book on 'The invention of tradition' is of relevance here to understand the purpose of such events. Their approach examines the ways in which invented ceremonies communicate a presumed link to a meaningful past for communities such as the nation (White, 1997). Hobsbawm (1983) claims that invented traditions are 'responses to novel situations which take the form of reference to old situations, or which establish their own past by quasi-obligatory repetition' (p. 2). In particular, these invented traditions are used to provide structure to social life in a modern world of constant change and innovation (Connerton, 1989; Hobsbawm, 1983). Although they do not necessarily have to be of commemorative character, these invented traditions do imply continuity with the past. According to Hobsbawm (1983), there are three main purposes of invented traditions: to establish or symbolise social cohesion, to establish or legitimise authority, and to inculcate beliefs, values and behavioural conventions. Invented traditions such as the Scottish kilt or Coronation rituals are a key resource for constructing national identity (Billig, 1995). In line with this, commemorative events can be considered such invented traditions, existing for the purpose of fostering the imagining of the (national) community by evoking a shared past (see also Anderson, 2006; Gellner, 2006 or Smith, 1991 for influential work in this context).

In this regard, it is state-sponsored commemorative events of national significance that have again received a lot of attention in the literature. McDonald and Méthot (2006) look at the purpose of centennial celebrations in particular, stating that these events are often hosted to foster nationalism, especially in young nations. Bodnar (1992), Spillman (1997) and White (2004) further studied centennial and bicentennial celebrations in the United States and Australia as events which constructed national identity and fostered patriotism in relatively young nations. Gillis (1994) also observed that commemorative events are particularly used in fragile new nations. In support of this, Gilbert (1976) states that important anniversaries in a nation's history are marked in order to strengthen a sense of community and communicate shared values. Frost (2012) argues how celebrations of the founding of a nation in particular are used to foster national identity and pride. Authors such as Spillman (1997), Misztal (2003) and Hall, Basarin, and Lockstone-Binney (2010) support this stance. Spillman (1997) analyses the importance of the moment which is perceived as the foundation of the nation for the celebration of national identity in the United States and Australia. Misztal (2003) states that the myths surrounding such foundation moments are particularly powerful for strengthening unity within a group. Hall et al. (2010) investigated Anzac Day which is the national day of commemoration in Australia and New Zealand to remember those who fought at the Gallipoli battlefields during World War I. These authors emphasise that many attendees are attracted by the possibility to experience the birthplace of their nations.

Official annual national days are a related type of commemorative event of national significance that received particular attention in the literature in relation to their contribution to the construction of national collective memory and national identity (e.g. Elgenius, 2011a, 2011b; Frost & Laing, 2013; Fuller, 2004; McCrone & McPherson, 2009). Such national days are often also based on the founding myth related to political events such as independence, liberation, unification, the constitution and the formation of the state (Elgenius, 2011b). It can thus be seen that the social and political roles of commemorative events have been explored in quite some depth, whereas their incorporation in event tourism strategies is under-researched.

### 2.3. Event tourism at commemorative events

The literature on the role of commemorative events for event tourism development is limited and indeed such events are seen to be difficult to incorporate in these plans due to their presumed inward-focused nature (Frost & Laing, 2013). Even for places of permanent commemoration, the role of tourism is of emerging concern for academic research (e.g. West, 2010; 2015; Winter 2009; 2015) unless one considers this area of research to be part of existing bodies of literature in relation to, for example, heritage tourism, post-conflict tourism, dark tourism or battlefield tourism. In the context of Getz and Page's (2016a) five propositions of event tourism, the literature is very limited in regards to if and how these may apply to commemorative events. Indeed, it is primarily the first three propositions that have been investigated in relation to commemorative events as outlined below.

McDonald and Méthot (2006) stress that the potential for financial gain from centennial celebrations was detected as early as the second half of the 19<sup>th</sup> century through events such as 100<sup>th</sup> anniversary of the signing of the Declaration of Independence in 1876. This contributed to an increasing popularity of such events. However, they do not explicitly refer to event tourism as a cause for this economic gain. By analysing the role of commemorative events in former capitals, Frost (2012) underlines that economic benefits can be aimed for by using commemorative events to promote a destination for attracting tourists. Laws and Ferguson (2011) analysed a small-scale community-run commemorative event on Canadian National Day and outlined how the local community may benignly use the events for the construction of a certain destination image, but with limited reach and strategic

implementation. Work by Hall et al. (2010) shows that Anzac Day at Gallipoli in Turkey attracts a large number of tourists, although these are primarily from Australia and New Zealand and therefore constitute a limited international audience. Grundlingh (2004) outlines how the centenary of the South African War in 1999 was planned with hopes of increased tourist numbers, but that the celebrations only reached a niche market. Apart from political commemorative events, particularly historical re-enactment events have received academic attention (e.g. Carnegie & McCabe, 2008; Ryan & Cave, 2007). Research has further shown that cultural anniversaries and anniversaries of other ‘popular’ historical events (i.e. secular and non-political events) can be used specifically as a means to develop event tourism strategies as indicated by the bicentenary celebrations of Hans Christian Anderson (Liburd, 2003), the 50<sup>th</sup> anniversary of the Roswell UFO incident (Paradis, 2002) or the centenary of the sinking of the Titanic (Frost & Laing, 2013). Frost, Wheeler, and Harvey (2008) suggest that it is the potential for conflict over the meaning of such events that generally makes them difficult to be used for economic purposes and thus also event tourism as a whole. In line with this, commemorative events of political events such as the fall of the Berlin Wall have received particularly little attention in this context.

Overall, the event tourism potential seems to be limited to certain types of commemorative events. Due to limited research into commemorative events and event tourism, Frost and Laing (2013) speculate that the following types and formats of events may be able to attract tourists: international exhibitions, museum and gallery special exhibitions, historical re-enactments, national pageants, parades and ceremonies, diaspora events, and participatory events. Commemorative events held in national capitals that mark events of national significance may involve the spectacle required to attract tourists, although these may be primarily domestic (Frost & Laing, 2013). Consequently, many types of commemorative events, as argued by Frost and Laing (2013), may be subject to what they term a ‘tourism paradox’. This paradox entails the idea that in order to gain public funding many events nowadays are expected to bring along event tourism benefits, but commemorative events are primarily aimed at a local or national audience. Thus, these events may attract domestic tourists under the most favourable circumstances, but are of limited appeal to international visitors. Overall, Frost and Laing (2013) consider tourists as outsiders that mostly do not share the memories and identities that are reinforced at the events and thus may be difficult to attract. If ‘outsiders’ do attend or acknowledge such events, this primarily validates national identity by reinforcing the international standing of the country and the significance of the event commemorated (Frost & Laing, 2013; Spillman, 1997). Nevertheless, this argument does not apply to those commemorations that are of international audience and media recognition.

#### 2.4. Iconic-historic commemorative events and their role for event portfolios

Due to the limited research into commemorative events and event tourism, there are no studies that consider how commemorative events might fit into or complement a managed event portfolio in event tourism planning. While it can be argued that all strategically planned events within a destination may be viable additions to any portfolio, this paper proposes that in certain contexts, commemorative events can have significant and considerable event tourism potential. It contends that specifically the defined category of iconic-historic commemorative events assume this role for destinations in the same way as valuable hallmark events.

As discussed earlier, Getz and Page (2016b) defined iconic events as those having high symbolic value on a global basis. Getz (2016) further argued such events are as valuable as hallmark events within event portfolios. The 20<sup>th</sup> and 25<sup>th</sup> anniversary events for the fall of the Berlin Wall can be viewed as archetypal iconic-historic events. As noted previously, the term iconic denotes something ‘significant’ and

‘admired’ whilst at the same time representing a set of beliefs, in line with Getz’s (2016) claim of these events having high symbolic value. Iconic-historic events are thus those unique events that commemorate a significant person or event from the past and through this commemorative effort, these events symbolically communicate a highly resonant set of values and beliefs.

It can be argued that, similarly to hallmark events, iconic-historic commemorative events are unique to their individual geographic and symbolic setting and by association become synonymous with this setting. They mark anniversaries of internationally, politically, and socio-culturally significant events, of both tangible and symbolic significance. They tend to be periodic, similarly to hallmark events. This can be seen in the present setting of the 20<sup>th</sup> and 25<sup>th</sup> anniversary of the fall of the Berlin Wall. Secondly, iconic-historic events are usually tied to a particular place – the place where the commemorated event occurred. Such ‘parent’ events may contribute to the identity of the place, and as such, their iconic-historic commemorative events do as well. This was illustrated, for example, by Paradis (2002) and his study of the link between the Roswell UFO incident and local place identity. It is particularly this uniqueness and co-branding with the destination that makes both hallmark events and iconic-historic commemorative events valuable devices, as in times of globalisation, many festivals and events are no longer inextricably linked with the community and place in which they arose and thus have become homogenised and placeless (Elias-Varotsis, 2006; MacLeod, 2006). The distinctiveness and attachment to a locality of both hallmark and iconic-historic commemorative events can thus add to the competitiveness of a destination. At the same time, commemorative events ideally carry meaning for the local community whose memories and identities are also reconstructed at the events. This is a commonly discussed characteristic of commemorative events outlined, for example, in work by Frost and Laing (2013), Connerton (1989) and Elgenius (2011a), particularly in relation to commemoration of political events of national significance.

Furthermore, some well-known hallmark events have their origins in what could be considered commemorative practices, for example, the catholic ritual background to the New Orleans Mardi Gras. Similarly, the Edinburgh International Festival was conceived in 1947 as a celebration of European high culture with the aim of reuniting the continent to mark the end of the Second World War (Jamieson, 2004) and could be seen as a commemoration of pre-war times. Furthermore, due to their recurring nature, hallmark events at some point become commemorations of themselves. Returning to Edinburgh, this was seen by the marked celebrations of the 70<sup>th</sup> anniversary of Edinburgh’s International, Fringe and Film Festivals in 2017. Another example was the 100<sup>th</sup> anniversary of the Calgary Stampede in 2012.

Based on the similarities pointed out in this section, certain commemorative events of an iconic-historic stature may be valuable devices within an event portfolio and of similar standing to hallmark events. Frost and Laing (2013) already suggest that some commemorative events can be developed as hallmark events within event portfolios, giving the example of Hastings Week in the United Kingdom. However, this is currently seen as a rare occurrence and limited to annual events, with the conceptual similarities between the two types of events not further explored. This study proposes a distinct type of commemorative events, namely iconic-historic events, and observes the similarities between these and hallmark events in event tourism management.

### 3. Research setting

This research focuses on the iconic-historic events that commemorated the 20<sup>th</sup> and 25<sup>th</sup> anniversary of the fall of the Berlin Wall in 1989 and therefore this section briefly introduces the development of Berlin Wall commemoration and the events that took place in 2009 and 2014.

Approximately the first fifteen years after unification of East and West Germany were characterised by a lack of public forms of commemoration of the Berlin Wall. As the Berlin Wall constituted

‘uncomfortable history’ (Harrison, 2011, p. 80) and a united city and nation had to be restored (Ladd, 1997; Tölle, 2010), there was very little public support for and even opposition to keeping parts of the Wall as memorial sites (Harrison, 2011; Ladd, 1997; Tölle, 2010). However, approximately fifteen years after unification, a change process in commemoration of the Berlin Wall commenced.

Starting in 2004, a variety of external pressures coming from actors such as the tourism industry or private commemorative efforts (Harrison, 2011; Tölle, 2010) caused the Senate to investigate the remains of the Berlin Wall. This led to the publication of the important ‘Overall concept of memorial plans for the Berlin Wall’ in 2006; a document that presents a strategy to connect all significant remains and places, aiming to tell a coherent story and to integrate the commemorative effort (Tölle, 2010). Existing remains were to be aligned to create an overall narrative that enables visitors to understand the meaning of the Wall (Flierl, 2006; Klemke, 2011). The official aims of the concept were to make the Wall visible again in public space and to establish appropriate forms of commemoration for its victims (Flierl, 2006; Klemke, 2011). Through this concept, the state-sponsored commemoration of the Wall within the city has become a managed landscape.

This development culminated in the 20<sup>th</sup> and 25<sup>th</sup> anniversary celebrations of the fall of the Wall in 2009 and 2014. The 20<sup>th</sup> anniversary saw the first large-scale celebration in the form of a theme year held throughout the city. Three main activities were included in the theme year: First, there was an open-air exhibition on the Alexanderplatz<sup>2</sup> focusing on the Peaceful Revolution, which opened on 7<sup>th</sup> May 2009 and, due to its popularity, remained there until October 2010. Secondly, there was a hybrid event called ‘Perspectives – 20 years of a changing Berlin’. This consisted of a combination of exhibitions and activities such as guided tours that showcased the changing nature of Berlin since the fall of the Berlin Wall at fourteen different locations throughout the city. These events also showcased changes in the city that were not directly related to the Wall, such as the plans for the presently still unfinished international airport. Finally, the anniversary on 9<sup>th</sup> November 2009 was celebrated with a commemorative event called the ‘Festival of Freedom’, taking place at the Brandenburg Gate. This was considered to be the big finale of the theme year and included the fall of painted domino stones along parts of the route of the Berlin Wall (please see Fig. 2) as well as speeches by international heads of government and various forms of entertainment. The dominoes had been painted by a large number of people – primarily school children – prior to the event in an initiative called the ‘Domino Campaign’. The ‘Festival of Freedom’ was attended by 250,000 people and was broadcast live on national and international television (Kulturprojekte Berlin GmbH, 2009a).

The 25<sup>th</sup> anniversary celebrations in 2014 were presented on a much smaller scale and the events focused on the anniversary weekend of 9<sup>th</sup> November. The celebrations were staged around a key element called the ‘Lichtgrenze’ (‘border of lights’). This was a 15 km-long installation through Berlin’s city centre which marked the former route of the Wall with illuminated white balloons from 7<sup>th</sup> to 9<sup>th</sup> November 2014 (see Fig. 3). In the run-up to this weekend, people were able to adopt balloons. On the evening of 9<sup>th</sup> November, these ‘balloon patrons’ attached personal messages and released their balloons in highly publicised and well-attended ‘balloon release event’. The ‘Lichtgrenze’ was accompanied by a variety of other elements. Yet again, there was an open-air exhibition, however, this year it was staged along the route of the balloons and presented anecdotes from times of division. Furthermore, there were various main locations along the ‘Lichtgrenze’ which functioned as visitor centres, with information points, short guided

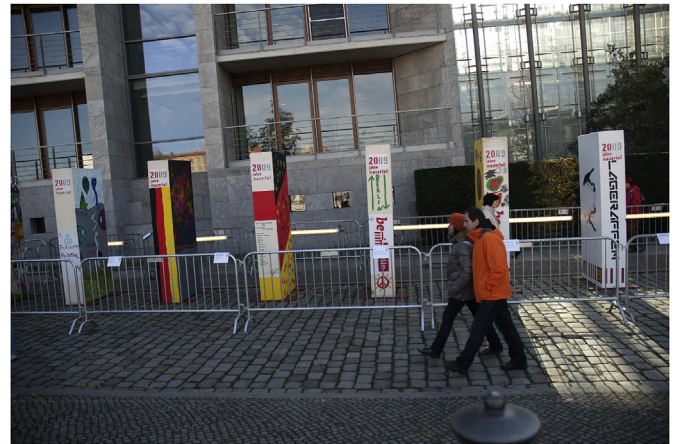


Fig. 2. The dominoes during the 20<sup>th</sup> anniversary celebrations (Image: ‘Berlin Dominoes 3’ by Thomas Quine licensed under CC BY 2.0<sup>3</sup>).

tours in the vicinity, shops selling souvenirs, as well as food and beverage outlets. Additionally, there were large screens which broadcast short films, for example, about various locations in Berlin to illustrate how they had changed by contrasting pre- and post-unification imagery. Another film briefly retold the history of the Wall from construction to its fall. These events in Berlin were furthermore accompanied by an online campaign called ‘Fall of the Wall 25’. This campaign encouraged people worldwide to share their personal stories or memories of both the Berlin Wall as well as other still existing literal and metaphorical walls. These stories were collected on social media and published on a dedicated website (Kulturprojekte Berlin GmbH, nd).

The events in both years were organised by four main institutions: The Berlin Senate, Kulturprojekte Berlin GmbH (a state-owned organisation which conceptualises and manages large-scale cultural events and cultural education projects in the city on behalf of the Senate), Robert-Havemann-Gesellschaft e. V. (an association which administers an archive of the citizens’ movement in the German Democratic Republic) and the Berlin Wall Foundation (administrators of the Berlin Wall Memorial at Bernauer Straße which is seen by the Senate to be the ‘official’ memorial site for the Berlin Wall). The Berlin Senate, and in particular the Cultural Affairs Office, played an important role for the events in both years, as it functioned as the key patron and sponsor of the events. The events thus had governmental approval and support, rather than being a private initiative.

#### 4. Material and methods

This paper is based on qualitative research conducted from a constructionist philosophical perspective. It is believed that ‘[m]eaning is not discovered, but constructed’ (Crotty, 1998, p. 9). Constructionism is described by Lincoln, Lynham and Guba (2011) as a paradigm that employs a relativist ontology and a subjectivist epistemology. This means that the ontological position is that realities are assumed to be ‘multiple, intangible mental constructions’ (Guba & Lincoln, 1998, p. 206). Furthermore, the epistemological position of constructionism is that there is no objective knowledge of the social world which can be proven with facts, but knowledge is subjective and will be impacted by the researcher’s worldviews.

The paper is based on analysis of both primary and secondary data. More specifically, it draws on a thematic analysis of interviews with event organisers and documents authored by these organisers.

<sup>2</sup> A large square and important transport hub in the centre of Berlin. It was located in East Germany during times of division and large-scale protests took place here during the Peaceful Revolution in the run-up to the fall of the Berlin Wall.

<sup>3</sup> The image can be found here: <https://flic.kr/p/cd84GU>, the CC BY 2.0 license terms can be found here: <https://creativecommons.org/licenses/by/2.0/>. No changes have been made to the original image.



Fig. 3. The 'Lichtgrenze' during the 25<sup>th</sup> anniversary celebrations (Image: Author's own, 2014).

Table 1

Overview of interviews conducted.

Event organiser	Further information	Referred to as
Berlin Senate – Cultural Affairs Department	This interview took place over the phone in October 2013 and is the only interview which took place prior to the 2014 events.	Interviewee 1–4 (for individual interviewees), not representing the order in which they are presented here.
Kulturprojekte Berlin GmbH	This interview took place over the phone in November 2014.	
Robert-Havemann-Gesellschaft e. V.	This interview took place face-to-face in a café in Berlin in November 2014.	
Berlin Wall Memorial	This interview took place face-to-face in the interviewee's office in Berlin in November 2014.	

Interviews can be defined as ‘a conversation with a purpose’ (Berg, 2004, p. 75) and are a useful method for approaching the social world from the interviewees' perspective. One representative from all four key event organisers was interviewed (see Table 1). All interviewees are considered senior managers of their respective institutions and were important decision-makers for the events.

The interviews were semi-standardised or semi-structured (Berg, 2004; Flick, 2014) and questions were both theory- and context-driven. The questions were deliberately left broad, but related to the idea that commemoration is political and that organisers have agendas which shape the commemorative effort (e.g. Barthel, 1996; Frost, 2012; Frost & Laing, 2013; Gillis, 1994; McDonald & Méthot, 2006; Spillman, 1997; Turner, 2006). The interviews aimed at further illuminating such agendas. Sample interview questions can be found in Table 2, but as interviews were semi-structured, these questions only constituted a rough guide and questions were altered or adapted slightly to tailor them to the interviewee. All interviews were audio-recorded and transcribed verbatim. For purposes of confidentiality, the interviewees are not associated with any of the institutions in the subsequent sections of the paper. For reasons of simplicity, the authors opted for the male pronoun to refer to the interviewees but this is not a reflection of the actual gender of the interviewees.

The analysis of documents constitutes an unobtrusive research method and a useful strategy for data collection and analysis (Berg, 2004). Two different types of documents were used in the analysis: Firstly, evaluative accounts published by the organisers after the 2009 theme year, and secondly, books that were produced by the organisers to accompany the events in both years as they were taking place. A total of six documents were included in the analysis which constitutes all such documents that existed at the time of the research (see Table 3). All documents used were openly and publicly available and access did not have to be negotiated. In fact, the books were sold as merchandise items at the events in both years, whereas the evaluative documents of the 2009 events were published on the event's website.

Table 2

Sample interview questions.

Sample interview questions
1. Please elaborate on the role that you personally as well as your institution have played in the planning of the 2009 and 2014 commemorative events.
2. Please tell me about the origin of the ideas for the 2009 and 2014 events and how these ideas have developed.
3. What did the collaboration with the other partners look like?
4. What did you want to achieve with these events and were you successful?
5. Have the events had any impacts? What kinds of impacts?
6. What is particularly important for you and your institution in the planning and staging of these events?
7. Were there any messages you wanted to convey through these events?
8. Did you come across any challenges in the planning process?
9. With a diverse audience from local residents to people born after 1990 to international tourists – how do you balance the different expectations of such a diverse audience?
10. Has the wider context influenced the planning of the events?
11. There has been a debate within the city about appropriate Berlin Wall commemoration. How does your institution see this debate?
12. Are there going to be any further commemorative events in the future? If yes, what would you like these to look like based on your experiences in 2009 and 2014?

Both interviews and documents were analysed simultaneously using thematic analysis. Braun and Clarke (2006) define thematic analysis as ‘a method for identifying, analysing, and reporting patterns (themes) within data’ (p. 79). In this context, a theme can be defined as an important or recurring idea within the data (Braun & Clarke, 2006).

Thematic analysis is beneficial for the examination of a variety of qualitative data, including interviews and documents (Patton, 2002). As thematic analysis aims at exploring patterns and themes across data sets, it is a useful means for exploring the role of these commemorative events for event tourism across both primary and secondary data. The analysis can be inductive or data-driven (developing themes from the data) as well as deductive or theory-driven (analysing the data with pre-

**Table 3**  
Overview of documents analysed.

Source	Brief description
'Documentation of the 2009 theme year' (Kulturprojekte Berlin GmbH, 2009a)	Overview of activities of the theme year, including informal evaluation (such as visitor numbers, media coverage)
'Peaceful Revolution 1989/90: Documentation of the open-air exhibition' (Robert-Havemann-Gesellschaft e.V. & Kulturprojekte Berlin GmbH, 2010)	An overview of the open-air exhibition as one of the three events of the theme year
'We are the people: Magazine for the exhibition Peaceful Revolution 1989/90' (publication accompanying the open-air exhibition) (Kulturprojekte Berlin GmbH, 2009d)	Overview of historical events from construction of the Wall to fall of the Wall and reunification with reference to the theme year and the open-air exhibition
'Domino book' (publication accompanying the 'Festival of Freedom') (Kulturprojekte Berlin GmbH, 2009c) [hard copy]	Overview of the 'Domino Campaign' with some information on the 'Festival of Freedom'
'Futures of Berlin' (publication accompanying the 'Changing Berlin' event) (Kulturprojekte Berlin GmbH, 2009b) [hard copy]	Overview of locations chosen for 'Changing Berlin' event
'Mauergeschichten – Wall Stories' (publication accompanying the 'Lichtgrenze' event) (Kulturprojekte Berlin GmbH, 2014) [hard copy]	Includes all 100 stories which were told in the exhibition along the 'Lichtgrenze' with some information about the 'Lichtgrenze' and the 'Balloon Campaign'

determined themes) (Patton, 2002). Notably, one analysis may employ both deductive and inductive approaches (Boyatzis, 1998). Furthermore, the analysis of themes can take place at two different levels: at the level of manifest or semantic themes or at the level of latent themes (Boyatzis, 1998; Braun & Clarke, 2006). The former is an analysis of explicit or surface meanings, whereas the latter focuses on underlying ideas, assumptions and ideologies that give shape to the semantic themes (Boyatzis, 1998; Braun & Clarke, 2006).

A series of steps were taken to develop and identify themes, and to write up the findings from the analysis. As there is no generally agreed process for conducting a thematic analysis, these steps are a combination of the description of the process of thematic analysis as outlined by Boyatzis (1998) and Braun and Clarke (2006). These authors' work was adapted for the purpose of this study with the process outlined in Table 4. NVivo software was used to help with the management and coding of data, although some documents were only available as hard copies (see annotations in Table 3) and had to be analysed manually with highlighter pens, using the same process and coding framework.

The relevant themes developed in Step 2 were 'rationale' (Why were the events planned in the first place?), 'priorities' (What did event organisers want to achieve with the events?), 'outcomes and impacts' (What kinds of outcomes or impacts were observed by the organisers?) as well as 'problems, challenges and criticisms' (What negative elements did organisers encounter during the planning process?). All themes led to a wide range of additional data-driven sub-themes in Step 4, not limited to but including the aspects relating to event tourism presented in this paper. For example, within the 'priorities' theme, the authors developed the data-driven sub-theme of 'branding' which corresponds with one of the five propositions. Relevant extracts from the rich description and discussion produced in the final two steps were edited for the purposes of this paper. The authors would like to point out that all textual data were in German and have been translated into English to the best of their knowledge.

## 5. Findings and discussion

This section presents and discusses the findings of the study. The first five subsections are structured using Getz and Page's (2016a) propositions of event tourism as a means of demonstrating how

**Table 4**  
Steps of the thematic analysis.

1	Choice of sources of data and first familiarisation with data
2	Development of initial coding framework
3	First round of coding (theory-driven)
4	Second round of coding (data-driven)
5	Writing up of 'rich description' of semantic/manifest themes
6	Writing up of separate discussion of deeper meanings based on 'rich description'

commemorative event that fulfil iconic-historic definitions can play a significant role within event tourism. Following that, the potential gravity of iconic-historic commemorative events within event portfolio management is discussed. Finally, the proposed commemorative portfolio is presented and linked to the strategic event portfolio framework.

### 5.1. Iconic-historic commemorative events and tourists

The first and overarching proposition is that events can attract tourists and this can generate economic benefits (Getz & Page, 2016a). As aforementioned, all other propositions are subsequent to this prime claim, but commemorations of political events were seen to have little potential here in existing literature. It is very clear, however, that the events in Berlin in 2009 and 2014 successfully attracted tourists. Their iconic-historic stature ensured that the events appealed to an international audience due to their symbolic meaning and historical significance. In regards to the first large-scale commemorative event in 2009, the documents stated:

*A year of remembering and celebrating is coming to an end. According to Berlin Tourismus Marketing GmbH (BTM), the theme year brought about 2 million tourists to Berlin. (Kulturprojekte Berlin GmbH, 2009a, p. 11)*

The year 2009 was the most successful year for the tourism industry in Berlin up to then, with a total of 8.3 million domestic and international tourists, constituting an increase of 4.5% in visitor numbers (Berlin Tourismus Marketing GmbH, 2010). Total hotel nights in 2009 increased by 6.2% to a total of 18.87 million (Berlin Tourismus Marketing GmbH, 2010). Similar success stories were told by Berlin Tourismus and Kongress GmbH (2015) following the 25<sup>th</sup> anniversary celebrations:

*One million guests came to Berlin on the weekend of the anniversary of the fall of the Berlin Wall alone. Overall, November 2014 was one of the strongest Novembers ever for Berlin tourism with 2.2 million hotel nights. The number of hotel nights increased by over 10% compared with the previous year. (Berlin Tourismus & Kongress GmbH, 2015, p. 9)*

And further:

*We are particularly happy about the continuing increase in international visitors. In the past year 43.6% of all hotel nights were generated by visitors from abroad [...] The celebrations for the 25<sup>th</sup> anniversary of the fall of the Berlin Wall contributed to this. The whole world looked at Berlin and hundreds of thousands used this occasion to visit our city. (Berlin Tourismus & Kongress GmbH, 2015, p. 6)*

This information demonstrates that these iconic-historic commemorative events attracted domestic and international tourists, despite the assumptions in the existing literature that commemorative events have narrow appeal to tourists and limited potential for achieving economic benefits from tourism (Frost & Laing, 2013). It is clear that iconic-historic commemorative events fulfil this proposition



and are therefore of significance for event portfolios as well as worth being nurtured for event tourism development.

### 5.2. Iconic-historic commemorative events as tools for branding and positioning

Events can create positive images for a place and therefore contribute to branding and positioning efforts (Getz & Page, 2016a). The interviewees revealed that the Berlin Wall commemorative events were indeed used for branding and positioning purposes. There were three main interrelated ways in which these iconic-historic events were used to brand and position the city: as a city of rich contemporary history, as a city of change, and as a city of Western values such as freedom, democracy and human rights.

The first emphasis can be seen in the following quote:

*With these events, we determine important topics for Berlin. And we are branding Berlin in the area of contemporary history, make people aware of what happened in the various places and how it is all connected and this way we make Berlin attractive for a lot of people who come to this city as the German capital and ask what happened here and where can I see it. [...] We don't have any mountains and we also don't have the sea, there are loads of lakes, but not the sea, and instead Berlin lives on its history. (Interviewee 4)*

This branding priority was thus particularly important for Interviewee 4, who outlines the role the events played for the branding of Berlin as a place rich in contemporary history. This interviewee specifically refers to the demands of tourists to see evidence of this rich history. The interviewee argues that history is the city's most important resource for attracting tourists and the large-scale commemorative events are one way to make full use of this resource. The Berlin Wall in particular continues to attract tourists as the most recognisable reminder of a recent historical event with international consequences which are generally associated with positive change. The Wall thus remains one of the city's most famous and most emotive landmarks despite its absence, underpinning the inextricable link of such iconic-historic commemorative events with their location.

The second focus point for branding, the city of change, was also emphasised in the interviews:

*And to showcase how Berlin has changed in the past 25 years, that is also very important to us. (Interviewee 1)*

A priority was placed on presenting Berlin as a city of change which is no longer a divided city on the margins but an exciting place of change that is attractive to visit, live in and do business in. This emphasis was particularly visible in 2009 with the event 'Perspectives – 20 years of a changing Berlin', which aimed at illustrating the 'immense changes in Berlin since the fall of the Wall' (Kulturprojekte Berlin GmbH, 2009a, p. 10) and focused on places such as the new Central Train Station, the new governmental district or the completely re-built Potsdamer Platz, a former area of the inner-German border.

Finally, the historical events were used to brand the city as a role model in terms of freedom, democracy and human rights:

*Although 25 years have passed since the fall of the Berlin Wall, the symbolism of this seismic event has not waned. That a Peaceful Revolution successfully overthrew a dictatorship and ended the division of Germany, Europe and the world, continues to inspire hope across the globe that other barriers and walls can be surmounted in a similar fashion. (Kulturprojekte Berlin GmbH, 2014, p. 148)*

The organisers commonly transferred the symbolic meanings and values of the iconic-historic events to situations around the world by drawing parallels between injustice in the GDR and existing injustice elsewhere. By outlining the processes of heroic self-liberation from a suppressive government, the fall of the Wall is used as a moral message and potential role model, encouraging people around the world that

injustice can be overcome in a peaceful manner. As this process has already been completed in Berlin, the city presents itself as a positive example to people around the world that aspire to the same freedoms. In this way, Berlin is presented as an appealing, desirable place to be. This branding aspect is also emphasised by Berlin Tourismus and Kongress GmbH (2015) who state that 'the 'Lichtgrenze' consolidated the image of Berlin as a city of freedom' (p. 6).

Whilst successfully changing the reputation of a place through branding strategies is difficult (Anholt, 2009), positive iconic-historic events - the Peaceful Revolution and the fall of the Berlin Wall - are used to position Berlin positively in an international community. By presenting the striving for freedom, democracy and human rights as international goals, Berlin is presented as having achieved what others may want. What is more, these ideals and values were achieved by the power of the people and in a peaceful way. Thus, the positive associations with the historical events are leveraged (see also Florek & Insch, 2011) and the iconic-historic commemorative events are used to brand Berlin to a national and international audience. This illustrates that it is not just cultural or non-political anniversaries that can be successfully used for branding and positioning purposes, but anniversaries of events in political spheres as well.

### 5.3. Iconic-historic commemorative events as tools for place marketing

In close relation to the previous proposition, events can contribute to broader marketing efforts to make places more attractive (Getz & Page, 2016a). Whilst the events under investigation were successful in attracting visitors to the city, as mentioned in Section 5.1, they also contributed to longer term marketing benefits. In this case, the interviews outlined that the events helped with marketing communication efforts, particularly in relation to media publicity through extensive reporting of the events in the media. In this sense, the events generated significant national and international media coverage, emphasising the marketing potential of iconic-historic commemorative events. This helped to communicate the aforementioned branding and positioning efforts to an international audience:

*The beginning was made in early summer in 2008 by the New York Times: Almost a year before the opening of the exhibition it recommended a visit to the open-air exhibition 'Peaceful Revolution 1989/90' to its readers. This report kicked off an overwhelming media response both nationally and internationally. (Robert-Havemann-Gesellschaft e.V. & Kulturprojekte Berlin GmbH, 2010, p. 44)*

The media coverage generated in both years was recognised as a helpful marketing tool:

*For us this media attention was ... We were in over 320 newspapers, media worldwide, we had over 40 reports on TV worldwide. [...] But that's a unique occurrence, I believe, and it was a major help. These images are worth more than any guidebook. (Interviewee 3)*

Such coverage is a commonly discussed outcome of events where increased exposure in the media throughout the course of an event can enhance the profile of a destination, resulting in long-term event tourism benefits (Getz, 2007; Getz & Page, 2016a).

The potential to use commemorative events for the marketing of places is considered in the literature (Frost, 2012; Grundlingh, 2004; Laws & Ferguson, 2011; Liburd, 2003; Paradis, 2002), but rarely associated with commemoration of political events. In the case of the 20<sup>th</sup> and 25<sup>th</sup> anniversaries of the fall of the Berlin Wall, however, being the home to such a unique iconic-historic event helps present an appealing and attractive image of the city. Iconic-historic commemorative events such as those of the fall of the Berlin Wall therefore have significant long-term event tourism potential.

#### 5.4. Iconic-historic commemorative events as animators for static facilities

The data showed that the iconic-historic commemorative events also fulfil Getz and Page's (2016a) fourth proposition, i.e. as animators of static facilities. The interviews revealed a strong link between the commemorative events and the permanent commemorative infrastructure in the city. Of particular relevance are the developments that occurred as part of the 'Overall concept', where the opening of new, extended or improved commemorative efforts was timed to coincide with the anniversary years:

*We opened the 'Wall Information Space' in the subway station at Brandenburg Gate during the theme year, and as I said, the visitor centre [at the Berlin Wall Memorial] after only one year of construction, and the first part of the extension to the Berlin Wall Memorial, so that the people can see, things are really getting started now. (Interviewee 4)*

This quote relates to what Getz (1991; 2005; 2008) and Getz and Page (2016a) describe as using events as animators for static sites to encourage visitation and enhance publicity under the overarching term of event tourism development. This is clearly visible in this case, for example, the opening of the new permanent exhibition at the Berlin Wall Memorial was timed to take place on 9<sup>th</sup> November 2014 so that the media and public attention for the 25<sup>th</sup> anniversary of the fall of the Berlin Wall could be leveraged. Additionally, the 50<sup>th</sup> anniversary of the construction of the Berlin Wall was also used for this purpose with the opening of a new extension to the Berlin Wall Memorial having been completed in 2011. Not surprisingly as well, the 2009 event 'Perspectives – 20 years of a changing Berlin' included the Berlin Wall Memorial and in 2014, a major focus point and visitor information centre along the 'Lichtgrenze' was located on memorial grounds. The use of events to animate permanent places of commemoration is therefore a common practice in Berlin.

#### 5.5. Iconic-historic commemorative events as catalysts for future development

Evidence that the iconic-historic commemorative events fulfil the proposition of fuelling future development (Getz & Page, 2016a) can also be seen in this study. This is related to the aforementioned link between temporary and permanent forms of commemoration. These iconic-historic events were not only used to animate existing or newly opened places, but also to stimulate development for further places in Berlin:

*Well, of course we want to create sustainable impacts with these theme years in that institutions are planned or completed, that places within the city are highlighted, that memorials are created, so that something remains from each year which continues to carry out this commemorative duty. (Interviewee 4)*

Apart from the strategic use of the anniversaries for future development, the events also unintentionally stimulated debates over missing memorials and created demand for their development. This was particularly the case in relation to the Peaceful Revolution, which had not been commemorated before 2009:

*The enthusiasm of the people illustrated that both Berliners as well as national and international visitors expect a presentation of recent German history, especially in the capital Berlin which was an important location of the Peaceful Revolution. The removal of the exhibition [on the Peaceful Revolution] leaves a gap which has to be filled. (Robert-Havemann-Gesellschaft e.V. & Kulturprojekte Berlin GmbH, 2010, p. 14)*

Overall, emphasis is placed on 'sustainable commemoration', thus using the events as a catalyst for legacy purposes (Getz, 1991, 2005, 2008; Hall, 1992). An important question was what remains from such large-scale events. Frost and Laing (2013) argue that legacies in the

form of permanent places of commemoration can fulfil a variety of functions, such as constructing public space or providing places of pilgrimage. These functions, however, are also applicable for places of permanent commemoration that are created without the link to an anniversary. The question of why such legacies of events are important thus remains. A potential explanation is that these places are seen to more effectively anchor the historical events in collective memory and determine their meaning and status on the long-term (Barthel, 1996; Foote & Azaryahu, 2007; Gapps, 2010; Turner, 2006), whereas the meaning of events can be more fluid and impacts can be more short-term. Nevertheless, Gapps (2010) and Turner (2006) argue that such permanent places can become unnoticed banal features of the cityscape whereas commemorative events can more effectively capture people's attention and create lasting sociocultural impacts. However, socio-cultural event impacts are often intangible, abstract, highly subjective and difficult to measure (e.g. Bowdin, Allen, Harris, McDonnell, & O'Toole, 2011; Dwyer, Mellor, Mistilis, & Mules, 2000; Getz, 2007), potentially making them less meaningful for the organisers in the long-term and thus creating the need for places of permanent commemoration.

#### 5.6. Iconic-historic commemorative events and event portfolios

This paper proposes that iconic-historic commemorative events display similar characteristics to hallmark events and, if they successfully attract tourists, may be nurtured to gain similar status within an event portfolio. It can be seen that the iconic-historic commemorative events of the fall of the Berlin Wall in 2009 and 2014 indeed display similar characteristics to hallmark events (Getz & Page, 2016a; Getz et al., 2012). First of all, the events in both years were large-scale events that managed to attract a significant number of domestic and international tourists. Secondly, the events contributed to the marketing, branding and positioning of the city. Thirdly, similarly to other commemorative events they have the potential to contribute to community building (Frost & Laing, 2013), although this research cannot comment on the extent to which this successfully took place. Fourthly, they are not one-off events, but take place periodically. Finally, the events are inextricably linked to the city of Berlin, with the Berlin Wall being an internationally recognised landmark of the city. This shows that, in certain contexts, such iconic-historic commemorative events have significant event tourism potential and could be nurtured to a status similar to hallmark events.

The key currently unfulfilled characteristic is whether the events will become permanent taken-for-granted institutions just as successful hallmark events (Getz & Andersson, 2008). With only two iterations of quite different format so far, it remains to be seen whether future events will take place. Indeed, the interviewees expressed some uncertainty about this. For example, when asked whether future events will be easier to stage or whether they will have to struggle for the required support, one interviewee said:

*I think definitely the latter because it costs money and someone has to provide that money and they have to be willing to give it. And everyone that gives money is in a difficult situation because they are asked what they are giving money for. [...] it always depends on who is making decisions and what is the political constellation, in what kind of difficult situations are they. (Interviewee 2)*

Another event organiser further noted that:

*Whether there will be something of this scale in five years' time, we aren't able to predict that. After 2009 as well people had the feeling that because the project grew so much throughout the process especially in the run-up to 9<sup>th</sup> November and with this impact, people thought, 'Well, will it be possible to stage something which can keep up with this for 25 years after the fall of the Wall?' I think we succeeded in this with the 'Lichtgrenze' and the accompanying activities. But whether we do this*

again for 30 years ... Perhaps it will only be this big for 50 years, we will see in the coming years and in three or four years we will think about how to deal with this for the 30<sup>th</sup> anniversary but it is a bit too early now. (Interviewee 1)

The above quote emphasises the idea that the event organisers had set very high standards with the theme year in 2009 which were difficult to achieve again or even to surpass. Although they consider the events in 2014 to be successful, it is uncertain whether something else of this scale can be organised again. This stresses the importance of the unique and novel programming in both anniversary years which cannot easily be repeated every five years. Interviewee 3 also discusses the difficulty of creating something meaningful and the potential discrepancies between the plans of the event organisers and actual experiences by attendees on the day of the event:

*Yesterday there was a very interesting article in the Tagesspiegel<sup>4</sup> about what happened. What actually happened there? And this distinction, I thought it was great, I thought it was very intelligent, they made a distinction between event and happening.<sup>5</sup> [...] Well, there is this event which has been planned for a long time and it comes and makes BANG and it's gone. But this happening is something else. A happening simply happens. Whether you want it or not. Well, that it actually happens, you plan everything, you can plan Christmas, too, you can plan Christmas all year long but perhaps it doesn't happen. It takes place, but it doesn't happen, because the whole family is having a row again. Well, you can plan whatever you want but it doesn't happen. And that was the case here as well. All kinds of things were planned, but that is ... and that is the special thing and for me there was a very nice atmosphere. [...] And that's quite an achievement; I didn't think it was possible in this way. (Interviewee 3)*

Thus, Interviewee 3 concludes that:

*It's not that you can easily reproduce these kinds of events again and again. And it was something very special. (Interviewee 3)*

This line of thought is reflective of the literature on event experience design. Getz (2007), for example states that it is impossible to plan, design or guarantee a particular event experience for attendees. There are elements that can be designed in an attempt to facilitate certain experiences, such as the theme or programme. However, in the end the nature of the experience depends very much on the audience, their interactions with the environment and each other, and their beliefs and dispositions (Berridge, 2007).

There are thus two key challenges in the development of these iconic-historic commemorative events to a status comparable to hallmark events, and these are reflective of the existing literature. First of all, wide-ranging support from all stakeholders is needed for the events to institutionalise and achieve taken-for-granted permanent status (Getz & Andersson, 2008), and this support seems questionable in the case under investigation. Secondly, the success of the events depends on the extent to which they resonate with the audience; the meaningful commemorative effort cannot be imposed on the people, however, it is needed for a successful event and subsequent event tourism benefits. In this case, the organisers appear to think that with each anniversary, a new unique idea that successfully facilitates the desired experiences is needed and that previous formats cannot be repeated.

Therefore, overall, the development of these events into events of permanent status similar to hallmark events is uncertain despite past success. Nevertheless, the study suggests that commemorative events of similar iconic-historic status to the fall of the Berlin Wall can be

desirable devices in an event portfolio and it should be considered whether they can be nurtured to become institutions.

### 5.7. The need for commemorative portfolios and their linkages with event portfolios

Whilst this paper argues that iconic-historic commemorative events can be as valuable for event portfolios as hallmark events, there are nevertheless several particularities of such events in considering their use for event tourism purposes. There are two key interrelated issues that relate to the process of commercialisation and links with permanent commemoration. In order to address these issues, the authors suggest the integration of iconic-historic commemorative events into both a commemorative portfolio and an event portfolio, where possible and appropriate.

In discussing the use of events for event tourism development purposes, Getz (1991) states that commercialisation is a common concern particularly with the use of cultural events. This concern is related to the commodification of cultural elements in the production of events explicitly aimed at tourists which may lead to a perceived lack of authenticity (Andrews & Leopold, 2013). Commodification and lack of authenticity may negatively influence the perceived meaning of the event (Andrews & Leopold, 2013). Authenticity, however, is a highly subjective concept and as such, the level of 'acceptable commercialisation' will differ from person to person. This management challenge of catering to a large number of visitors while at the same time trying to preserve the inherent meanings of commemorative events is pointed out by Hall et al. (2010). Furthermore, the increased usage of event portfolios for event tourism goals (e.g. Getz, 1991, 2005, 2008; Getz & Page, 2016a; Richards & Palmer, 2010) as well as an increased awareness of the importance to provide experiences (stemming from Pine and Gilmore's original discussion of the experience economy in 1998) led to what Jakob (2013) terms eventification of place: 'the process with which the consumption of products and space is turned into an event' (p. 449). Thus, what happens could be seen as an eventification or commodification of commemoration as part of wider event tourism strategies. This development is explicitly criticised by one organiser of the iconic-historic events under investigation:

*I was very, very sceptical towards the whole thing. Because [...] I immediately see the eventification and exploitation of spaces. (Interviewee 3)*

In contrast to this, another interviewee argued that staging the commemoration as an event does not necessarily imply any negative impacts on the profoundness or authenticity of the commemorative effort:

*I think that it is okay to stage this, and it should be staged [...]. It doesn't mean you have to distort anything, and that's always this black and white thinking. [...] You don't have to lie. But that doesn't mean it can't be staged. (Interviewee 2)*

In this interplay between temporary and permanent commemoration there is a level of disagreement among organisers in terms of what is most appropriate and what is most profound. Frost and Laing (2013) consider the question of when this eventification turns into disrespect, but also argue that the answer is highly subjective and that this may always be a resource for dispute.

Richards and Palmer (2010) argue that in line with processes such as event portfolio development, events increasingly challenge the dominance of static sites for cultural and economic development in cities. They further state that events can lead to more vibrant and stimulating experiences in urban spaces. Although the overall positive impact of the events is recognised among organisers, permanent commemoration nevertheless appears to carry the highest priority. In a city like Berlin which is highly dependent on its history for branding and (event) tourism development strategies, it is important to develop a

<sup>4</sup> Tagesspiegel: A daily liberal newspaper with its headquarters and primary target audience in Berlin.

<sup>5</sup> The words used in German are 'Event' and 'Ereignis', the former is exclusively used in German to refer to a planned event whereas the latter can refer to something unplanned and unexpected.

balanced commemorative portfolio consisting of both permanent and temporary forms.

The idea of a commemorative portfolio was also supported by one of the interviewees who argued that the events should add to the existing infrastructure:

*[W]e are working with partners in the city, especially those who usually deal with coming to terms with the topic on a daily basis [...] that means we do not want to do anything to compete with them or repeat what they are already dealing with, but simply to create something supplementary that matches our partners' ideas. (Interviewee 1)*

This portfolio should not only consider permanent and temporary forms of commemoration in regards to one particular historical event, such as the fall of the Wall, but needs to be more wide-ranging in scope. One interviewee explained that:

*Because naturally there were voices in 2009 that said 'You are celebrating the fall of the Wall on such a large scale, but don't forget the anniversary of the November Pogroms'<sup>6</sup>. And that led to the idea to stage [another] theme year for the 75<sup>th</sup> anniversary of the November Pogroms. And that's how one topic leads to another. (Interviewee 4)*

It can be argued that such conflicts over the meaning and interpretation of different events being commemorated are inherent to any act of commemoration (Gillis, 1994). Nevertheless, in recent decades many Western societies have seen a development towards more nuanced and plural commemorative efforts (Elgenius, 2011a, 2011b; Ryan, 2011). Therefore, iconic-historic commemorative events can be as valuable as hallmark events within event portfolios, but at the same time need to be in line with and embedded within a balanced overall commemorative portfolio of the place. This is to address concerns surrounding eventification and commercialisation, conflicts due to competing offers and conflicts with commemoration of other historical events. Iconic-historic commemorative events should therefore not be nurtured into a status similar to hallmark events within an event portfolio without consideration of the permanent commemoration as well as of other key events in the history of the place. Fig. 4 illustrates the proposed portfolio approach to commemoration and its links with the strategic event portfolio framework.

As can be seen in Fig. 4, the commemorative portfolio consists of a base of permanent commemorative infrastructure on a range of historical topics. Whilst Fig. 4 portrays three topics, this could be any number appropriate and relevant to a destination. This base consists of a wide range of memorials, monuments, museums, street names and other forms of permanent commemoration. Some of these may be of interest to tourists whilst others may primarily be of interest to the local community or special interest groups only. In addition to this base, a destination may stage commemorative events on anniversaries of historical events. As this research suggests, there are links between permanent and temporary commemorative efforts (illustrated through the dotted lines in Fig. 4) in that the events can be used to animate existing places as well as create demand for additional permanent commemorative infrastructure. Furthermore, organisers may place a high importance on the permanent infrastructure for long-term anchoring of memories as well as for avoiding a perceived commercialised approach to commemoration, therefore both permanent and temporary forms need to be considered for the portfolio. Similar to the event portfolio, the events staged in addition to the base of permanent commemoration can be of different scale and status. They can be local or regional, meaning they primarily carry meaning for local populations or small special interest groups and have little event tourism significance. Alternatively, such events can be of iconic-historic stature such as the

example in this paper and therefore be significant for event tourism. Finally, such events could be major large-scale anniversaries such as centenary celebrations, which, similarly to mega-events in the event portfolio, occur less frequently due to costs and efforts involved.

As this paper argues, as well as sharing similar characteristics, iconic-historic commemorative events can be as valuable as hallmark events within strategic event portfolios, and thus such temporary commemorative efforts from the commemorative portfolio can feed into the strategic event portfolio approach of a destination. This link between the two portfolio approaches is illustrated in Fig. 4, where the proposed commemorative portfolio can be seen, including the defined iconic-historic form of event. Therefore, whilst these are two separate frameworks for the planning and management of two aspects within a destination – events and commemoration – they are linked particularly through the event tourism significance of iconic-historic commemorative events. Thus these two portfolios should not be managed in isolation but should inform each other, which will require cooperation between different actors within destinations, such as destination planners and managers, city marketers, cultural policy makers and the managers and planners of commemorative efforts.

## 6. Conclusion

By first defining a new category of commemorative event, this paper explored how these iconic-historic commemorative events can function as event tourism devices. In doing so, it used the example of the 20<sup>th</sup> and 25<sup>th</sup> anniversaries of the fall of the Berlin Wall as archetypal examples of iconic-historic commemorative events. This concluding section states the theoretical contributions as well as management implications of this research. It further outlines limitations and potential areas for future research.

### 6.1. Theoretical contributions

In its first major contribution, this paper defines a new form of commemorative event as iconic-historic through the example of the 20<sup>th</sup> and 25<sup>th</sup> anniversary events of the fall of the Berlin Wall. It argues that such events are both iconic in stature and of considerable historical significance, whilst representing internationally appealing values and ideals. The paper also showed that these events have significant event tourism potential and share the key characteristics of sought-after hallmark events. In characterising iconic-historic events, another major contribution of this paper is to provide a new commemorative portfolio framework. This was linked with the strategic event portfolio, thus contributing to knowledge in the realm of event tourism planning. This is presented in Fig. 4 in this paper. In doing so, it illustrates how iconic-historic commemorative events may function as devices for event tourism strategies.

In the context of event tourism, commemorative events within political spheres are a largely unexplored phenomenon. The definition of iconic-historic events as a further form of commemorative event in this area and the understanding of such events in relation to how they are used for event tourism development thus adds to work published on commemorative events, such as the studies by Frost (2012), Frost and Laing (2013), Frost et al. (2008), Hall et al. (2010), Laws and Ferguson (2011) and McDonald and Méthot (2006) whilst also adding a new perspective to work on event tourism (e.g. Getz, 1991, 2008; Getz & Page, 2016a). Furthermore, this study shows that iconic-historic commemorative events do fulfil all of Getz and Page's (2016a) five core propositions of event tourism. Although this is a broad event tourism framework, it further suggests commemorative events have been overlooked for their potential as devices of event tourism. Table 5 summarises the theoretical contributions in this regard.

The paper illustrates that iconic-historic commemorative events are interpreted and staged as internationally appealing events with more than just a domestic audience. The literature suggests that

<sup>6</sup> Also referred to as the 'Night of Broken Glass', the November Pogroms took place on 9<sup>th</sup> and 10<sup>th</sup> November 1938. They constituted attacks and riots aimed at Jews in Germany and were a key event in the lead up to the Holocaust.

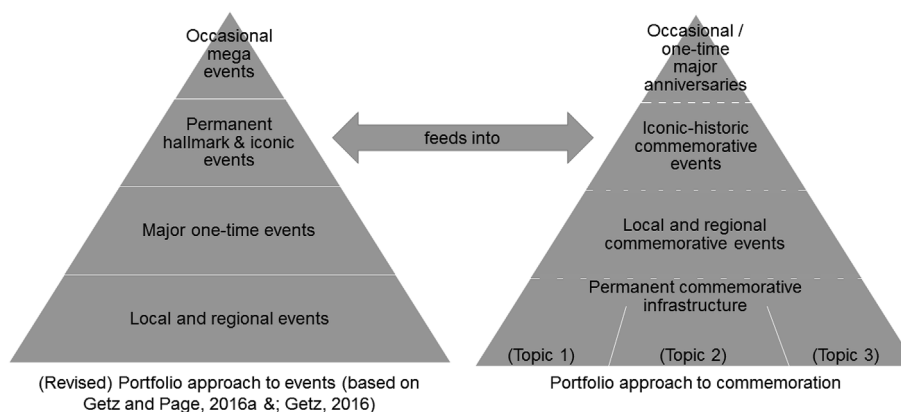


Fig. 4. Strategic event portfolio linked with the proposed commemorative portfolio.

**Table 5**  
Theoretical contributions in relation to the five propositions.

Proposition (Getz & Page, 2016a)	Previous theoretical assumptions	Theoretical contributions of this research
1 Events can attract tourists which can create economic benefits.	Commemorative events have limited appeal to tourists and limited potential for achieving economic benefits from tourism (Frost & Laing, 2013)	Iconic-historic commemorative events can be interpreted and staged as internationally appealing events with much more than just a domestic audience.
2 Events can create positive images for the destination and help brand or re-position cities.	Cultural anniversaries and anniversaries of other ‘popular’ historical events can be used for branding or re-positioning purposes (e.g. Frost & Laing, 2013; Paradis, 2002), but political anniversaries were largely unexplored.	Positive associations with iconic-historic events can be leveraged to brand and re-position a destination, nationally and internationally.
3 Events contribute to place marketing.	The potential to use commemorative events for the marketing of places is considered in the literature (Frost, 2012; Grundlingh, 2004; Laws & Ferguson, 2011; Liburd, 2003; Paradis, 2002), but these ideas are rarely associated with commemoration of political events.	Iconic-historic commemorative events can generate significant positive media coverage worldwide, which can contribute to place marketing by highlighting the attractive nature of the destination.
4 Events animate cities, resorts, parks, urban spaces and venues of all kinds.	This proposition has been largely unexplored.	Iconic-historic commemorative events can be used strategically to encourage visitation at and enhance publicity for permanent forms of commemoration.
5 Event tourism acts as a catalyst for other forms of desired development.	Frost and Laing (2013) comment that commemorative events can provide a justification for funding permanent structures, but do not make the link to event tourism. Therefore, this proposition is largely unexplored.	Iconic-historic commemorative events can be used strategically to stimulate development of and demand for places of permanent commemoration.

commemorative events may have limited appeal to tourists (Frost, 2012; Frost et al., 2008; Frost & Laing, 2013; Grundlingh, 2004; Turner, 2006). However, the events in Berlin were clearly designed to appeal to an international audience by promoting iconic ideals of freedom and democracy and to educate attendees on what happened. This finding further highlights limitations of previous studies and suggests that tourists should not be considered as outsiders to commemoration but may be key drivers for these events to take place in the first place. Consequently, the dichotomy of locals and tourists which is common in studies of commemoration appears to be outdated. In interpreting the fall of the Wall as an event of international significance, this dichotomy is not applicable anymore. The existing literature is therefore too narrow in focus when discussing commemoration primarily in relation to political and social uses and contexts. Likewise, by assuming that commemorative events are primarily directed at a domestic audience, their event tourism potential has been overlooked. In line with this, Elgenius (2011b) and Frost and Laing (2013) comment on the festivities in Berlin on 9<sup>th</sup> November 2009 from a national day celebration perspective, when these events were clearly designed for broader purposes.

This study further suggests that it may be relevant to consider potential linkages between permanent and temporary forms of commemoration. Whilst some previous work in memory studies and event studies comments on such different forms (e.g. Frost & Laing, 2013; Gapps, 2010; Turner, 2006), to the best of the authors’ knowledge, there is no in-depth consideration of the interplay between them in the context of event tourism. Frost and Laing (2013) comment that commemorative events can provide a justification for funding new

permanent structures, but do not make the ensuing links to event tourism. In this study, the linkages between permanent and temporary forms of commemoration imply a further event tourism use of iconic-historic commemorative events as animators of and catalysts for static facilities that commemorate the same or related elements of the past. Such a linkage can help to increase visitor numbers and broaden public attention and thus augment commemoration at static sites. Nevertheless, iconic-historic commemorative events pose some key challenges in relation to concerns over commercialisation and conflicts over meanings and other historical narratives. The authors therefore introduce the commemorative portfolio which incorporates both permanent and temporary forms of commemoration on a range of historical topics and which can help planners to develop a balanced approach to commemoration taking into consideration commemorative efforts of different forms, topics and scales.

The paper argued that iconic-historic commemorative events share important characteristics with sought-after hallmark events in that they are unique and inseparably linked with their host destination, occur periodically and can contribute to place marketing as well as community building. Therefore, it was argued that such commemorative events can be desirable event tourism devices and possibly be nurtured to be of a status similar to hallmark events within an event portfolio. Whilst Frost and Laing (2013) have already proposed that this is the case in rare occasions, this paper adds to their work by illustrating the shared characteristics of the two types of events and thus encouraging the deliberate inclusion and nurturing of iconic-historic commemorative events in event portfolio development plans.

### 6.2. Management implications

For organisers of commemorative events as well as event organisers more broadly, destination marketers and policy makers, this study illustrates that iconic-historic commemorative events can be incorporated into event tourism development strategies. Indeed, these events should be considered as valuable devices and the potential to nurture such events should be explored. In destinations where there are no existing commemorative events that can be developed, new events may be created to celebrate suitable anniversaries. Particularly in geographical settings with events with a positive connotation, such as the overcoming of injustice in the case of the fall of the Berlin Wall, managers could identify the potential transfer of symbolic meanings and values from iconic-historic events.

In order to use iconic-historic events for event tourism purposes, it is necessary to overcome the traditional internal, domestic orientation of commemoration. The event which is being commemorated needs to be interpreted as an event of international significance so that tourists are not seen as outsiders. To reach more than a local or national audience, the commemoration might thus focus on the communication of the international outcomes of the historical event as well as internationally appealing iconic ideals and values. In the case of the fall of the Wall, the construction of such an international orientation is not difficult due to the far-reaching implications of the historical events.

Table 6 outlines all management implications of this paper in relation to Getz and Page's (2016a) core propositions.

Nevertheless, there are some particularities of using iconic-historic commemorative events for such purposes. It is important to consider potential fears of commercialisation and commodification of an 'authentic' or meaningful commemoration. In this context, the authors propose a portfolio approach to commemoration which should be carefully devised and feed into the strategic event portfolio approach. For practitioners, the commemorative portfolio approach can be helpful in navigating challenges in relation to commercialisation as well as conflicts with commemoration of other historical events. Furthermore, this study shows that the success of iconic-historic events is highly dependent on the experiences of the attendees which cannot be imposed on them due to the subjective nature of experiences. This poses challenges that managers will need to negotiate if wanting to nurture the events to become permanent institutions of status comparable to hallmark events elsewhere.

### 6.3. Limitations and future research

First of all, the findings of this research are not generalisable. Within the constructionist philosophy and a qualitative approach, generalisability

is not an intended research outcome; however, there are theoretical contributions and transferable managerial implications as illustrated above. Furthermore, in reference to their conceptual similarities with hallmark events, the specific iconic-historic commemorative events considered in this study are unique and tied to their physical host destination and symbolic position, in cultural, social and historical terms. The theoretical contribution of this research is therefore not in its transferability, but rather is of conceptual nature to the literature on event tourism and commemoration. Furthermore, it should be noted that organisers of other iconic-historic commemorative events might not have the same priorities as in Berlin. The authors of this paper therefore cannot claim that it is always desired or desirable to use iconic-historic commemorative events for event tourism development. Another limitation of the present study is it does not extend to consider the impacts and sustainability of commemorative events, either in the event tourism setting of Berlin and its stakeholder context, or in the generic sense.

Due to the uniqueness of iconic-historic commemorative events, it would be of interest to investigate further events from an event tourism perspective. Suitable events that might fulfil iconic-historic definitions are the upcoming centenary of the November 1918 Armistice that led to end of the First World War or the 500<sup>th</sup> anniversary of Martin Luther publishing his 95 Theses, observed in 2017. Furthermore, the potential symbolic value of iconic-historic events could be studied in particular geographical locations that are currently associated with more negative discourses of injustice, conflict and further human, political or natural phenomena. Examples here include the commemorations of the 9/11 attacks in New York City or the atomic bombings of Hiroshima and Nagasaki. Further research may contribute to a more in-depth understanding of the event tourism significance and associated challenges of commemorative events overall. This would provide additional insight into event tourism uses of commemorative events and thus partly address that the findings are not transferrable to other destinations. It would be of interest to explore whether the portfolio approach to commemoration, combining both temporary and permanent forms, is of relevance in other settings. Moreover, studies of potential future events commemorating the fall of the Berlin Wall can provide further understanding of the uses of these events and examine whether there are any developments from 2009 to 2014 and beyond. Such studies would also give further insight into the events' institutionalisation. Finally, as commemorative events remain under-researched, they could be investigated from a wide range of perspectives to provide additional insight, for example event planning, public policy, impacts and outcomes for destinations and stakeholders, as well as sustainability. Future studies could be from a theoretical perspective, or be situated in particular commemorative event management contexts.

**Table 6**  
Implications of Getz and Page's (2016a) core propositions for the management of iconic-historic commemorative events.

Proposition (Getz & Page, 2016a)	Management implications
1 Events can attract tourists which can create economic benefits.	Organisers should not assume international tourists are outsiders with no interest in the iconic-historic commemorative event and emphasise the symbolic value as well as international implications of the historical event.
2 Events can create positive images for the destination and help brand or re-position cities.	The strategic development of iconic-historic commemorative events with positive connotations and high symbolic value can contribute to a destination's brand.
3 Events contribute to place marketing.	Organisers should be aware of the potential media interest and leverage media publicity for the city. This media publicity can help communicate the positive symbolic value of the event and make the place more attractive to a broader audience.
4 Events animate cities, resorts, parks, urban spaces and venues of all kinds.	Organisers may consider using iconic-historic commemorative events to encourage visitation of and creation of publicity for places of permanent commemoration. The (re)opening of new or refurbished places can be timed to coincide with major anniversaries.
5 Event tourism acts as a catalyst for other forms of desired development.	Organisers may decide to leverage the focused interest around key anniversary events to stimulate debate and support for future development of places of permanent commemoration.

## Author's contribution

Dr Maren Viol is the first author of this paper. As such she designed and conducted all major stages of the research process, including literature review, data collection and data analysis. She developed the portfolio approach to commemoration and prepared all major versions of this paper.

Dr Louise Todd contributed to this paper as its second co-author by developing the conceptual framework of event tourism, strategic portfolio management, and iconic and hallmark events. She synthesised a series of key concepts and themes in these areas in relation to commemorative events, and in doing so, defined 'iconic-historic' commemorative events and their features. A further contribution was to the development of the strategic event portfolio framework, and links with the proposed commemorative portfolio (as presented in the paper). Louise wrote and edited a number of sections of the paper and contributed further by editing and proofreading the paper throughout the writing process.

Dr Eleni Theodoraki has overseen the development of the underpinning conceptual framework of this paper. Eleni further contributed in exploring the paper's socio-political context. She applied organisational and institutional perspectives, edited previous paper versions and helped develop the work following its review by the referees.

Dr Constantia Anastasiadou assisted with the initial conceptualisation of the paper and then again during the revision stages following the reviewers' feedback. She also contributed to the organisation and final editing of the paper and to the responses to reviewers' comments document.

## References

- Allen, J., O'Toole, W., Harris, R., & McDonnell, I. (2011). *Festival & special event management* (5<sup>th</sup> ed.). Milton: Wiley.
- Anderson, B. (2006). *Imagined communities: Reflections on the origin and spread of nationalism, revised edition*. London: Verso Books.
- Andersson, T. D., Getz, D., & Mykletun, R. (2013). The "Festival Size Pyramid" in three Norwegian festival populations. *Journal of Convention & Event Tourism*, 14(2), 81–103.
- Andrews, H., & Leopold, T. (2013). *Events and the social sciences*. Abingdon: Routledge.
- Anholt, S. (2009). Branding places and nations. In R. Clifton (Ed.), *The Economist: Brands and branding* (pp. 206–216). (2<sup>nd</sup> ed.). London: Profile Books Limited.
- Atkinson, D., & Laurier, E. (1998). A sanitised city? Social exclusion at Bristol's 1996 International Festival of the Sea. *Geoforum*, 29(2), 199–206.
- Barthel, D. (1996). Getting in touch with history: The role of historic preservation in shaping collective memories. *Qualitative Sociology*, 19(3), 345–364.
- Berg, B. L. (2004). *Qualitative research methods for the social sciences* (5<sup>th</sup> ed.). Boston: Pearson Education Limited.
- Berlin Tourismus Marketing GmbH (2010). *Geschäftsbericht 2009*, [Online]. available at: [http://press.visitberlin.de/sites/default/files/GF2009\\_low.pdf](http://press.visitberlin.de/sites/default/files/GF2009_low.pdf) accessed: 3<sup>rd</sup> September 2013 .
- Berlin Tourismus, & Kongress GmbH (2015). *Jahresbericht: Zahlen und Fakten 2014*, [Online]. available at: [http://partner.visitberlin.de/sites/default/files/visitberlin\\_jahresbericht\\_2014\\_final\\_web\\_version\\_0.pdf](http://partner.visitberlin.de/sites/default/files/visitberlin_jahresbericht_2014_final_web_version_0.pdf) accessed: 4<sup>th</sup> January 2017 .
- Berridge, G. (2007). *Events design and experience*. Oxford: Elsevier Butterworth-Heinemann.
- Billig, M. (1995). *Banal nationalism*. London: SAGE.
- Bodnar, J. E. (1992). *Remaking America: Public memory, commemoration and patriotism in the 20<sup>th</sup> century*. Princeton: Princeton University Press.
- Bowdin, G., Allen, J., Harris, R., McDonnell, I., & O'Toole, W. (2011). *Events management* (3<sup>rd</sup> ed.). Oxford: Elsevier Butterworth-Heinemann.
- Boyatzis, R. E. (1998). *Transforming qualitative information: Thematic analysis and code development*. London: SAGE.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101.
- Carnegie, E., & McCabe, S. (2008). Re-enactment events and tourism: Meaning, authenticity and identity. *Current Issues in Tourism*, 11(4), 349–368.
- Connell, J., Page, S. J., & Meyer, D. (2015). Visitor attractions and events: Responding to seasonality. *Tourism Management*, 46, 283–298.
- Connerton, P. (1989). *How societies remember*. Cambridge: Cambridge University Press.
- Crespi-Vallbona, M., & Richards, G. (2007). The meaning of cultural festivals. *International Journal of Cultural Policy*, 13(1), 103–122.
- Crotty, M. (1998). *The foundations of social research: Meaning and perspective in the research process*. London: SAGE.
- De Bres, K., & Davis, J. (2001). Celebrating group and place identity: A case study of a new regional festival. *Tourism Geographies*, 3(3), 326–337.
- Detjen, M. (2011). Die mauer als politische metaphor. In K.-D. Henke (Ed.), *Die Mauer: Errichtung, Überwindung, erinnerung* (pp. 426–439). Munich: dtv.
- Dinnie, K. (2011). Introduction to the practice of city branding. In K. Dinnie (Ed.), *City branding: Theory and cases* (pp. 93–98). Basingstoke: Palgrave Macmillan.
- Drechsel, B. (2010). The Berlin Wall from a visual perspective: Comments on the construction of a political media icon. *Visual Communication*, 9(3), 3–24.
- Dwyer, L., Mellor, R., Mistilis, N., & Mules, T. (2000). A framework for assessing "tangible" and "intangible" impacts of events and conventions. *Event Management*, 6(3), 175–189.
- Elgenius, G. (2011a). The politics of recognition: Symbols, nation building and rival nationalisms. *Nations and Nationalism*, 17(2), 396–418.
- Elgenius, G. (2011b). *Symbols of nations and nationalism: Celebrating nationhood*. Basingstoke: Palgrave Macmillan.
- Elias-Varotsis, S. (2006). Festivals and events — (re)interpreting cultural identity. *Tourism Review*, 61(2), 24–29.
- Fevershaw, P., & Schmidt, L. (1999). *The Berlin Wall today: Cultural significance and conservation issues*. Berlin: Huss-Medien.
- Flick, U. (2014). *An introduction to qualitative research* (5<sup>th</sup> ed.). London: SAGE.
- Flierl, T. (2006). *Gesamtkonzept zur Erinnerung an die Berliner Mauer: Dokumentation, Information und Gedenken*, [Online]. available at [https://www.berlin.de/imperia/md/content/mauer/asv2006616\\_1.pdf?start&ts=1415787047&file=asv2006616\\_1.pdf](https://www.berlin.de/imperia/md/content/mauer/asv2006616_1.pdf?start&ts=1415787047&file=asv2006616_1.pdf) accessed: 16th August 2015 .
- Florek, M., & Insch, A. (2011). When fit matters: Leveraging destination and event image congruence. *Journal of Hospitality Marketing & Management*, 20(3–4), 265–286.
- Foote, K. E., & Azaryahu, M. (2007). Toward a geography of memory: Geographical dimensions of public memory and commemoration. *Journal of Political & Military Sociology*, 35(1), 125–144.
- Frank, S. (2009). *Der Mauer um die Wette gedenken: Die Formation einer Heritage-Industrie am Berliner Checkpoint Charlie*. Frankfurt: Campus Verlag.
- Frost, W. (2012). Commemorative events and heritage in former capitals: A case study of Melbourne. *Current Issues in Tourism*, 15(1–2), 51–60.
- Frost, W., & Laing, J. (2013). *Commemorative events: Memory, identities, conflict*. Abingdon: Routledge.
- Frost, W., Wheeler, F., & Harvey, M. (2008). Commemorative events: Sacrifice, identity and dissonance. In J. Ali-Knight, M. Roberston, A. Fyall, & A. Larkins (Eds.), *International perspectives on festivals and events: Paradigms of analysis* (pp. 161–171). London: Elsevier.
- Fuller, L. K. (Ed.). (2004). *National days/national ways: Historical, political and religious celebrations around the world*. Westport: Praeger.
- Gapps, S. (2010). On being a mobile monument: Historical reenactments and commemorations. In I. McCalman, & P. A. Pickering (Eds.), *Historical reenactment: From realism to the affective turn* (pp. 50–62). Basingstoke: Palgrave Macmillan.
- Gellner, E. (2006). *Nations and nationalism* (2<sup>nd</sup> ed.). Oxford: Blackwell.
- Getz, D. (1991). *Festivals, special events and tourism*. London: Van Nostrand Reinhold.
- Getz, D. (2005). *Event management & event tourism* (2<sup>nd</sup> ed.). Elmsford: Cognizant Communication.
- Getz, D. (2007). *Event studies: Theory, research and policy for planned events*. Abingdon: Routledge.
- Getz, D. (2008). Event tourism: Definition, evolution, and research. *Tourism Management*, 29, 403–428.
- Getz, D. (2016). *Revised event portfolio models*, [Online]. available at <https://donaldgetzprofessor.files.wordpress.com/2016/10/donald-getz-event-portfolio-paper-oct-2016.pdf> accessed: 26<sup>th</sup> January 2018 .
- Getz, D., & Andersson, T. D. (2008). Sustainable festivals: On becoming an institution. *Event Management*, 12, 1–17.
- Getz, D., & Page, S. J. (2016a). Progress and prospects for event tourism research. *Tourism Management*, 52, 593–631.
- Getz, D., & Page, S. J. (2016b). *Event studies: Theory, research and policy for planned events*. London: Routledge.
- Getz, D., Svensson, B., Petersson, R., & Gunnervall, A. (2012). Hallmark events: Definition, goals and planning process. *International Journal of Event Management Research*, 7(1/2), 47–67.
- Gilbert, F. (1976). Bicentennial reflections. *Foreign Affairs*, 54(4), 635.
- Gillis, J. R. (1994). Memory and identity: The history of a relationship. In J. R. Gillis (Ed.), *Commemorations: The politics of national identity* (pp. 1–12). Chichester: Princeton University Press.
- Grundlingh, A. (2004). Refraining remembrance: The politics of the centenary commemoration of the South African War of 1899–1902. *Journal of Southern African Studies*, 30(2), 359–375.
- Guba, E. G., & Lincoln, Y. S. (1998). Competing paradigms in qualitative research. In N. K. Denzin, & Y. S. Lincoln (Eds.), *The landscape of qualitative research: Theories and issues* (pp. 195–220). London: SAGE.
- Hall, C. M. (1992). *Hallmark tourist events: Impacts, management and planning*. London: Belhaven Press.
- Hall, J., Basarin, V. J., & Lockstone-Binney, L. (2010). An empirical analysis of attendance at a commemorative event: Anzac Day at Gallipoli. *International Journal of Hospitality Management*, 29(2), 245–253.

- Harrison, H. M. (2011). The Berlin Wall and its resurrection as a site of memory. *German Politics and Society*, 29(2), 78–106.
- Henke, K.-D. (Ed.). (2011). *Die Mauer: Errichtung, Überwindung, Erinnerung*. Munich: dtv.
- Hobsbawm, E. (1983). Introduction: Inventing traditions. In E. Hobsbawm, & T. Ranger (Eds.). *The invention of tradition* (pp. 1–14). Cambridge: Cambridge University Press.
- Hobsbawm, E., & Ranger, T. (Eds.). (1983). *The invention of tradition*. Cambridge: Cambridge University Press.
- Hodur, N. M., & Leistritz, F. L. (2006). Estimating the economic impact of event tourism: A review of issues and methods. *Journal of Convention & Event Tourism*, 8(4), 63–79.
- Jakob, D. (2013). The eventification of place: Urban development and experience consumption in Berlin and New York City. *European Urban and Regional Studies*, 20(4), 447–459.
- Jamieson, K. (2004). The festival gaze and its boundaries. *Space and Culture*, 7(1), 64–75.
- Jedlowski, P. (2001). Memory and sociology: Themes and issues. *Time & Society*, 10(1), 29–44.
- Jeong, S., & Santos, C. A. (2004). Cultural politics and contested place identity. *Annals of Tourism Research*, 31(3), 640–656.
- Kattago, S. (2015). Written in stone: Monuments and representation. In S. Kattago (Ed.). *The Ashgate research companion to memory studies*, Surrey (pp. 179–195). Ashgate.
- Klausmeier, A., & Schlusche, G. (Eds.). (2011). *Denkmalpflege für die Berliner Mauer: Die Konservierung eines unbequemen Bauwerks*. Berlin: Christoph Links Verlag GmbH.
- Klemke, R. E. (2011). Das gesamt-konzept berliner mauer. In K.-D. Henke (Ed.). *Die Mauer: Errichtung, Überwindung, Erinnerung* (pp. 377–393). Munich: dtv.
- Knischewski, G., & Spittler, U. (2006). Remembering the Berlin Wall: The wall memorial ensemble bernauer Straße. *German Life and Letters*, 59(2), 280–293.
- Kulturprojekte Berlin GmbH (2009a). *20 Jahre Mauerfall: Dokumentation des Themenjahres 2009*. Berlin: Kulturprojekte Berlin GmbH.
- Kulturprojekte Berlin GmbH (2009b). *Berliner Zukünfte: Darstellung und Bilanz – perspektiven und Visionen*. Berlin: Kulturprojekte Berlin GmbH.
- Kulturprojekte Berlin GmbH (2009c). *Dominobuch: Geschichte(n) mit Dominoeffekt*. Berlin: Kulturprojekte Berlin GmbH.
- Kulturprojekte Berlin GmbH (2009d). “Wir sind das Volk”: *Magazin zur Ausstellung Friedliche Revolution 1989/90*, [Online]. available at [http://revolution89.de/media/pdf/Ausstellung/Katalog\\_FR\\_dt.Web.pdf](http://revolution89.de/media/pdf/Ausstellung/Katalog_FR_dt.Web.pdf) accessed: 15<sup>th</sup> August 2015 .
- Kulturprojekte Berlin GmbH (2014). *Mauergeschichten – wall stories*. Berlin: Kulturprojekte Berlin GmbH.
- Kulturprojekte Berlin GmbH (nd) 25<sup>th</sup> anniversary of the fall of the Berlin Wall: *Worldwide*, [Online], available at: <https://fallofthewall25.com/weltweit>, accessed: 4<sup>th</sup> November 2015.
- Ladd, B. (1997). *The ghosts of Berlin: Confronting German history in the urban landscape*. London: The University of Chicago Press.
- Laws, C., & Ferguson, R. (2011). Where mega meets modest: Community events and the making of Canadian national identity. In E. Frew, & L. White (Eds.). *Tourism and national identities: An international perspective* (pp. 121–135). Abingdon: Routledge.
- Liburd, J. J. (2003). Tourism and the Hans christian andersen bicentenary event in Denmark. In J. Ali-Knight, M. Robertson, A. Fyall, & A. Ladkin (Eds.). *International perspectives of festivals and events: Paradigms of analysis* (pp. 41–52). London: Elsevier.
- Lincoln, Y. S., Lynham, S. A., & Guba, E. G. (2011). Paradigmatic controversies, contradictions, and emerging confluences, revisited. In N. K. Denzin, & Y. S. Lincoln (Eds.). *The SAGE handbook of qualitative research* (pp. 97–128). (4<sup>th</sup> ed.). London: SAGE.
- Mackellar, J. (2014). Surfing the Fringe: An examination of event tourism strategies of the bleach festival - coolangatta queensland. *Event Management*, 18, 447–455.
- MacLeod, N. E. (2006). The placeless festival: Identity and place in the post-modern festival. In D. Picard, & M. Robinson (Eds.). *Festivals, tourism and social change: Remaking worlds* (pp. 222–237). Clevedon: Channel View Publications.
- Manghani, S. (2008). *Image critique & the fall of the Berlin wall*. Bristol: Intellect Books.
- Mariani, M. M., & Giorgio, L. (2017). The “Pink Night” festival revisited: Meta-events and the role of destination partnerships in staging event tourism. *Annals of Tourism Research*, 63, 89–109.
- McCrone, D., & McPherson, G. (Eds.). (2009). *National days: Constructing and mobilising national identity*. Basingstoke: Palgrave Macmillan.
- McDonald, T., & Méthot, M. (2006). That impulse that bids a people to honour its past: The nature and purpose of centennial celebrations. *International Journal of Heritage Studies*, 12(4), 307–320.
- McKercher, B. (2016). Towards a taxonomy of tourism products. *Tourism Management*, 54, 196–208.
- Mendes, J., Valle, P., & Guerreiro, M. (2011). Destination image and events: A structural model for the Algarve case. *Journal of Hospitality Marketing & Management*, 20, 366–384.
- Merkel, U. (2014). The critical, social-scientific study of international events. In U. Merkel (Ed.). *Power, politics and international events: Socio-cultural analyses of festivals and spectacles* (pp. 3–29). London: Routledge.
- Merkel, U. (2015). Making sense of identity discourses in international events, festivals and spectacles. In U. Merkel (Ed.). *Identity discourses and communities in international events, festivals and spectacles* (pp. 3–33). Basingstoke: Palgrave Macmillan.
- Misztal, B. A. (2003). *Theories of social remembering*. Maidenhead: Open University Press.
- Müller, M. (2015). What makes an event a mega-event? Definitions and sizes. *Leisure Studies*, 34(6), 627–642.
- Paradis, T. (2002). The political economy of theme development in small urban places: The case of Roswell, New Mexico. *Tourism Geographies*, 4(1), 22–43.
- Patton, M. C. (2002). *Qualitative research & evaluation methods* (3<sup>rd</sup> ed.). London: SAGE.
- Pine, B. J., & Gilmore, J. H. (1998). Welcome to the experience economy. *Harvard Business Review*, 76, 97–105.
- Richards, G., & Palmer, R. (2010). *Eventful cities: Cultural management and urban revitalization*. Oxford: Elsevier Butterworth-Heinemann.
- Robert-Havemann-Gesellschaft e. V., & Kulturprojekte Berlin GmbH (2010). *Friedliche Revolution 1989/90: Dokumentation der Open-Air-Ausstellung*, [Online]. available at [http://revolution89.de/media/pdf/Ausstellung/Dokumentation\\_FR\\_dt\\_WEB.pdf](http://revolution89.de/media/pdf/Ausstellung/Dokumentation_FR_dt_WEB.pdf) accessed: 13<sup>th</sup> February 2015 .
- Ryan, L. (2011). Memory, power and resistance: The anatomy of a tripartite relationship. *Memory Studies*, 4(2), 154–169.
- Ryan, C., & Cave, J. (2007). Cambridge Armistice Day celebrations: Making a carnival of war and the reality of play. In C. Ryan (Ed.). *Battlefield tourism: History, place and interpretation* (pp. 177–186). Oxford: Elsevier.
- Schwartz, B. (1982). The social context of commemoration: A study in collective memory. *Social Forces*, 61(2), 374–402.
- Smith, A. D. (1991). *National identity*. London: Penguin Books.
- Spillman, L. (1997). *Nation and commemoration: Creating national identities in the United States and Australia*. Cambridge: Cambridge University Press.
- St-Onge, T. (1991). Canada's 125<sup>th</sup> anniversary: An example of public participation. *Journal of Applied Recreation Research*, 16(1), 53–60.
- Stokes, R. (2008). Tourism strategy making: Insights to the events tourism domain. *Tourism Management*, 29, 252–262.
- Todd, L., Leask, A., & Ensor, J. (2017). Understanding primary stakeholders' multiple roles in hallmark event tourism management. *Tourism Management*, 59, 494–509.
- Tölle, A. (2010). Urban identity policies in Berlin: From critical reconstruction to reconstructing the wall. *Cities*, 27(5), 348–357.
- Turner, C. (2006). Nation and commemoration. In G. Delanty, & K. Kumar (Eds.). *The SAGE handbook of nations and nationalism* (pp. 205–213). London: SAGE.
- Ullrich, M. (2006). *Geteilte Ansichten: Erinnerungslandschaft deutsch-deutsche grenze*. Berlin: Aufbau Verlag.
- West, B. (2010). Dialogical memorialization, international travel and the public sphere: A cultural sociology of commemoration and tourism at the first world war Gallipoli battlefields. *Tourist Studies*, 10(3), 209–225.
- West, B. (2015). *Re-enchanting nationalisms: Rituals and remembrances in a postmodern age*. New York: Springer.
- White, G. M. (1997). Mythic history and national memory: The pearl harbor anniversary. *Culture & Psychology*, 3(1), 63–88.
- White, L. (2004). The bicentenary of Australia: Celebration of a nation. In L. K. Fuller (Ed.). *National days/national ways: Historical, political and religious celebrations around the world* (pp. 25–39). Westport: Praeger.
- Winter, C. (2009). Tourism, social memory and the great war. *Annals of Tourism Research*, 36(4), 607–626.
- Winter, C. (2015). Ritual, remembrance and war: Social memory at tyne cot. *Annals of Tourism Research*, 54, 16–29.
- Zerubavel, Y. (1995). *Recovered roots: Collective memory and the making of Israeli national tradition*. Chicago: The University of Chicago Press.
- Ziakas, V. (2014). *Event portfolio planning and management: A holistic approach*. London: Routledge.
- Ziakas, V., & Costa, C. A. (2011). Event portfolio and multi-purpose development: Establishing the conceptual grounds. *Sport Management Review*, 14, 409–423.



**Dr Maren Viol** is a Senior Lecturer in Tourism and Programme Leader of the BA (Hons) Tourism Management degree at British University Vietnam in Hanoi. Prior to moving to Vietnam, she gained her PhD from Edinburgh Napier University, UK, where she also lectured on tourism and events degrees. She holds a PG Cert Teaching and Learning in Higher Education and is a Fellow of the Higher Education Academy. Maren's teaching and research interests primarily lie in tourism, festival and event management, commemoration and commemorative events, memory studies, tourism and event impacts, and tourism higher education. She can be reached on [maren.v@buv.edu.vn](mailto:maren.v@buv.edu.vn).



**Dr Louise Todd** is Programme Leader for the MSc International Festival and Event Management in the Tourism and Languages Group at Edinburgh Napier University, UK. Louise's research and teaching interests lie in tourism, cultural event tourism, art, design, visual culture and marketing communications. She has published in these areas. Prior to working in Higher Education, Louise's background was in the arts, media, and festivals and events. She worked in marketing and communications management roles; with responsibility for the design, management and marketing of arts, media, entertainment and educational events, within organisational and festival contexts. Louise can be contacted at [l.todd@napier.ac.uk](mailto:l.todd@napier.ac.uk).





**Dr Eleni Theodoraki** is an Associate Professor in Festival and Event Management specializing in mega sport event management. Her research draws on organisation and social theory and explores issues of governance, policy, strategy development, effectiveness and sustainability. Eleni has worked for organising committees for the Olympic Games and was commissioner for sustainability for the London 2012 Games. Her research has been supported by funders such as the Qatar National Research Fund, Scottish Enterprise, the British Academy and the International Olympic Committee. She has supervised nine PhD students in the subject and maintains cooperation with UNESCO and Transparency International on sport governance and integrity issues.



**Dr Constantia Anastasiadou** is a Reader in Tourism at Edinburgh Napier University, Edinburgh UK. She holds an Honours degree in Economics from the University of Macedonia, Thessaloniki, Greece and an MSc and PhD in Tourism from the Scottish Hotel School, University of Strathclyde, Glasgow UK. Her research interests primarily focus on the organisation and governance of tourism structures and technology-enabled mediation processes in tourism environments. Current research focuses on the governance arrangements of tourism management structures within Scottish urban and rural areas, tourism policy and planning in the European Union, and souvenir tourist consumption.

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/343334092>

# Reassessing the Export Competitiveness of Vietnam

Article · October 2019

DOI: 10.33100/jossh5.5.ShashiKantChaudharyNguyenVietKhoi

CITATIONS

0

READS

301

2 authors:



**Shashi Chaudhary**  
British University Vietnam

16 PUBLICATIONS 71 CITATIONS

[SEE PROFILE](#)



**Nguyen Viet Khoi**  
Vietnam National University, Hanoi

22 PUBLICATIONS 76 CITATIONS

[SEE PROFILE](#)

Some of the authors of this publication are also working on these related projects:



Global Value Chain: Vietnam Network [View project](#)



Tourism Economics [View project](#)

# Reassessing the Export Competitiveness of Vietnam

Shashi Kant Chaudhary\*, Nguyen Viet Khoi\*\*

**Abstract:** In this paper, primarily the export specialisation pattern of Vietnam has been examined from the perspective of domestic value added exports. In addition, an effort has been made to identify presence of exaggeration in gross exports measures of industries level competitiveness. Empirical findings suggest that the export specialisation of Vietnam has reversed, and there is presence of exaggeration in the estimates of comparative advantage of ‘human capital and technology intensive’ industries that has also caused in ballooning up their shares in gross exports. Such pattern has arisen because intra-industry trade has become increasingly significant in Vietnam.

**Keywords:** Competitiveness; Domestic Value Added Exports; Revealed Comparative Advantage; Specialisation; Trade in Value Added; Vietnam.

*Received 11<sup>th</sup> March 2019; Revised 17<sup>th</sup> October 2019; Accepted 20<sup>th</sup> October 2019*

DOI: <https://doi.org/10.33100/jossh5.5.ShashiKantChaudharyNguyenVietKhoi>

## 1. Introduction

The trade competitiveness in conventional way is analysed by using gross exports value, which in the world of fragmented production process suffers from multiple counting problems. Consequently, the gross exports value of a country that is located at the end of the fragmented production process, for example China, Mexico, and Vietnam, are found exaggerated by significant amount<sup>1</sup>. Such exaggerations in gross exports may lead to noisy and misleading measurement of export competitiveness of an industry or sector.

The studies by Koopman et al. (2014) and Johnson (2013) clearly reveal how exaggeration in the gross exports may have serious repercussion in estimation of revealed comparative advantage for an industry or country<sup>2</sup>, which in turn may also alter the industrial or trade policies since the policymakers may make incorrect decision while identifying the export sectors or products for export promotion. There are numbers of other analyses available that also show that the gap between domestic value

---

\* British University Vietnam;  
email: shashikant.c@buv.edu.vn

\*\* University of Economics and Business,  
Vietnam National University

<sup>1</sup> Xing and Detert (2010) have explained the issue of exaggerated gross export value very clearly in their study of iPhone 4, in which they show that of the US\$178.96 cost of production of an iPhone 4; Chinese contribution is merely US\$6.50.

---

<sup>2</sup> Based on gross exports value, Koopman et al. (2014) found that both China and India revealed strong comparative advantage in the ‘finished metal products’. However; when reassessing the same using domestic value added exports, India slipped from comparative advantage to comparative disadvantage, while there was a significant drop in the revealed comparative advantage ranking of China. In a similar way, Johnson (2013) using gross exports value found that China has a comparative advantage in ‘computers’; however, when it was assessed using domestic value added exports, this was no longer the case.

added exports and gross exports of an industry or a country is increasing.

A comparative approach to analysing these two series of exports in Vietnam shows that the gross exports value is exaggerated by significant amount, which is as much as of 36 percent; thus, giving a strong cause to suspect presence of noise in its conventional measures of revealed comparative advantages of the exporting industries. To identify presence of such noises, therefore it is necessary to reassess the export competitiveness of those exporting industries using domestic value added exports. In this regard, this paper focuses on re-computation of the revealed comparative advantage indices of various exporting industries of Vietnam using the 'domestic value added exports' and comparison of the outcomes with that of the conventional indices for the same industries in order to find presence of any noise. The rest part of this paper is organised as follow. Section 2 discusses the methodological framework that also includes some highlights on some earlier studies on developing revealed comparative advantage indices. Section 3 discusses empirical findings of the analysis followed by the concluding remarks and policy discussions in section 4.

## 2. Methodological framework

The concept of 'revealed comparative advantage' (RCA) was first introduced by Liesner in 1958; however, it was operationalized by Balassa in 1965 as a way to approximate the comparative advantages in autarky. Since then, the ways of measuring revealed comparative advantages have been revised and modified by several academicians viz. Donges and Riedel

(1977), Wolter (1977), Vollrath (1991), Lafay (1992), Dalum et al. (1998) etc. But, Balassa's index has been found more useful in many researches and policy applications, and has been adopted by some reputable institutions such as UNIDO (1986), World Bank (1994) and OECD (2011), and also by many academicians such as Aquino (1981), Crafts and Thomas (1986), Hulst et al. (1991), Lim (1997) etc. in their research works as a measure of the international trade competitiveness. However, there is a serious concern about the Balassa's index, that it assigns more weight above unity than below it i.e. Balassa's index distribution is not symmetrical. Hence, to overcome this problem, several other alternative indices have been developed including Lafay index (Lafay 1992), Revealed Symmetric Comparative Advantage index (Dalum et al. 1998), Revealed Weighted Comparative Advantage index (Proudman and Redding 2000), Revealed Additive Comparative Advantage index (Hoen and Oosterhaven 2006), Revealed Normalized Comparative Advantage index (Yu et al. 2009) etc.

In their study, Sanidas and Shin (2015) employed these indices to examine their significance and applicability in measuring revealed comparative advantages. But, they remained indecisive to recommend any one approach over the other. On the other hand, Laursen (1998) showed that Revealed Symmetric Comparative Advantage (RSCA) index meets the normality assumption more frequently than other indices by adopting a comparative approach among the Revealed Symmetric Comparative Advantage index, Michaely index and Chi-square. Considering these facts, researchers have adopted Balassa's index to reassess the export competitiveness of Vietnam. Researchers realised that there is an additional benefit of adopting Balassa's index for this purpose,

which is the fact that Balassa’s index can be incorporated into the RSCA index in order to overcome the problem of asymmetry<sup>3</sup> in the Balassa’s RCA distribution. Hence, the research scheme is to apply Balassa’s approach to measure RCA indices of exporting industries of Vietnam based on domestic value added exports and gross exports series and make a comparative conclusion on the export competitiveness of those industries and Vietnam itself. Then to examine the pattern of export specialisation based on beta estimates of the Galtonian regression analysis on RSCA indices. These indices have been discussed briefly in the following sections.

### 2.1. Balassa’s index and RSCA index

Balassa’s index is the ratio of proportionate share of a given industry’s total exports in a nation’s exports (here Vietnam) to the proportionate share of the same industry in the World.

Mathematically, Balassa’s index can be represented as below:

$$(1) \quad BI_j = \frac{\frac{X^v_{jt}}{X^v_{Tt}}}{\frac{X^W_{jt}}{X^W_{Tt}}}$$

where  $BI_j$  stands for Balassa’s RCA index for industry  $j$ ;  $X$  stands for exports,  $t$  and  $T$  refer to year and total exports value, and ‘v’ and ‘W’ stand for the Vietnam and the World respectively such that-

$X^v_{jt}$  = Vietnam’s exports of industry  $j$  in period  $t$ ,

$X^v_{Tt}$  = Vietnam’s total exports value in period  $t$ ,

$X^W_{jt}$  = World’s exports of industry  $j$  in period  $t$ ,

$X^W_{Tt}$  = World’s total exports value in period  $t$ .

Numerical values of Balassa’s index can take anywhere between zero and infinity. Therefore, the guideline is that ‘Vietnam would have a comparative advantage in an industry only if BI value of this industry is greater than unity; and a comparative disadvantage in the industry if its BI value is smaller than unity’. However, as discussed earlier that demarcation at unity creates asymmetry in the RCA distribution, which makes it unsuitable for the purpose of statistical analysis to examine the pattern of export competitiveness of industries over time. Moreover, it may also result into unreliable t-statistic if a regression analysis is employed. Therefore, to overcome this problem, researchers have followed Dalum et al. (1998) to engage the concept of ‘revealed symmetric comparative advantage’ (RSCA), which is the ratio of (BI-1) to the (BI+1). As the value of RSCA falls between +1 and -1, its distribution is symmetric around zero. Hence, RSCA indices can also be used in the Galtonian cross-section regression to examine the specialisation pattern of Vietnam across industries in the world market. The regression equation is presented as below:

$$(2) \quad RSCA_{j,t} = \alpha_j + \beta_j * RSCA_{j,t-k} + \epsilon_{j,t}$$

where subscripts  $j$ ,  $t$  and  $(t-k)$  denote the industry, final year and initial year under consideration respectively. Thus,  $RSCA_{j,t-k}$  stands for the revealed symmetric comparative advantage index of industry  $j$  in the initial year  $(t-k)$  and  $RSCA_{j,t}$  stands the

<sup>3</sup> Vollrath (1991) though also suggests that application of logarithmic function on Balassa’s indices, i.e. LN(BI) would overcome this problem, however Dalum et al. (1998) points a methodological problem in this approach while using it on small RCA values. In specific, they argue that this approach would not differentiate between the impacts of a change in a RCA values from 0.01 to 0.02 and a change in the same from 50 to 100, and vice-versa.

same for final year  $t$ .  $\alpha$  and  $\beta$  are regression parameters, and  $\epsilon_{j,t}$  is a residual term which is assumed to be normally distributed.

The estimate of beta ( $\beta$ ) in above equation has significant importance in interpreting the specialisation pattern of a country (here Vietnam) across industries between two periods under consideration. If beta equals unity ( $\beta=1$ ), it means that the specialization pattern has remained unchanged between period  $(t-k)$  and  $t$ . If beta is greater than unity ( $\beta>1$ ), it means that the specialisation pattern has strengthened, that is Vietnam has specialised further in already specialised industries, and more de-specialised in already de-specialised industries. Likewise, if beta lies in between zero and unity ( $0<\beta<1$ ), it means that the specialisation pattern has reversed, that is, more specialised industries have become less specialised and less specialised industries have become more specialised. The negative beta ( $\beta<0$ ) is a special case of reversal and implies that industries whose RSCAs were initially below country's average in period  $(t-k)$ , are now above average in period  $t$ , and vice versa.

## 2.2 Data sources and study period

Two series of exports have been used in analysing the competitiveness of Vietnam, these are domestic value added exports (symbol DVA) and gross exports (symbol EXGR). Their values have been extracted from OECD TiVA database (2016 edition). Since the data on domestic value added exports were available for the period of 1995 to 2011 only, the study also covers the same period. Moreover, since the value added is a production based concept, the industries have been classified according to

ISIC (International Standard Industrial Classification of All Economic Activities) classification that includes 34 industries including 2 primary, 16 manufacturing, 14 services, 1 utility and 1 construction.

## 3. Empirical results

### 3.1. General findings

Empirical findings analysed upon domestic value added exports series suggest that Vietnam has comparative advantages in 10 industries in the World market that includes agriculture (ISIC01T05), foods and beverages (ISIC15T16), textiles and footwear (ISIC17T19), wood products (ISIC20), rubber and plastic products (ISIC25), non-metallic mineral products (ISIC26), manufacturing n.e.c. (ISIC36T37), wholesale and retail trade (ISIC50T52), hotels and restaurants (ISIC55), and transport and storage (ISIC60T63). While looking at those 10 industries from the perspective of level of labourer's skill and technology used in the production process; agriculture, foods and beverages, wood, rubber and plastics, and non-metallic minerals are all 'natural-resource intensive' industries and rests are 'low-skilled labour intensive' industries. The 'human capital and technology intensive' industries such as machinery and equipment (ISIC29), computer and electronics (ISIC30T33X), electrical machinery (ISIC31), and transportation (ISIC34T35) have failed to reveal comparative advantages in the world market (table 1).

**Table 1: RCA indices of selected industries in the World market, 1995 and 2011**

1995			2011	
RCA_DVA	RCA_EXGR	Industries	RCA_DVA	RCA_EXGR
<u>1.80</u>	<u>1.67</u>	Agriculture (C01T05)	<u>3.96</u>	<u>3.39</u>
<u>2.30</u>	<u>2.31</u>	Mining (C10T14)	0.84	0.76
<u>2.75</u>	<u>2.43</u>	Foods and beverages (C15T16)	<u>4.45</u>	<u>3.92</u>
<u>2.65</u>	<u>2.88</u>	Textile and footwear (C17T19)	<u>2.72</u>	<u>2.66</u>
<u>1.06</u>	0.91	Wood products (C20)	<u>2.84</u>	<u>3.08</u>
0.16	0.17	Paper products (C21T22)	0.37	0.41
0.22	0.37	Petroleum products (C23)	0.42	0.54
0.08	0.12	Chemicals (C24)	0.26	0.41
0.41	0.42	Rubber and plastics (C25)	<u>1.08</u>	<u>1.51</u>
0.74	0.83	Other non-metallic minerals (C26)	<u>1.74</u>	<u>1.74</u>
0.05	0.08	Basic metals (C27)	0.30	0.54
0.27	0.38	Metal products (C28)	0.86	<u>1.14*</u>
0.06	0.09	Machinery and equipment (C29)	0.15	0.30
0.27	0.39	Computer and electronics (C30T33X)	0.55	0.88
0.37	0.48	Electrical machinery (C31)	0.96	<u>1.46*</u>
0.01	0.01	Motor vehicles (C34)	0.16	0.19
0.10	0.15	Other transport equipment (C35)	0.28	0.39
0.81	<u>1.01*</u>	Manufacturing nec (C36T37)	<u>1.84</u>	<u>1.77</u>
<u>1.05</u>	<u>1.15</u>	Wholesale and retail trade (C50T52)	<u>1.08</u>	<u>1.01</u>
<u>1.39</u>	<u>1.32</u>	Hotels and restaurants (C55)	<u>2.08</u>	<u>1.73</u>
0.55	0.60	Transport and storage (C60T63)	<u>1.13</u>	<u>1.04</u>
<u>2.24</u>	<u>2.21</u>	Post and telecommunications (C64)	0.43	0.36
<u>4.21</u>	<u>4.04</u>	Financial intermediation (C65T67)	0.17	0.14

Source: Adapted and computed from OECD TiVA database (2016 edition).

DVA = domestic value added exports; and EXGR = gross exports

(Underlined numbers are  $RCA > 1$  indices. \* indicates the RCA exaggerated by gross exports)

On the other hand, the comparative advantage of mining (ISIC10T14) industry, which is a 'low-skilled labour and natural-resource intensive' industry has been found slackening since beginning of the study period, and finally became uncompetitive since 2010. The reason for weakening of its comparative advantage is not very clear yet. However, at first sight, it seems that this industry is possibly exporting raw minerals

which by nature generate low value added in comparison to the processed minerals. As a result, the export value of Vietnam's mining industry is growing at slower rate than that of the world, causing loss in competitiveness. Nonetheless, of those 10 'low-skilled labour and natural-resource intensive' industries; agriculture, foods and beverages, textiles and footwear, wood products, wholesale and retail trade, and

hotels and restaurants fall into the ‘specialised’ category<sup>4</sup> that means they have been showing comparative advantages in the World market consistently since 1995. The other four industries viz. rubber and plastic products, non-metallic mineral products, manufacturing n.e.c., and transport and storage fall into the ‘strengthening’ category, which means that they have shown a notable improvement in terms of their competitiveness resulting a shift from comparative disadvantage in 1995 to comparative advantage in 2011. Vietnam does not reveal comparative advantage in ‘human capital and technology intensive’ industries at all since 1995 (table 2). This leads to conclude that ‘Vietnam has specialised in low-skilled labour and natural-resource intensive industries’. Interestingly, despite being uncompetitive, the accumulated contribution of computer and electronics, and electrical machinery in exports value is 13 percent in terms of gross exports, however only 4 percent in terms of domestic value added exports. Such a large gap between gross exports and domestic value added exports is a clear indication that imports to exports (I2E), aka ‘assembly’ process has been taking place in those industries. That’s why, the gross exports which also include the value of imported intermediates has swollen up.

---

<sup>4</sup> wherever ‘pattern of specialisation’ is analysed, four terms as mentioned below have been introduced to describe the observation between 1995 and 2011:

- ‘RCD-RCD’ (labelled as ‘de-specialised’ industries)
- ‘RCD-RCA’ (labelled as ‘strengthening’ industries)
- ‘RCA-RCA’ (labelled as ‘specialised’ industries) and
- ‘RCA-RCD’ (labelled as ‘weakening’ industries)

where RCD stands for Revealed Comparative Disadvantage and RCA stands for Revealed Comparative Advantage.

### **3.2. Comparing industries’ competitiveness as revealed by RCA\_DVA and RCA\_EXGR**

This section takes a comparative approach on industries’ competitiveness as revealed by two separate series on exports i.e. domestic value added exports (DVA) and gross exports (EXGR) in the world market in order to identify presence of any noise in their competitiveness as measured by gross exports. For convenience, researchers have introduced two abbreviations namely RCA\_DVA and RCA\_EXGR in the text afterwards, where RCA\_DVA is the RCA indices based on ‘domestic value added exports’ and RCA\_EXGR is the RCA indices based on ‘gross exports’.

Empirical findings suggest that these two sets of RCA indices have similar conclusions about the competitiveness of 10 industries as discussed above in revealing comparative advantages (table 1). However, they differ on the competitiveness of fabricated metal products (ISIC28) and electrical machinery (ISIC31), and about the ‘pattern of specialisation’ of wood products (ISIC20) and manufacturing n.e.c. (ISIC36T37). The RCA\_DVA identifies the wood products as ‘specialised’ industry, while RCA\_EXGR identifies it as ‘strengthening’ industry, hence gross exports has underestimated the intensity of competitiveness of wood products. On the other hand, manufacturing n.e.c. is categorised as ‘strengthening’ industry by RCA\_DVA, while the RCA\_EXGR categorises it as ‘specialised’ industry, hence overestimating the intensity of competitiveness of manufacturing n.e.c. (appendix). Though both wood products and manufacturing n.e.c. industries have shown comparative advantages under both sets of export flows, however presence of noise in



the pattern of specialisation is more likely to mislead the policy makers while prioritizing them. For instance, of these two industries, it is manufacturing n.e.c. (specifically furniture) that requires special attention by policy makers to make it ‘specialised’ to reap full benefits of this industry. However, the gross export based measure of competitiveness (RCA\_EXGR) would direct

such priority to the wood products which in fact does not require it. In addition, the gross exports have also exaggerated the comparative advantages of fabricated metal products (ISIC28) and electrical machinery (ISIC31), which have in fact revealed comparative disadvantage under domestic value added exports.

**Table 2: Pattern of specialisation by industries in the World market (1995-2011)**

<b>Specialised industries (RCA-RCA)</b>	<b>Strengthening industries (RCD-RCA)</b>
<ul style="list-style-type: none"> <li>- Agriculture (ISIC01T05)*</li> <li>- Foods and beverages (ISIC15T16)*</li> <li>- Textiles and footwear (ISIC17T19)*</li> <li>- Wood products (ISIC20)</li> <li>- Wholesale &amp; retail trade (ISIC50T52)*</li> <li>- Hotels and restaurants (ISIC55)*</li> </ul>	<ul style="list-style-type: none"> <li>- Rubber and plastic products (ISIC25)</li> <li>- Non-metallic mineral products (ISIC26)</li> <li>- Manufacturing n.e.c. (ISIC36T37)*</li> <li>- Transport and storage (ISIC60T63)*</li> </ul>
<b>Weakening industries (RCA-RCD)</b>	<b>De-specialised industries (RCD-RCD)</b>
<ul style="list-style-type: none"> <li>- Mining (ISIC10T14)*</li> <li>- Post and telecommunications (ISICC64)</li> <li>- Financial intermediation (ISIC65T67)</li> </ul>	<ul style="list-style-type: none"> <li>- Paper products (ISIC21T22)</li> <li>- Petroleum products (ISIC23)</li> <li>- Chemicals (ISIC24)</li> <li>- Basic metals (ISIC27)</li> <li>- Fabricated metal products (ISIC28)</li> <li>- Machinery and equipment (ISIC29)</li> <li>- Computer and electronics (ISIC30T33X)*</li> <li>- Electrical machinery (ISIC31)*</li> <li>- Motor vehicles (ISIC34)</li> <li>- Other transport equipment (ISIC35)</li> </ul>

[\* indicates that these industries have more than 1 percent shares in the domestic value added exports in year 2011]

### 3.3 Examining the export specialisation pattern of Vietnam

In order to have insight into the pattern of export specialisation of Vietnam, the Galtonian cross-section regression equation (as in equation 2) was run separately for RSCA\_DVA and RSCA\_EXGR distributions in the World market, considering 1995 as initial year and 2011 as the final year. The normality of these regression models has been diagnosed and validated by applying Breusch-Godfrey serial correlation LM test, in which the

‘observed R- square’ value was found insignificant at 5 percent level, which implies that ‘there is no serial correlation in the residual of the models’ (table 3). Moreover, the value of betas in both distributions are positive but smaller than unity ( $0 < \beta < 1$ ), which implies that ‘in the World market the export specialisation of Vietnam has reversed’, that is more specialised industries have become less specialised and less specialised industries have become more specialised. Such reversal pattern is the indication of increasing intra-industry trade in the

economy. As the intra-industry trade is the simultaneous imports and exports of goods in the same industry, an increase in intra-

industry trade means that specialization in a certain industry has decreased.

**Table 3:** Results of Galtonian cross-section regression (1995 and 2011), World market

Index distribution	$\alpha$	$\beta$	Obs. R-squared	Prob. Chi-square
RSCA_DVA	0.00	0.59***	1.004168	0.3163
RSCA_EXGR	-0.05	0.52***	2.581145	0.1081

\*\*\* indicates significant at 1 percent level

#### 4. Concluding remarks and policy discussion

In this paper, an effort was made to identify the competitive industries and to examine the export specialisation pattern of Vietnam from the perspective of domestic value added exports. It also attempted to identify presence of any exaggeration in gross exports measures of competitiveness. Empirical findings suggest that Vietnam has had comparative advantages in 10 industries in the world market viz. agriculture, foods and beverages, textiles and footwear, wood products, rubber and plastic products, non-metallic mineral products, manufacturing n.e.c., wholesale and retail trade, hotels and restaurants, and transport and storage. These are mainly 'low-skilled labour and natural-resource intensive industries' and have failed to reveal comparative advantage in 'human capital and technology intensive industries'. Moreover, two separate measures of export competitiveness i.e. RCA\_DVA and RCA\_EXGR have yielded very similar conclusions on industries level competitiveness, despite some evidences of exaggeration and underestimation present in the RCA\_EXGR. In general, researchers observed three patterns: (i) gross exports value has underestimated the comparative

advantages of natural resource intensive industries (e.g. mining, wood products, petroleum products), (ii) it has exaggerated the comparative advantages of human capital and technology intensive industries (e.g. computers and electronics, electrical machinery), and (iii) gross exports and domestic value added exports have similar conclusions on comparative advantages of low skilled labour intensive (e.g. foods and beverage, textile and footwear), and services industries (e.g. trade, hotels and restaurants). Of these, the first two patterns are really of special concern for the policy debates in terms of identifying the industries that can contribute to the sustainable export-led growth of Vietnam.

The natural resource intensive industries' products add high domestic value in their exports, which is a well suited feature to shift the country's position up in the value chains so that bigger chunks of benefits from exports can be brought in. This means these industries can play pivotal role in the export-led growth strategy of Vietnam. However, it requires adoption of 'product upgrading' and 'densification of domestic firms' as in present time these industries export products that are either in raw form or as intermediate products. On the other hand, the assembly activities in the human capital and technology intensive industries

has contributed more in ballooning up their shares in gross exports, while their contributions in domestic value added exports is comparatively lower<sup>5</sup>. Therefore, greater emphasis on the exports of human capital and technology intensive industries' products can simply be considered as a strategy to create more employment opportunities in the economy, and assimilation of the technological spillover effects. That is why; there is a big gap between gross exports and the domestic value added exports in this sector. Nonetheless, comparative advantage is not a static variable, instead the industrial and trade policies of a country can play crucial role in improving the competitiveness of an industry in the long run, for example, through updating mandatory product standards, encouraging technological innovation and promoting competition and consumer's protection. However, competitiveness in the long term is subjected to further analysis, although upon said achievements in terms of knowledge, know-how, and skills, it is possible to achieve competencies in few more regional markets such as North America and European Union with which Vietnam has initiated to sign PTAs (Preferential Trade Agreements).

In case of low skilled labour intensive industries, there are still a couple of challenges that Vietnam needs to overcome to reap the benefits of exports. For instance, foods and beverages require improvement in the quality, and disprove the prejudice for low quality 'Vietnamese products' both in domestic and international markets. Likewise, Vietnam's apparel and footwear businesses currently depend on foreign traders mostly from Hong Kong, Taiwan,

and South Korea which supply the products to the foreign enterprises, thus Vietnamese domestic enterprises have almost remained unconnected with the end-users. The retail businesses mainly with European Union, Japan and the United States are also through international brands, supermarkets, wholesale stores and retail stores. This is a result of weak marketing and distribution activities in this sector. Therefore, its reliance on foreign companies for exports and its engagement in low value added process are the primary challenges in textile and footwear industry. Therefore, to remain competitive in those industries in the long term, Vietnam would need to upgrade in the service related functions such as sourcing, supply chain management, design, product development, marketing, and branding (i.e. functional upgrading). It also would need to shift the foreign suppliers based backward linkage to the domestic one.

## References

- Aquino, Antonio. 1981. "Change over time in the pattern of comparative advantage in manufactured goods: An empirical analysis for the period 1972-1974." *European Economic Review* 15(1): 41-62.
- Balassa, Bela. 1965. "Trade Liberalization and Revealed Comparative Advantage." *The Manchester School of Economic and Social Studies* (33): 99-124.
- Brakman, Steven and Charles V. Marrewijk. 2015. "A Closer Look at Revealed Comparative Advantage: Gross-versus Value Added Trade Flows." *CESIFO working paper* No. 5321: Centre for Economic Studies and Ifo Institute, Munich.
- Cantwell, John. 1989. *Technological Innovation and Multinational Corporations*. Oxford: Blackwell.

<sup>5</sup> For instance, 17 percent shares in gross exports while only 5 percent shares in value added terms in 2011.

- Crafts, Nicholas and Mark Thomas. 1986. "Comparative Advantage in UK Manufacturing Trade, 1910-1935." *Economic Journal* (96): 629-645.
- Dalum, Bent, Keld Laursen and Gert Villumsen. 1998. "Structural Changes in OECD Export Specialisation Patterns: de-specialisation and stickiness." *International Review of Applied Economics* 12(3): 423-443.
- Donges, Juergen B. and James Riedel. 1976. "The Expansion of Manufactured Exports in Developing Countries: An Empirical Assessment of Supply and Demand Issues." *Kiel Working paper* No. 49: Institut für Weltwirtschaft (IfW), Kiel.
- Hoen, Alex R. and Jan Oosterhaven. 2006. "On the measurement of comparative advantage." *The Annals of Regional Science* 40(3): 677-691.
- Hulst, Noe V., Ronal Mulder and Luc L. G. Soete. 1991. "Exports and Technology in Manufacturing Industry." *Weltwirtschaftliches Archiv* 127(2): 246-264.
- Koopman, Robert, Zhi Wang and Sang J. Wei. 2014. "Tracing Value Added and Double Counting in Gross Exports", *American Economic Review* 104(2): 459-494.
- Lafay, Gerard. 1992. "The Measurement of Revealed Comparative Advantage." Pp. 209-234 in *International Trade Modelling*, edited by M.G. Dagenais, and P.A. Muet. London: Chapman and Hall.
- Laursen, Keld. 1998. "Revealed Comparative Advantage and the Alternatives as Measures of International Specialisation." *DRUID Working Paper* No. 98-30. Danish Research Unit for Industrial Dynamics, Copenhagen.
- Liesner Hand H. 1958. "The European Common Market and British Industry." *Economic Journal* 68(270): 302-316.
- Lim, Kang T. 1997. "Analysis of North Korea's Foreign Trade by Revealed Comparative Advantage." *Journal of Economic Development* (22): 97-117.
- OECD. 2011. *Globalisation, Comparative Advantage and the Changing Dynamics of Trade*. Paris: Organisation for Economic Co-operation and Development.
- OECD. 2017. *Trade in value added (TiVA): Database (2016 edition)*. Paris: Organisation for Economic Co-operation and Development (Retrieved from stats.oecd.org).
- Proudman, James and Stephen Redding. 2000. "Evolving patterns of international trade." *Review of International Economics* 8(3): 373-396.
- Sanidas, Elias and Sunny Y. Shin. 2015. "Comparison of Revealed Comparative Advantage Indices with Application to Trade Tendencies of East Asian Countries." *ResearchGate*. Retrieved February 7, 2017 ([https://www.researchgate.net/publication/266469545\\_Comparison\\_of\\_Revealed\\_Comparative\\_Advantage\\_Indices\\_with\\_Application\\_to\\_Trade\\_Tendencies\\_of\\_East\\_Asian\\_Countries\\_Comparison\\_of\\_Revealed\\_Comparative\\_Advantage\\_Indices\\_with\\_Application\\_to\\_Trade\\_Tendencies\\_of\\_East\\_Asian\\_Countries](https://www.researchgate.net/publication/266469545_Comparison_of_Revealed_Comparative_Advantage_Indices_with_Application_to_Trade_Tendencies_of_East_Asian_Countries_Comparison_of_Revealed_Comparative_Advantage_Indices_with_Application_to_Trade_Tendencies_of_East_Asian_Countries))
- UNIDO. 1986. "International comparative advantage in manufacturing: Changing profiles of 13 resources and trade." *UNIDO publication* sales no. E86 II B9. United Nations Industrial Development Organization, Vienna.
- Vollrath, Thomas L. 1991. "A theoretical evaluation of alternative trade intensity measures of revealed comparative advantage." *Weltwirtschaftliches Archiv* 127(2): 265-280.
- Wolter, Frank. 1977. "Factor Proportions, Technology and West German Industry's International Trade Patterns." *Weltwirtschaftliches Archiv* 113(2): 250-267.
- World Bank. 1994. "China: Foreign Trade Reform." *Country Study Series*. World Bank, Washington D.C.
- Xing, Yuqing and Neal Detert. 2010. "How the iPhone Widens the United States Trade Deficit with the People's Republic of China." *ADB Working Paper Series* No. 257. Asian Development Bank Institute, Tokyo.
- Yu, Run, Junning Cai and PingSun Leung. 2009. "The normalized revealed comparative advantage index." *The Annals of Regional Science* 43(1): 267-282.

**Appendix: RCA indices of Vietnam in the World market**

SN	Industries	ISIC code	RCA_DVA				RCA_EXGR			
			1995	2000	2005	2011	1995	2000	2005	2011
1	Agriculture	01T05	1.8	3.0	3.7	4.0	1.7	2.8	3.3	3.4
2	Mining	10T14	2.3	1.7	1.7	0.8	2.3	1.6	1.7	0.8
3	Foods and beverages	15T16	2.8	4.1	4.1	4.4	2.4	3.8	3.8	3.9
4	Textile and footwear	17T19	2.7	2.2	2.4	2.7	2.9	2.8	3.1	2.7
5	Wood products	20	1.1	1.6	1.2	2.8	0.9	1.4	1.5	3.1
6	Paper products	21T22	0.2	0.2	0.2	0.4	0.2	0.2	0.3	0.4
7	Petroleum products	23	0.2	0.1	0.1	0.4	0.4	0.2	0.1	0.5
8	Chemicals	24	0.1	0.1	0.1	0.3	0.1	0.2	0.2	0.4
9	Rubber and plastics	25	0.4	0.4	0.6	1.1	0.4	0.5	0.8	1.5
10	Other non-metallic mineral products	26	0.7	0.9	0.8	1.7	0.8	0.9	1.1	1.7
11	Basic metals	27	0.1	0.1	0.1	0.3	0.1	0.1	0.2	0.5
12	Metal products	28	0.3	0.2	0.6	0.9	0.4	0.3	0.9	1.1
13	Machinery and equipment	29	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3
14	Computer and electronics	30T33X	0.3	0.2	0.3	0.5	0.4	0.4	0.3	0.9
15	Electrical machinery	31	0.4	0.5	0.7	1.0	0.5	0.6	1.0	1.5
16	Motor vehicles	34	0.0	0.0	0.1	0.2	0.0	0.0	0.1	0.2
17	Other transport equipment	35	0.1	0.1	0.2	0.3	0.1	0.2	0.2	0.4
18	Manufacturing nec	36T37	0.8	0.9	1.5	1.8	1.0	1.1	1.8	1.8
19	Wholesale and retail trade	50T52	1.0	1.1	1.1	1.1	1.1	1.2	1.1	1.0
20	Hotels and restaurants	55	1.4	1.8	1.8	2.1	1.3	1.7	1.6	1.7
21	Transport and storage	60T63	0.5	0.5	0.8	1.1	0.6	0.6	0.8	1.0
22	Post and telecommunications	64	2.2	1.3	1.0	0.4	2.2	1.3	0.9	0.4
23	Financial intermediation	65T67	4.2	2.1	1.5	0.2	4.0	2.0	1.3	0.1

Source: Researchers' estimates.

# Price Elasticity of Sectoral Lending in Nepal

Shashi Kant Chaudhary, PhD\*  
and  
Kiran Raj Pandit\*\*

---

## Abstract

*During 2015 to 2019, there was a significant upsurge observed in the lending rate in Nepalese credit market. Interestingly, the lending amount also went up significantly in this period showing an anomalous relationship between lending and lending rate. This paper is an attempt to analyse this observed anomaly. We have estimated and examined the degree of elasticity of sectoral lending with lending rate in Nepalese context undertaking panel regression analysis covering all 28 commercial banks in operation in Nepal till mid-July 2019. The results show a positive and inelastic relationship to exist between sectoral lending and lending rate during the study period despite decreasing Herfindahl-Hirschman index in the same period, which means that level of competition is increasing in Nepalese banking industry. Our scenario analysis indicates syphoning of funds, and the changed role of bankers as major causes for this anomalous relationship.*

---

**Key Words:** Banks, credit, elasticity, lending rate, Nepal, sectoral lending

**JEL Classification:** E43, E51, G12, G21

---

\* Senior Teaching Fellow, British University Vietnam, Vietnam, Email: saw\_sea@outlook.com (Corresponding Author)

\*\* Director, Nepal Rastra Bank, Email: [kiransathi@gmail.com](mailto:kiransathi@gmail.com)

We would like to express our sincere gratitude to the Editorial Board and anonymous referees for their valuable comments that helped in enhancing the quality of this paper. We are sole responsible for any flaws and errors. The views expressed in this paper are ours and do not represent organisations we are affiliated with.

## I. INTRODUCTION

In the recent past, commercial banks in Nepal literally jumped into ‘interest rate war’ against each other in order to attract fresh deposits, which has had significant effect on pushing the deposit rates up. Since the cost of fund is a significant component in the base rate calculation, the lending rate escalated significantly<sup>1</sup> after the interest rate war. This can be seen in the higher weighted average lending rate in the recent years (over 12 percent in 2019 and 2018). This rate was 11.4 percent in 2017 and 8.8 percent in 2016 (NRB, 2019). Upsurge in the lending rate obviously raises concerns over the causes that are driving it up. In the mean time, it also poses question on the efficiency of Nepalese bankers in managing funds. Interestingly, despite such a significant upsurge in the lending rate during this period, the lending amount also went up significantly (from NRs 1.392 trillion in 2016 to NRs 2.497 trillion in 2019, NRB, 2019). As believers on the classical theory of interest, we had expected a negative relationship to exist between them. That means, after upsurge in the lending rate, the lending amount should have fallen or have stalled. But this pattern was not seen in the nominal values of lending, which made us mull over other factors that might have affected the lending behaviour of commercial banks in Nepal. There are some recent empirical works analysing the lending behaviour of commercial banks in Nepal though viz. Bhattarai (2019), Bajracharya (2018), Puri et al. (2018), Timsina (2016a & 2016b), Bhattarai (2016), etc. but explanation of this observed anomalous behaviour in credit lending has not occupied place into their analyses. Thus, we saw a clear gap in literature in context of Nepal that motivated us to estimate the degree of elasticity of sectoral lending with lending rate (also known as price elasticity) and use the estimated price elasticity to analyse the anomalous relationship observed between them. The rest of this paper has been organised as follows. Section two presents the recent status of sectoral credit lending while section three presents research methodology that we have undertaken in this work.

---

<sup>1</sup> The Himalayan Times (17 August 2018) reported that 21 out of 28 banks have had base rate above 10 percent. The news is available at: <https://thehimalayantimes.com/business/base-rate-of-21-banks-above-10pc/>, accessed on 29 December 2019.

Section four presents the empirical findings of the work which is followed by the discussion and concluding remarks in section five.

## **II. RECENT STATUS OF SECTORAL CREDITS**

Commercial banks in Nepal float loans over 16 key areas of economic activities, also known as sectors. As on mid-July 2019, the total credit lending of commercial banks grew by 18.3 percent to reach NRs 2.497 trillion from NRs 2.112 trillion in mid-July 2018, mainly led by NIC bank, Rastriya Banijya bank, Nabil bank, Nepal Investment bank and Global bank that together share 27.1 percent of total lending. Meanwhile, lending pattern has continued to concentrate on FOUR<sup>2</sup> major sectors, viz. (i) wholesale and retail; (ii) non-food production related; (iii) construction; and (iv) finance, insurance, and real estate sharing about 54 percent together (Figure 1). Interestingly, in those four concentrated sectors, larger banks of Nepal (defined as the banks that have asset shares larger than the average value of 4 percent of the aggregate assets of the commercial banks) viz. Agriculture Development bank, Everest bank, Global bank, Nabil bank, Nepal Investment bank, NIC bank, and Rastriya Banijya bank (indicated by asterisks in Figure 1) have major chunks in lending. Among those quoted banks as above, Agriculture Development bank, Nabil bank, and Rastriya Banijya bank have higher concentration risk in their sectoral portfolios along with Standard Chartered bank, NMB bank, and Nepal SBI bank, each has HH index above 1500 score. Other 22 banks have had HH index below 1500 (Figure 2, & Appendix B).

---

<sup>2</sup> In fact, the 'others (12.3 percent)' sector comprises of third largest share in the total lending, however, as the components of this sector are not known, we have excluded it from discussion.



4 NRB Economic Review

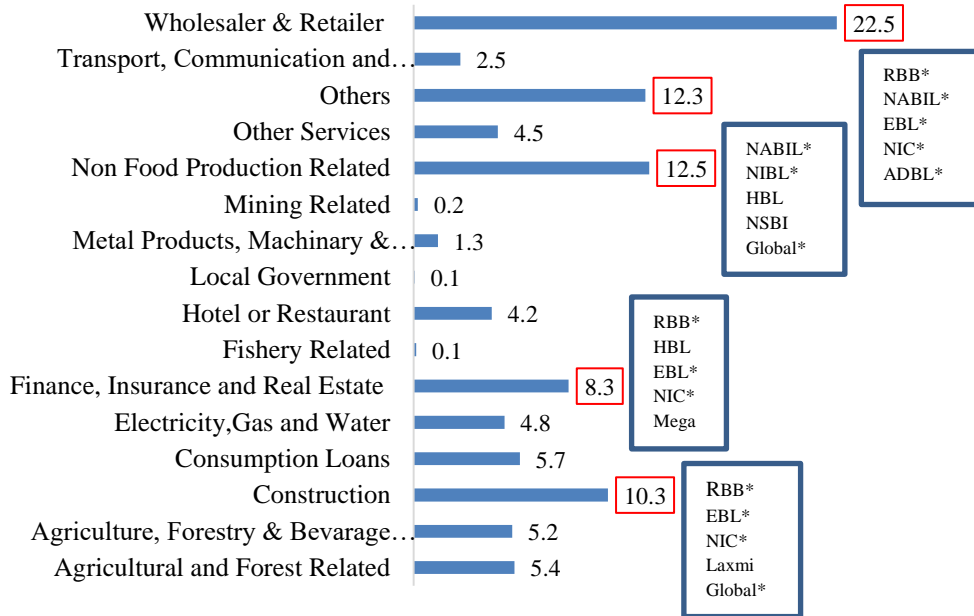


Figure. 1: Commercial banks' sector-wise lending, 2019

Data source: NRB (2019)

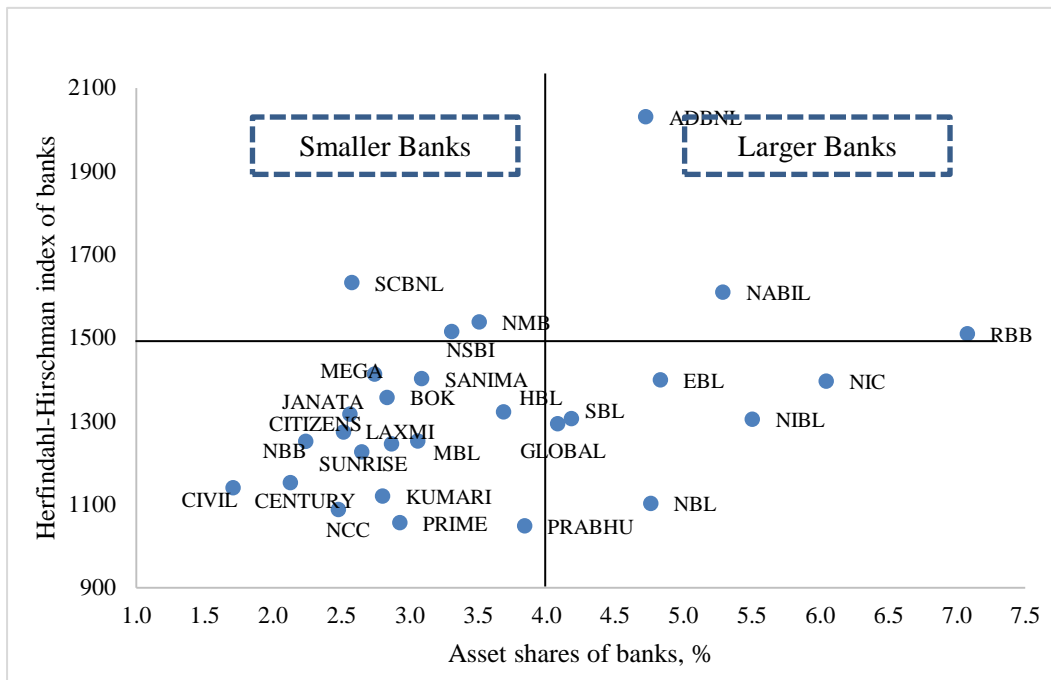


Figure 2: Banks' size and sectoral portfolio concentration, 2019

Data source: NRB (2019) and researchers' estimate (2020)

Thus, banks have shown a mix of moderate to low levels of concentration in their sectoral lending portfolios. Literature shows varying consequences of having high concentration in lending portfolios. For instance, Ben-Zekry (2007) argues that high concentration levels will increase profits for the dominant banks within the industry, which will insulate them from economic shocks. Acharya et al. (2006) and Tabak et al. (2010) argue that banks by focusing lending to certain sectors acquire expertise in those sectors and thus improve the loan quality, which reduces the risk of credit default. Moreover, Beck et al. (2003) found that high concentration leads to high stability in the banking industry. However, negative effects of higher concentration have also been reported- higher level of bank concentration in only a few sectors may cause higher interest rates in those sectors which may harm investors. In addition, large banks will focus on the most profitable niches and may neglect less profitable ones (Ben-Zekry, 2007) very similar to the airline industry where large airlines company normally prefer to fly to the most profitable sectors. High sectoral concentration also exposes a bank to credit risk due to higher default correlations within those sectors.

So far, none of the commercial banks in Nepal have revealed their stances on any of these arguments, either profitability or efficiency or stability is the driving factor to exposing to high level of concentration in their lending portfolios. Nonetheless, NRB in its recent financial stability report has stated that ‘... concentration of lending to a few sectors would expose bank to credit risk’ (NRB, 2018: p. 20), which is very similar to the conventional view in banking. Such stance of NRB implies that the regulator is more concerned about ‘credit default and bank failure aspects’ of introducing high concentration in lending portfolios. Surprisingly, there is no explanation in place whether such concentration exists because of ‘supply driven factors’ or ‘demand driven factors’ or ‘capricious ones’- neither from the central bank nor the commercial banks.

When we applied the ‘sectoral concentration measure (SCM)’<sup>3</sup> in order to measure the ‘sectoral concentration’ of a bank in its sectoral lending portfolio, and filter them based on top 5 highest SCM score, the findings justified why the

---

<sup>3</sup> See appendix A for details.

sectoral lending is concentrated to only four sectors. All 28 banks have prioritised wholesale and retail sector for the lending followed by non-food production related (25 banks), construction (20 banks) and finance, insurance and real estate (19 banks) (Figure 3). Of those sectors, the ‘wholesale and retail’ falls under highly concentrated sector (SCM - 2898), and the ‘non-food production related’ falls under moderately concentrated sector (SCM - 1513) (Appendix C).

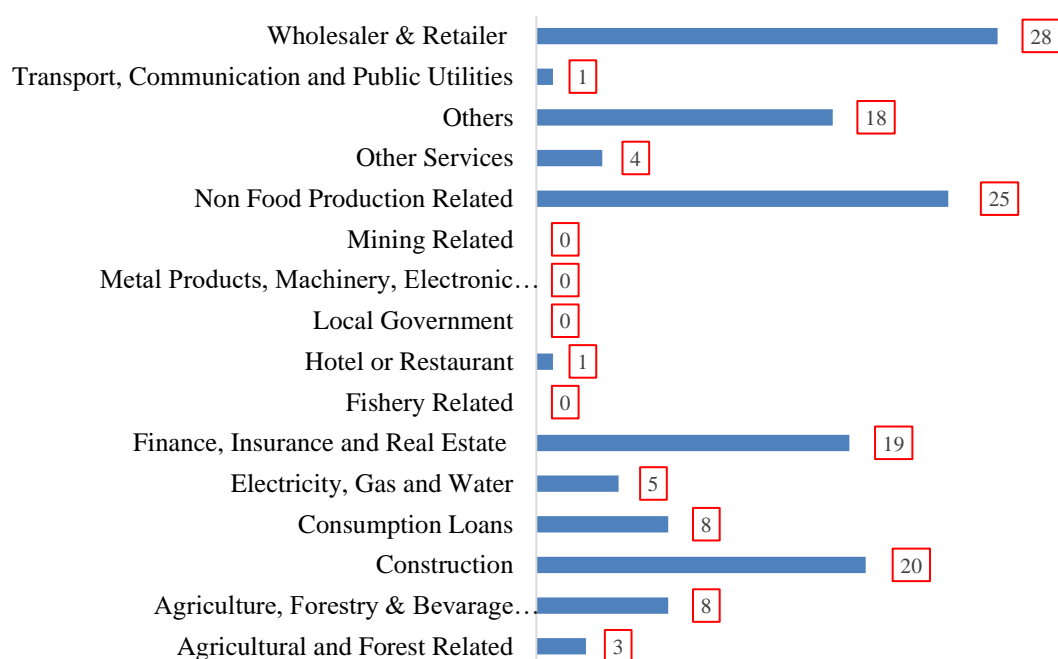


Figure 3: Number of banks based on their priorities for sectoral lending, 2019

Source: Researchers' estimate (2020)

Therefore, there are several relevant side questions that also seek answers viz. (a) why remaining sectors do not fall in the priority lending of commercial banks? (b) Is there less demand for credit in remaining sectors? (c) Is there higher profit margin for banks in those concentrated sectors? (d) Are less concentrated sectors highly elastic to lending rate? (e) Are concentrated sectors less elastic to lending rate? etc. Nonetheless, in this work, we have focussed on the discussion relevant to price elasticity of sectoral lending and have skipped questions (a) to (c). We have answered questions (d) and (e) in section four based on our empirical estimates.

### III. METHODOLOGY

To propose a suitable model, it was necessary to identify and understand explanatory variables besides lending rate that may well describe the lending behaviour of banks. In context of Nepal, we came across five main research works viz. Bhattarai (2019), Bajracharya (2018), Puri et al. (2018), Timsina (2016a & 2016b) and Bhattarai (2016) that have analysed the lending behaviour of commercial banks in Nepal employing quantitative approaches. Those researchers have used a range of explanatory variables to examine the lending behaviour of banks (Table 1). Selection of those explanatory variables are consistent with many other empirical works, a few to quote are Malede (2014), Obamuyi (2013), Imran and Nishat (2013), Olusanya et al. (2012), Constant and Ngomsi (2012), Olokoyo (2011), Kashyap et al. (1993), etc.

**Table 1: Summary of empirical works on determination of lending behaviour of commercial banks in Nepal**

Researchers	Explanatory variables used	Most significant explanatory variables to explain changes in lending
Timsina (2016a)	volume of deposits, interest rate, cash reserve ratio, liquidity ratio, inflation, exchange rate, gross domestic product	gross domestic product, liquidity ratio
Timsina (2016b)	cash reserve ratio, open market operations, bank rate, assets, capital, liquidity	assets, liquidity, capital, open market operations, cash reserve ratio
Bhattarai (2016)	bank size, liquidity, investment portfolio, cash reserve ratio and deposit to capital ratio	bank size, liquidity, investment portfolio, cash reserve ratio
Bajracharya (2018)	bank size, volume of deposit and cash reserve requirement ratio liquidity ratio Inflation rate GDP	bank size, volume of deposit, cash reserve ratio
Puri et al. (2018)	bank size, volume of deposits, cash reserve ratio, liquidity ratio, lending rate, non-performing loans, gross domestic product, inflation rate	bank size, lending rate, volume of deposits, liquidity ratio
Bhattarai (2019)	Interest rate spread, statutory liquidity ratio, inflation, exchange rate	Statutory liquidity ratio, interest rate spread, exchange rate

*Source: Researchers' contribution (2020)*

The list of explanatory variables used in those works include internal variables of the banks such as liquidity ratio, assets, bank size, etc. as well as external variables such as GDP, exchange rate, inflation, and regulatory instruments. Since we have had panel data of all 28 commercial banks in Nepal in operation till mid-July of 2019, we believed that the distinguished variables associated with individual banks would matter more than the external common factors in examining the lending behaviour and estimating the elasticities of explanatory variables. And, also in the light of works mentioned above we considered interest rate, liquid funds, volume of deposits, capital, and total assets into our proposed model (supply-side variables). In the meantime, we also kept into our consideration that the robustness of the model should not get compromised because of employing too many explanatory variables into the model. Therefore, we combined liquid fund and volume of deposit to construct ‘liquidity ratio’. Likewise, we combined capital and total assets to construct ‘capital to asset ratio’. These ratios have been interpreted in the sub-section (3.1). Interest rate, which is basically the weighted average of interest rates of all types and maturity of loans granted in specific years, has been used intact.

### 3.1 Model

We have proposed the following semi-log model to estimate price elasticity of sectoral lending and to examine the observed anomaly in the lending-lending raterelationship:

$$LOG(LEND\_SN_{i,t}) = \alpha + \beta_1 * WALR\_SN_{i,t} + \beta_2 * LIQ\_RATIO_{i,t} + \beta_3 * CTA_{i,t} + \varepsilon_{i,t}$$

Where LEND\_SN is credit lending amount (in millions NRs) for sector N; WALR\_SN is weighted average lending rate (in percent) for sector N; LIQ\_RATIO is liquidity ratio defined as the ratio of liquidity funds to total deposits (in percent); and CTA is the capital to asset ratio (in percent) of commercial banks as on the point of time into consideration (mid-July). (i,t) indicates identity for individual bank and year into consideration.

Of those explanatory variables, the lending rate (WALR\_SN) is considered as the price of lending and the expected sign for its coefficient is negative.<sup>4</sup> This expectation is based on general perception. Nonetheless, Hense (2015) argues that ‘... occasionally during the times of strong economic growth or recession or in the short run, lending and lending rate may move in same direction, hence the coefficient may be positive because of counteracting supply or demand factors.’

Another explanatory variable, liquidity ratio (LIQ\_RATIO) refers to the amount that banks need to maintain in liquid form to meet their immediate financial obligation. Hence higher liquidity ratio means lower funds available for lending, hence the sign of its coefficient is expected to be negative. The third explanatory variable, capital to asset ratio (CTA) measures sufficiency of capital with the bank. Higher the CTA value, higher lending is expected, thus its coefficient is expected to have positive sign, other things remaining unchanged.

We have applied the proposed model to 14 equations, 13 are among the 16 sectors (except fishery related, mining related and local government as their shares in total lending are very small, hence excluded from analysis) while one is the aggregate value.

### **3.2 Data and Methods**

This study is based on panel regression analysis of the data obtained for 28 commercial banks in Nepal that were in operation till mid-July 2019. The dataset covers the annual values of four variables as discussed into section (3.1) for the period of mid-July 2015 to mid-July 2019, thus total of 140 observations for each variable. The dataset of most variables has been extracted from the ‘Banking and Financial Statistics’(various issues) reports published by Banks and Financial

---

<sup>4</sup> This relationship has been considered from demand side based on assumption that banks’ sectoral lending equals effective sectoral demand for it. Because of existence of diligent procedures and regulations in place to be followed by both banks and potential borrowers to make lending transactions happen, existence of overdemand for borrowing will not affect the lending rate. That means, a potential borrower has no control over interest rate, instead s/he/it can respond to the existing lending rate through adjustment in her/his/its demand for borrowing.

Institution Regulation Department of Nepal Rastra Bank (BFIRD-NRB). However, we found that BFIRD-NRB has discontinued publishing data on weighted average lending rates by banks in the study period. Hence, we requested for it and upon our request, BFIRD-NRB agreed to provide the dataset for this variable for the purpose of undertaking this research work only.

Once panel dataset for all variables into consideration was obtained, we examined three models viz. (i) random effect model, (ii) fixed effect model, and (iii) pooled OLS regression model; and found that the fixed effect model is the best suited in our undertaking. While undertaking the panel data analysis, the first step was to choose between random effect model and fixed effect model. For this, we estimated random effect model first and then applied Hausman test to determine suitability of one of these two models depending upon the significance of 'Hausman chi-square statistic'. In this test, the null hypothesis is 'random effect model is appropriate', and the decision criterion is to reject null hypothesis if the 'Hausman chi-square statistic' is found significant at accepted level of significance. Otherwise, accept the null hypothesis. The alternate hypothesis in this test is 'fixed effect model is appropriate'. The Hausman test validated suitability of fixed effect model except for 'sector 16 - others' for which random effect model is suitable.

In case fixed effect model is appropriate as above, the next step was to choose between fixed effect model and pooled OLS regression model, for which we undertook Wald test on pooled OLS estimates introducing 27 dummy variables on banks (one dummy variable was excluded to avoid perfect multicollinearity). In Wald test, the null hypothesis is 'pooled OLS regression model is appropriate (i.e. all dummy variables equal zero)' and the alternate hypothesis is 'fixed effect model is appropriate (i.e. all dummy variables do not equal zero)'. In our undertaking, the probability of 'Wald test Chi-square value' was found significant at 1 percent, thus rejecting the null hypothesis. In this way, we have validated the suitability of fixed effect model in our work.

#### **IV. EMPIRICAL FINDINGS**

The estimates of the panel regression analysis for the 14 equations as mentioned above have been presented in Table 2. The chi-square statistics for Hausman test are found significant within 5 percent except for ‘sector 12’ which is significant at 10 percent, while ‘sector 16’ is found to be insignificant. If we consider, the case of sector 12 a bit loosely, the fixed effect model is appropriate for all the sectors into consideration except sector 16 for which random effect model is appropriate. Moreover, for those sectors to which fixed effect model is appropriate, chi-square statistics for Wald test are found strongly significant at 1 percent, thus validating the acceptance of fixed effect model.

##### **4.1 Discussion on Estimated Coefficients**

There are nine cases in which the coefficients of lending rate have been found significant within 5 percent level of significance, and one case (eq.5) within 10 percent level of significance. The remaining four cases (equations 2, 4, 6, & 7) are found not significant within 10 percent level of significance. Nonetheless, sign of all coefficients is positive which are not as expected and thus requires appropriate justification. The absolute value of coefficients among the significant cases ranges from 0.04 (for ‘non-food production’ sector) up to 0.16 (for ‘agriculture and forestry’ sector) which can be interpreted as ‘one percent rise (fall) in weighted average lending rate would cause 0.04 percent rise (fall) in the lending of ‘non-food production’ sector and 0.16 percent rise (fall) in the lending of ‘agriculture and forestry’ sector. We consider it a low response of sectoral lending to sectoral lending rate. In terms of elasticity, the lending rate elasticity (or price elasticity) of ‘non-food production’ sector is 0.04 while that of ‘agriculture and forestry’ sector is 0.16. The price elasticities of other sectors lie in between these two values. The price elasticity of aggregate sector is 0.11 (Table 2). Such low values of sectoral and aggregate price elasticity are not consistent with the finding of Herfindahl-Hirschman (HH) index which shows the level of competition is increasing in Nepalese banking industry (as the value of HH index is well below 1500 and falling since 2016) (Appendix B2). We have analysed this anomaly in section five.



The coefficients of liquidity ratio and capital to asset ratio for ‘non-food production’ and ‘agriculture and forestry’ sectors are (-0.02 & 0.04) and (-0.03 & 0.09) respectively (Table 2). The signs of these coefficients are as expected and supported by our explanation in sub-section (3.1). These coefficients can be interpreted in a similar fashion as above.<sup>5</sup> Once again, ‘agriculture and forestry’ sector lending is more responsive to liquidity ratio and capital to asset ratio in comparison to ‘non-food production’ sector lending, though not very high. Nonetheless, the highest liquidity ratio elasticity is 0.05 for ‘hotel and restaurant’ sector, while that of the capital ratio is 0.12 for ‘electricity, gas and water’ sector.

Now we are able to answer the two questions (d) and (e) that we raised earlier in section two about concentration of loans and price elasticity. The price elasticity of highly concentrated sectors (sector 5, 6, 10, 11 & 16) ranges from 0.03 to 0.07 while that of less concentrated sectors ranges from 0.02 to 0.16. Most of them have elasticities above that of the concentrated sectors. Hence, we can conclude that price elasticity varies across the sectors, and concentrated sectors are less elastic than less concentrated sectors.

#### **4.2 Discussion on Validity of Estimated Equations**

Out of 14 estimated equations, there are six equations (equations 1, 3, 8, 10, 11 & 14) in which coefficients of all three explanatory variables are found significant within 5 percent level of significance, while in two equations (equations 5 & 12) the coefficients of interest rate or liquidity ratio respectively, are found significant within 10 percent level of significance. Thus, there are eight equations that can be considered valid based on significance of coefficients. The F-statistics for all those equations are found highly significant at one percent level of significance, thus confirming the appropriateness of relation among variables. The adjusted R-square values for those equations are above 0.555 up to 0.775, which can be interpreted as the explanatory power of the explanatory variables for the changes

---

<sup>5</sup> One percent rise (fall) in liquidity ratio would cause a fall (rise) of 0.02 percent in the lending of ‘non-food production’ sector and 0.03 percent in the lending of ‘agriculture and forestry’ sector. Likewise, one percent rise (fall) in capital to asset ratio would cause a rise (fall) of 0.04 percent in the lending of ‘non-food production’ sector and 0.09 percent in the lending of ‘agriculture and forestry’ sector.

in the dependent variable. For instance, the adjusted R-square value for 'agriculture and forestry' sector (equation 1) is 0.555, which means 55.5 percent changes in the lending in this sector can be explained by those three employed variables. Such explanatory power of these explanatory variables is 77.5 percent in 'other services' sector. The Durbin-Watson (DW) statistics are fairly above 1.5 and below 2.0 in seven equations other than equation (10) for which DW statistic is 1.40 (Table 2). Thus, except equation (10), in other seven equations DW statistics are acceptable to conclude absence of autocorrelation in the residuals. In equation (10), there may be little concern over presence of autocorrelation.

Thus, in the light of significance of individual coefficients of explanatory variables, F-statistics, adjusted R-square values and DW statistics, there are seven equations (equations 1, 3, 5, 8, 11, 12 & 14) that are found appropriate in terms of explaining the sectoral lending behaviour of commercial banks in Nepal. These equations represent the lending behaviour of the following sectors respectively: (i) agriculture and forestry, (ii) non-food production, (iii) electricity, gas and water, (iv) wholesaler and retailer, (v) other services, (vi) consumption loans, and (vii) aggregated lending.

**Table 2: Panel Regression Estimates**

Eq.	Dep. Variable (log form)	Coefficients				F statistic	Adj. R <sup>2</sup>	DW stat.	Hausman Test (Chi-Sq. stat.)	Wald Test (Chi-Sq. stat.)	Selection of model
		Constant	WALR_SN <sub>i</sub>	LIQ_RATIO	CTA						
1	LEND_S01	5.1635*** (0.5033)	0.1677*** (0.0374)	-0.0320** (0.0153)	0.0989*** (0.0310)	6.7101***	0.555	1.67	21.3794***	167.7149***	FEM is appropriate.
2	LEND_S04	7.7753*** (0.3625)	0.0257 (0.0277)	-0.0297** (0.0115)	0.0471* (0.0240)	5.5040***	0.496	1.57	20.1175***	153.3688***	FEM is appropriate.
3	LEND_S05	8.1760*** (0.2367)	0.0472** (0.0185)	-0.0230*** (0.0077)	0.0487*** (0.0164)	9.1317***	0.640	1.65	14.6937***	226.7160***	FEM is appropriate.
4	LEND_S06	7.2065*** (0.5585)	0.0357 (0.0362)	-0.0112 (0.0168)	0.1087*** (0.0315)	5.3038***	0.485	1.66	23.7832***	155.5936***	FEM is appropriate.
5	LEND_S07	5.2678*** (0.7484)	0.1314* (0.0671)	-0.0359** (0.0169)	0.1281*** (0.0338)	9.9103***	0.661	1.69	15.1152***	203.3634***	FEM is appropriate.
6	LEND_S08	4.4587*** (0.6406)	0.0671 (0.0482)	-0.0119 (0.0190)	0.1263*** (0.0391)	6.1405***	0.529	1.54	17.1010***	176.2280***	FEM is appropriate.
7	LEND_S09	6.2299*** (0.5192)	0.0130 (0.0413)	-0.0204 (0.0148)	0.1013*** (0.0315)	9.1099***	0.639	1.87	13.5849***	240.5229***	FEM is appropriate.
8	LEND_S10	8.4952*** (0.2892)	0.0705*** (0.0225)	-0.0244*** (0.0089)	0.0519*** (0.0191)	9.5183***	0.650	1.73	22.9431***	251.9445***	FEM is appropriate.
9	LEND_S11	7.3742*** (0.4069)	0.0774*** (0.0269)	-0.0223 (0.0145)	0.0522* (0.0302)	6.5214***	0.547	1.80	16.7378***	159.1343***	FEM is appropriate.
10	LEND_S12	5.7025*** (0.5789)	0.1391*** (0.0466)	-0.0563*** (0.0165)	0.0935*** (0.0338)	9.5186***	0.654	1.40	7.7108*	175.3849***	FEM is appropriate.
11	LEND_S13	5.8442*** (0.3438)	0.1579*** (0.0288)	-0.0189** (0.0094)	0.0394* (0.0200)	16.7761***	0.775	1.87	9.1127**	309.1134***	FEM is appropriate.
12	LEND_S14	6.4557*** (0.4653)	0.1144*** (0.0330)	-0.0230* (0.0136)	0.0648** (0.0271)	8.3394***	0.616	1.90	11.1754**	218.3341***	FEM is appropriate.
13	LEND_S16	7.5400*** (0.4741)	0.0702** (0.0306)	-0.0226 (0.0139)	0.0489* (0.0284)	7.5045***	0.123	1.18	5.6622	Not applicable	REM is appropriate.
14	LEND_TOT	9.5250*** (0.2307)	0.1085*** (0.0187)	-0.0181** (0.0069)	0.0496*** (0.0147)	11.3948***	0.691	1.85	48.6363***	265.7078***	FEM is appropriate.

\*\*\*, \*\* & \* indicate significance at 0.01, 0.05 and 0.1 level respectively. The number in parentheses represents standard error estimates. FEM stands for Fixed Effect Model and REM stands for Random Effect Model. Details of sectors are provided in appendix B1.

Source: Researchers' estimate (2020)

## **V. DISCUSSION AND CONCLUDING REMARKS**

In our attempt to estimate price elasticity of sectoral lending with respect to lending rate, in combination with liquidity ratio and capital to asset ratio being other explanatory variables in the model, we found a positive and weak relationship between sectoral lending and lending rate during 2015 to 2019, the degree of price elasticity ranging from 0.04 to 0.16. Considering the fact that the level of competition is increasing in banking industry in Nepal as shown by decreasing value of HH index, the observed direction and degree of this relationship do not align with the normal perception. Therefore, we need to answer firstly, what factor has caused them to move together in context of Nepal, and secondly, why price elasticity is low despite competitive banking industry. To understand the background of such anomaly, we attempted to dig further into some prominent literature such as Hense (2015), Reinhart and Rogoff (2009), Gambacorta (2004), Saunders and Schumacher (1997), Kashyap et al. (1993), Ho and Saunders (1981), etc. In the light of facts and arguments we came across, we have assessed following three scenarios:

### **(i) Perception of strong economic growth:**

Hense (2015) and Kashyap et al. (1993) argue that in times of strong economic growth, there may be upsurge of profitable projects (expected net present value may be significantly positive) thus causing increase in demand for credit. The confidence and the prospects of attractive financial return overshadows the restraining effect of the higher cost of obtaining those returns, higher interest rates can actually even increase borrowing demand, a case of behavioural bias such as 'this time is different' as argued by Reinhart and Rogoff (2009). Keeping these arguments into consideration, we examined credit disbursement of Nepalese banks in production related activities. What we found that a significant amount has been disbursed to the packaging and processing activities, which normally do not add much value to the economy, instead generates some profits for packagers and processors because of prevalence of price differentials in geographically separated markets. Moreover, '... a borrower investing in a new project such as manufacturing product, development, energy investment, etc. and intending to

repay the loan out of cashflows of the project may be very sensitive to minor variations in interest rates' (Hense, 2015). However, in our context, the price elasticity is very low, hence, we are reluctant to accept that there is perception of strong economic growth in context of Nepal.

**(ii) Syphoning of fund:**

During the study period, significant lending has been disbursed to 'wholesale and retail' and 'others' sectors which are comparatively less regulated sectors. The swelling up of their shares in credit portfolio is an important indication of syphoning of fund. Bank Supervision Reports (NRB, 2016 & 2017) have also highlighted 'mismatch of loan types and purpose of loans and credits extended without proper assessment of financials' among the major observations of on-site examination, thus indicating existence of this possibility. This is very similar scenario as discussed by Hense (2015) that '...a borrower pushing for projects where expectations of asset or property price inflation are strongly embedded in the investment decision will potentially be less affected and respond far less sensitive by even quite large increases in interest rate.' Therefore, we strongly consider possibility of syphoning of fund from less regulated activities to highly regulated activities such as share market investment and real estate investment which are guided by speculation of investors.

**(iii) Role of bankers as risk-averse dealers:**

According to the 'dealership model of interest margin' by Ho and Saunders (1981), "banks if turn to become risk averse dealers may cause lending rate to be sticky-down." Prevalence of consistent high lending rate in Nepalese context is a strong indication that bankers might have turned to become risk averse dealers. This argument is reinforced by the event of the so called 'gentlemen's agreement' among the CEOs of Nepalese commercial banks, going against the market principle, and forming an informal cartel.

In the light of our estimates, we conclude two things- firstly, highly concentrated sectors have less price elasticity in comparison to less concentrated sectors, and secondly, interest rate may have ambiguous link to lending in the short run. The

second conclusion is similar to that of Hence (2015), that a positive relationship between loans and lending rate may exist because of dominance of supply effects in the short run. Based on our assessment of the given scenarios, there are strong bases to believe that syphoning of fund, and the changed role of bankers should have played key roles to make the sectoral lending and lending rate relationship anomalous during the study period. Nonetheless, as our study covers a period of only five years, it is also likely that borrowers might have not been able to adjust their borrowing demand in response to increased rate.

## **REFERENCES**

- Acharya, V. V., Hasan, I. and A. Saunders. 2006. "Should Banks Be Diversified? Evidence from Individual Bank Loan Portfolios." *The Journal of Business* 79(3): 1355-1412.
- Bajracharya, J. B. 2018. "Determinants of lending Behavior: Evidence from Nepalese Commercial Banks." *SAARJ Journal of Banking & Insurance Research* 7(2): 4-15.
- Beck, T., Kunt, A. D. and R. Levine. 2003. "Bank Concentration and Crises." *NBER Working Paper* 9921. National Bureau of Economic Research.
- Ben-Zekry, B. 2007. "Concentration in the banking industry: Good or Bad?" EEP 142 SPR. [Online] Available at: <https://docplayer.net/20997997-Concentration-in-the-banking-industry.html> Accessed: 06 January 2020.
- Bhattarai, B.P. 2019. "Determinants of Commercial Banks' Lending Behaviour in Nepal." *International Journal of Accounting & Finance Review* 4(1): 51-60.
- Bhattarai, Y.R. 2016. "Determinants of Lending Behaviour of Nepalese Commercial Banks." *The Journal of Indian Management* 6(3): 28-36.
- Constant, F. D. and A. Ngoms. 2012. "Determinants of Bank Long-term Lending Behavior in the Central African Economic and Monetary Community (CEMAC)." *Review of Economics & Finance*: 107-114.
- Gambacorta, L. 2004. "How do banks set interest rate?" *NBER Working Paper* 10295. National Bureau of Economic Research.

- Hence, F. 2015. "Interest rate elasticity of bank loans: The case for sector-specific capital requirements." *CFS Working Paper Series* No. 504. Centre for Financial Studies.
- Ho, T. and A. Saunders. 1981. "The Determinants of Bank Interest Margins: Theory and Empirical Evidence." *Journal of Financial and Quantitative Analyses* 16: 581-600.
- Imran, K. and M. Nishat. 2013. "Determinants of bank credit in Pakistan: A supply side approach." *Economic Modelling*, Elsevier 35: 384-390.
- Kashyap, A., Stein, J. C. and D. W. Wilcox D. 1993. "Monetary Policy and Credit Conditions: Evidence from the Composition of External Finance." *American Economic Review* 83(1): 78-98.
- Malede, M. 2014. "Determinants of Commercial Banks lending: Evidence from Ethiopian Commercial Banks." *European Journal of Business and Management* 6(20): 109-117.
- NRB. 2016. *Bank Supervision Report 2015*. Nepal Rastra Bank.
- NRB. 2017. *Bank Supervision Report 2016*. Nepal Rastra Bank.
- NRB. 2018. *Financial Stability Report*. Nepal Rastra Bank.
- NRB. 2019. *Banking and Financial Statistics*. Nepal Rastra Bank.
- Obamuyi, T. M. 2013. "An Analysis of the Deposits and Lending Behaviours of Banks in Nigeria." *International Journal of Engineering and Management Sciences* 4(1): 46-54.
- Olokoyo, F. O. 2011. "Determinants of Commercial Banks' Lending Behavior in Nigeria." *International Research of Financial Research* 2(2): 61-72.
- Olusanya, S. O., Oluwatosin, O. A. and O. E. Chukwuemeka. 2012. "Determinants of Lending Behaviour of Commercial Banks: Evidence from Nigeria, A Co-integration Analysis (1975-2010)." *IOSR Journal of Humanities and Social Science* 5(5): 71-80.
- Puri, S., Kayastha, S., Bhattarai, S., Regmi, S. and S. Puri. 2018. "Determinants of lending behaviour of Nepalese commercial banks." *Nepalese Journal of Management* 5(3): 57-71.
- Reinhart, C. M. and K. S. Rogoff. 2009. *This Time Is Different: Eight Centuries of Financial Folly*. Princeton University Press.

- Saunders, A. and L. Schumacher. 1997. "The Determinants of Bank Interest Rate Margins: An International Study." *Working Paper* Fin-98-058. New York University.
- Tabak, B.M., Fazio, D. M. and D. O. Cajueiro. 2010. "The effects of loan portfolio concentration on Brazilian Banks' Return & Risk." *Working Paper Series* 211. The Banco Central do Brasil.
- Timsina, N. 2016a. "Determinants of Bank Lending in Nepal." *NRB Economic Review* 28(2): 19-42.
- Timsina, N. 2016b. "Determinants of Bank Lending Behaviour in Nepal." *The International Journal of Business and Management* 4(8): 64-77.



## APPENDICES

### Appendix A: Herfindahl-Hirschman Index

Herfindahl-Hirschman (HH) index is one of the most common and widely used approach to measure the portfolio concentration. Mathematically, HH index in sectoral portfolio context is defined as ‘the sum of square of shares of individual sector within the sectoral credit portfolio of a given bank for a specific time-period.’ Thus -

$$(Eq. A1) \quad HH_p = \sum_{q=1}^n s_{p,q}^2$$

Where  $HH_p$  stands for Herfindahl-Hirschman index for a given bank  $p$ ;  $q$  stands for the individual sector within the given sectoral credit portfolio (for instance  $q$  represents each of the individual 16 sectors in the ‘sectoral credit’ category), thus  $s_{p,q}$  stands for the share of  $q$  sector in the sectoral credit portfolio of bank  $p$ .

The interpretation of HH index has been done in accordance with the guideline provided by DoJ & FTC (2010)<sup>6</sup>, hence (a) if HH index for a bank lies below 1500, the portfolio is less concentrated; (b) if HH index for a bank lies between 1500 and 2500, the portfolio is moderately concentrated; and (c) if HH index for a bank lies above 2500, the portfolio is highly concentrated.

However, HH index is better in showing a bank’s concentration in a specific portfolio category and does not tell us about its degree of specialisation in any individual sector. Hence, we have deployed ‘sectoral concentration measure’ (henceforth SCM) in a similar fashion with the ‘loan concentration measure (LCM)’ as proposed by Regehr and Sengupta (2016)<sup>7</sup>, in order to measure the ‘sectoral concentration’ of a bank in our context. Mathematically, SCM has been measured by multiplying the ‘shares by sector in aggregate lending’ of each bank by its respective HH index. Thus-

$$(Eq. A2) \quad FCM_{p,q} = HH_p * ss_{p,q}$$

Where  $FCM_{p,q}$  is the sectoral concentration of bank  $p$  in sector  $q$ , and  $ss_{p,q}$  is the sector  $q$ ’s share of bank  $p$  in the sectoral aggregate lending.

---

<sup>6</sup> DoJ & FTC. 2010. *Horizontal merger guidelines*. US Department of Justice and the Federal Trade Commission.

<sup>7</sup> Regehr, K. and R. Sengupta. 2016. “Sectoral Loan Concentration and Bank Performance (2001-2014)”. *Research Working Paper RWP 16-13*, The Federal Reserve Bank of Kansas City.

**Appendix B1: HH Index of Nepalese Banking Industry based on Aggregate Sectoral Lending Portfolio**

Sectors	Sectoral lending share as on mid-July, %				
	2019	2018	2017	2016	2015
S01 - Agricultural and Forest Related	5.4	4.7	4.3	4.2	4.3
S02 - Fishery Related	0.1	0.1	0.1	0.1	0.1
S03 - Mining Related	0.2	0.2	0.2	0.2	0.2
S04 - Agriculture, Forestry & Beverage Production	5.2	5.8	6.3	6.4	6.5
S05 - Non-Food Production Related	12.5	11.6	11.6	11.8	13.3
S06 - Construction	10.3	10.3	10.4	10.2	10.3
S07 - Electricity, Gas and Water	4.8	4.0	3.5	2.8	2.4
S08 - Metal Products, Machinery & Electronic Equip. & Assemblage	1.3	1.4	1.3	1.2	1.0
S09 - Transport, Communication and Public Utilities	2.5	2.7	3.0	2.9	2.3
S10 - Wholesaler & Retailer	22.5	23.2	23.1	22.6	21.9
S11 - Finance, Insurance and Real Estate	8.3	8.8	8.7	8.0	7.8
S12 - Hotel or Restaurant	4.2	3.8	3.3	2.8	2.9
S13 - Other Services	4.5	4.5	4.6	4.2	4.6
S14 - Consumption Loans	5.7	6.9	7.8	7.1	7.2
S15 - Local Government	0.1	0.1	0.1	0.1	0.2
S16 - Others	12.3	12.0	11.9	15.4	14.9
S01 – S16 Total	100.0	100.0	100.0	100.0	100.0
Aggregate Herfindahl-Hirschman Index	1149	1162	1164	1208	1201

*Source: Researchers' estimate (2020)*

## Appendix B2: HH Index of Commercial Banks based on their Sectoral Lending Portfolios

Commercial Banks	Herfindahl-Hirschman (HH) Index				
	2019	2018	2017	2016	2015
NBL - Nepal Bank Ltd	1102	1378	1331	1467	1548
RBB - Rastriya Banijya Bank	1509	1573	1554	1534	1506
NABIL - Nabil Bank	1609	-	1630	-	-
NIBL - Nepal Investment Bank Ltd	1304	1283	1396	1387	1561
SCBNL - Standard Chartered Bank Nepal	1632	1803	1636	1711	1686
HBL - Himalayan Bank Ltd	1322	1229	1271	1415	1399
NSBI - Nepal SBI Bank	1515	1726	1823	1742	1855
NBB - Nepal Bangladesh Bank	1251	1234	1431	1474	1586
EBL - Everest Bank Ltd.	1398	1341	1378	1385	1441
BOK - Bank of Kathmandu	1356	1309	1342	1534	1529
NCC - Nepal Credit & Commerce Bank	1087	1161	1130	1165	1169
NIC - Nepal Industrial & Commercial Bank	1395	1488	1531	1438	1392
MBL - Machhapuchhre Bank Ltd	1252	1242	1213	1133	1239
KUMARI - Kumari Bank	1120	1414	1318	1197	1339
LAXMI - Laxmi Bank	1245	1231	1276	1367	1407
SBL - Siddhartha Bank Ltd	1305	1290	1319	1328	1407
ADBNL - Agriculture Development Bank	2030	1963	1822	1389	1386
GLOBAL - Global Banks	1293	1326	1433	1581	1499
CITIZENS - Citizens Bank	1273	1353	1342	1474	1458
PRIME - Prime Bank	1056	1337	1493	1391	1377
SUNRISE - Sunrise Bank	1225	1265	1289	1333	1280
NMB - NMB Bank	1537	1455	1274	1438	1385
PRABHU - Prabhu Bank	1048	1112	1185	-	1203
JANATA - Janata Bank	1316	1333	1312	1104	1336
MEGA - Mega Bank	1412	1462	1494	1152	1178
CIVIL - Civil Bank	1139	1248	1384	1421	1401
CENTURY - Century Bank	1152	1165	1159	1684	1753
SANIMA - Sanima Bank	1401	1432	1368	1346	1437
Aggregate Herfindahl-Hirschman Index	1149	1162	1164	1208	1201

Source: Researchers' estimate (2020)

**Appendix C: Sectorial Concentration Measure (SCM) of Banks**

Banks	S01	S04	S05	S06	S07	S08	S09	S10	S11	S12	S13	S14	S16
NBL	263	221	595	487	280	74	94	852	311	125	109	538	424
RBB	709	404	531	1031	260	136	220	2898	903	525	242	1134	153
NABIL	241	534	1513	74	524	67	50	2261	507	251	186	281	1782
NIBL	327	441	1351	395	524	42	189	1330	373	484	467	187	296
SCBNL	197	256	436	869	2	122	13	986	172	64	23	352	133
HBL	270	510	1136	232	66	117	185	915	631	216	211	194	230
NSBI	166	453	863	209	179	175	64	1226	330	222	92	80	1125
NBB	127	141	233	267	123	33	65	468	239	100	654	104	209
EBL	284	188	651	1101	264	115	150	1656	688	176	131	233	542
BOK	196	216	576	224	178	63	91	1133	448	177	307	405	119
NCC	150	171	410	369	141	66	119	472	179	98	126	79	440
NIC	639	262	492	1300	81	19	26	2058	781	542	253	659	1478
MBL	174	222	560	329	178	26	123	988	413	103	301	170	398
KUMARI	71	237	558	382	170	86	140	496	234	126	148	180	454
LAXMI	153	249	381	815	216	115	215	753	285	119	180	164	48
SBL	290	255	672	396	257	61	374	1171	410	207	181	226	1178
ADBNL	1682	235	383	526	557	34	93	2425	132	270	274	88	2558
GLOBAL	206	316	769	847	381	64	56	1436	330	263	313	323	750
CITIZENS	118	167	353	175	240	10	101	558	232	60	197	271	872
PRIME	152	68	392	458	322	19	79	381	451	169	138	351	292
SUNRISE	279	90	338	632	124	45	14	729	290	183	184	193	395
NMB	136	361	859	708	359	74	90	1778	451	121	165	192	284
PRABHU	238	85	443	564	187	18	129	633	397	264	321	264	279
JANATA	167	221	530	289	201	14	135	849	260	134	157	87	529
MEGA	126	269	433	191	119	28	59	1040	632	204	133	225	669
CIVIL	98	79	312	127	143	21	45	413	255	80	88	163	158
CENTURY	104	210	453	279	137	52	31	496	344	113	96	182	327
SANIMA	109	244	461	445	267	48	300	878	207	170	178	124	1228
Overall SCM	1682	534	1513	1300	557	175	374	2898	903	542	654	1134	2558

Note: Highlighted cells show the top 5 lending priority of the given bank among those sectors (read along a given row).

Source: Researchers' estimate (2020)

**Appendix D: Shares in Total Sectoral Lending by Banks, as on mid-July 2019**

Banks	TOT	S01	S04	S05	S06	S07	S08	S09	S10	S11	S12	S13	S14	S16
NBL <sup>big</sup>	4.0	0.2	0.2	0.5	0.4	0.3	0.1	0.1	0.8	0.3	0.1	0.1	0.5	0.4
RBB <sup>big</sup>	6.1	0.5	0.3	0.4	0.7	0.2	0.1	0.1	1.9	0.6	0.3	0.2	0.8	0.1
NABIL <sup>big</sup>	5.1	0.1	0.3	0.9	0.0	0.3	0.0	0.0	1.4	0.3	0.2	0.1	0.2	1.1
NIBL <sup>big</sup>	4.9	0.3	0.3	1.0	0.3	0.4	0.0	0.1	1.0	0.3	0.4	0.4	0.1	0.2
SCBNL	2.2	0.1	0.2	0.3	0.5	0.0	0.1	0.0	0.6	0.1	0.0	0.0	0.2	0.1
HBL	3.7	0.2	0.4	0.9	0.2	0.1	0.1	0.1	0.7	0.5	0.2	0.2	0.1	0.2
NSBI	3.4	0.1	0.3	0.6	0.1	0.1	0.1	0.0	0.8	0.2	0.1	0.1	0.1	0.7
NBB	2.2	0.1	0.1	0.2	0.2	0.1	0.0	0.1	0.4	0.2	0.1	0.5	0.1	0.2
EBL <sup>big</sup>	4.4	0.2	0.1	0.5	0.8	0.2	0.1	0.1	1.2	0.5	0.1	0.1	0.2	0.4
BOK	3.1	0.1	0.2	0.4	0.2	0.1	0.0	0.1	0.8	0.3	0.1	0.2	0.3	0.1
NCC	2.6	0.1	0.2	0.4	0.3	0.1	0.1	0.1	0.4	0.2	0.1	0.1	0.1	0.4
NIC <sup>big</sup>	6.2	0.5	0.2	0.4	0.9	0.1	0.0	0.0	1.5	0.6	0.4	0.2	0.5	1.1
MBL	3.2	0.1	0.2	0.4	0.3	0.1	0.0	0.1	0.8	0.3	0.1	0.2	0.1	0.3
KUMARI	2.9	0.1	0.2	0.5	0.3	0.2	0.1	0.1	0.4	0.2	0.1	0.1	0.2	0.4
LAXMI	3.0	0.1	0.2	0.3	0.7	0.2	0.1	0.2	0.6	0.2	0.1	0.1	0.1	0.0
SBL <sup>big</sup>	4.4	0.2	0.2	0.5	0.3	0.2	0.0	0.3	0.9	0.3	0.2	0.1	0.2	0.9
ADBNI <sup>big</sup>	4.6	0.8	0.1	0.2	0.3	0.3	0.0	0.0	1.2	0.1	0.1	0.1	0.0	1.3
GLOBAL <sup>big</sup>	4.7	0.2	0.2	0.6	0.7	0.3	0.0	0.0	1.1	0.3	0.2	0.2	0.2	0.6
CITIZENS	2.7	0.1	0.1	0.3	0.1	0.2	0.0	0.1	0.4	0.2	0.0	0.2	0.2	0.7
PRIME	3.1	0.1	0.1	0.4	0.4	0.3	0.0	0.1	0.4	0.4	0.2	0.1	0.3	0.3
SUNRISE	2.9	0.2	0.1	0.3	0.5	0.1	0.0	0.0	0.6	0.2	0.1	0.1	0.2	0.3
NMB	3.6	0.1	0.2	0.6	0.5	0.2	0.0	0.1	1.2	0.3	0.1	0.1	0.1	0.2
PRABHU	3.6	0.2	0.1	0.4	0.5	0.2	0.0	0.1	0.6	0.4	0.3	0.3	0.3	0.3
JANATA	2.7	0.1	0.2	0.4	0.2	0.2	0.0	0.1	0.6	0.2	0.1	0.1	0.1	0.4
MEGA	2.9	0.1	0.2	0.3	0.1	0.1	0.0	0.0	0.7	0.4	0.1	0.1	0.2	0.5
CIVIL	1.7	0.1	0.1	0.3	0.1	0.1	0.0	0.0	0.4	0.2	0.1	0.1	0.1	0.1
CENTURY	2.5	0.1	0.2	0.4	0.2	0.1	0.0	0.0	0.4	0.3	0.1	0.1	0.2	0.3
SANIMA	3.4	0.1	0.2	0.3	0.3	0.2	0.0	0.2	0.6	0.1	0.1	0.1	0.1	0.9
Total	100.0	5.4	5.2	12.5	10.3	4.8	1.3	2.5	22.5	8.3	4.2	4.5	5.7	12.3
CV	31.0	81.6	43.0	45.6	59.6	51.2	62.6	71.3	46.9	44.1	59.5	62.3	74.5	75.2

Note: Highlighted cells show they are part of the top 5 lending shares for the given sector (read along a given column).

Source: Researchers' estimate (2020)

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/331348118>

# Existence results for functional first-order coupled systems and applications

Article in *Mathematical Methods in the Applied Sciences* · May 2019

DOI: 10.1002/mma.5517

CITATION

1

READS

56

2 authors:



**João Fialho**

British University Vietnam

24 PUBLICATIONS 139 CITATIONS

[SEE PROFILE](#)



**Feliz Minhós**

Universidade de Évora

117 PUBLICATIONS 1,123 CITATIONS

[SEE PROFILE](#)

Some of the authors of this publication are also working on these related projects:



Lectures in Nonlinear Analysis and Differential Equations (Edition 2020 cancelled) [View project](#)



Nontrivial solutions of ODEs with functional BCs [View project](#)

# Existence results for functional first order coupled systems and applications

Joao Fialho<sup>1,3</sup>, Feliz Minhós<sup>2,3</sup>

<sup>1</sup>British University of Vietnam

Hanoi, Vietnam

<sup>2</sup> Departamento de Matemática, Escola de Ciências e Tecnologia,  
Universidade de Évora, Portugal

<sup>3</sup> Centro de Investigação em Matemática e Aplicações (CIMA),  
Instituto de Investigação e Formação Avançada,  
Universidade de Évora. Rua Romão Ramalho, 59,  
7000-671 Évora, Portugal

April 26, 2018

## Abstract

This paper is concerned with the existence of solutions of the first order fully coupled system with coupled functional boundary conditions. These functional boundary conditions generalize the usual boundary assumptions and may be applied to most of the classical cases.

The arguments used are based on the Arzela Ascoli theorem and Schauder's fixed point theorem.

An application to a mathematical model of the thyroid-pituitary interaction and their homeostatic mechanism is included.

## 2010 Mathematics Subject Classification:

**Keywords:** Coupled nonlinear systems, functional boundary conditions, Schauder fixed point theory, thyroid-pituitary homeostatic mechanism, mathematical modelling.

# 1 Introduction

This paper is concerned with the study of a fully nonlinear coupled system of equations

$$u'_i(t) = f_i(t, u_1(t), \dots, u_n(t)), \quad (1)$$

with  $i = 1, 2, \dots, n$ ,  $t \in [a, b]$  and  $f_i : [a, b] \times \mathbb{R}^n \rightarrow \mathbb{R}$  are  $L^1$ -Carathéodory functions, subject to the nonlinear functional boundary conditions

$$u_i(a) = L_i(u, u(b), u^*(a)) \quad (2)$$

where  $i = 1, 2, \dots, n$ ,  $L_i : (C[a, b])^n \times \mathbb{R}^n \times \mathbb{R}^{n-1} \rightarrow \mathbb{R}$  are continuous functions with properties later to be defined, and

$$\begin{aligned} u &= (u_1, \dots, u_n) \\ u(b) &= (u_1(b), \dots, u_n(b)), \\ u^*(a) &= (u_1(a), \dots, u_j(a), \dots, u_n(a)), \quad j = 1, \dots, n, \quad j \neq i. \end{aligned}$$

Systems of differential equations are very popular in mathematical modelling due to their high applicability in diverse areas like population dynamics, finance, medicine, biotechnology, physics, etc. Some examples of these applications can be seen in [12, 14].

There are not many cases available in the literature dealing with coupled systems of equations, one can point [1, 2, 3], however this paper generalizes some of the results presented there as it deals with both coupled equations. Moreover, to the best of our knowledge, it is the first time where coupled systems are considered with coupled functional boundary conditions. This feature allows to generalize the classical boundary data in the literature, such as two-point or multi-point, nonlinear, nonlocal, integro-differential conditions, among others. Indeed, the functional part can deal with global boundary assumptions, such as with minimum or maximum arguments, infinite multi-point data, integral conditions, ..., on the several unknown functions. More details on functional problems can be seen in [4, 5, 7, 8, 10, 9] and the references therein.

The technique used is based on the Arzèla-Ascoli theorem and Schauder's fixed point theorem. An application of (1)-(2) to the mathematical model describing the thyroid-pituitary homeostatic mechanism is shown, to illustrate the applicability of the problem discussed. In addition, an example is presented to emphasize the huge potential of applications from functional boundary conditions used and, consequently, from the main existence result.



## 2 Definitions and assumptions

Along this work we consider the space of continuous functions in  $[a, b]$ ,  $(C[a, b])$ , equipped with the norm  $\|u\| = \max \{\|u_i\|, i = 1, \dots, n\}$  where  $\|u_i\| = \max_{t \in [a, b]} |u_i(t)|$ .

As it is well known, in this way,  $C[a, b]$  is a Banach space.

The functional boundary functions verify the assumption:

- (H1)**  $L_i : (C[a, b])^n \times \mathbb{R}^n \times \mathbb{R}^{n-1} \rightarrow \mathbb{R}$  are continuous functions. Moreover  $L_i(\eta, x, y)$  are uniformly continuous when  $(\eta, x, y)$  are bounded., and decreasing on  $\eta$ , for  $i = 1, \dots, n$ .
- (H2)** The functions  $L_i : (C[a, b])^n \times \mathbb{R}^n \times \mathbb{R}^{n-1} \rightarrow \mathbb{R}$  are decreasing in the  $i^{\text{th}}$  variable and nonincreasing in the  $(i + n)^{\text{th}}$  variable.

Condition (H2) will depend both on the number of equations considered ( $n$ ) and  $i$ . As a clarification, for instance when  $n = 1$ , we require that on  $L_1$  the first variable is decreasing and the second variable to be nonincreasing. If  $n = 2$ , we have both  $L_1$  and  $L_2$ . In  $L_1$  the first variable is decreasing and the third variable is nonincreasing, whereas in  $L_2$  the second variable is decreasing and the fourth variable is nonincreasing. A similar analogy is used for the other values of  $n$ .

The admissible functions for our work will be the  $L^1$ -Carathéodory functions, according the following definition:

**Definition 1** *The functions  $f_i : [a, b] \times \mathbb{R}^n \rightarrow \mathbb{R}$ ,  $i = 1, \dots, n$ , are  $L^1$ -Carathéodory if they verify*

- (i) *for each  $(y_1, \dots, y_n) \in \mathbb{R}^n$ ,  $t \mapsto f_i(t, y_1, \dots, y_n)$  are measurable on  $[a, b]$ , for  $i = 1, \dots, n$ ;*
- (ii) *for almost every  $t \in [a, b]$ ,  $(y_1, \dots, y_n) \mapsto f_i(t, y_1, \dots, y_n)$  is continuous in  $\mathbb{R}^n$ , for  $i = 1, \dots, n$ ;*
- (iii) *for each  $L > 0$ , there exists a positive function  $\psi_{iL} \in L^1[a, b]$ ,  $i = 1, \dots, n$ , such that, for  $\max \{\|y_i\|, i = 1, \dots, n\} < L$ ,*

$$|f_i(t, y_1(t), \dots, y_n(t))| \leq \psi_{iL}(t), \text{ a.e. } t \in [a, b], \text{ } i = 1, \dots, n.$$

Schauder's fixed point theorem will be an important tool to guarantee the existence of fixed points for our operator:

**Theorem 2** ([13]) *Let  $Y$  be a nonempty, closed, bounded and convex subset of a Banach space  $X$ , and suppose that  $P : Y \rightarrow Y$  is a compact operator. Then  $P$  has at least one fixed point in  $Y$ .*

### 3 Main result

In this section, we present and prove the main existence result for (1)-(2), given by the following theorem:

**Theorem 3** *If  $f_i$  are  $L^1$ -Carathéodory functions, for  $i = 1, \dots, n$ , and (H1), (H2) hold, then the problem (1)-(2) has at least one solution  $u \in (C[a, b])^n$ .*

**Proof.** Let us consider the integral system given by

$$u_i(t) = L_i(u, u(b), u^*(a)) + \int_a^t f_i(s, u_1(s), \dots, u_n(s)) ds \quad (3)$$

and the operator

$$T : (C[a, b])^n \rightarrow (C[a, b])^n$$

defined by

$$T(u_1, \dots, u_n) = (T_1(u_1, \dots, u_n), \dots, T_n(u_1, \dots, u_n)), \quad (4)$$

where  $T_i : (C[a, b])^n \rightarrow C[a, b]$ ,  $i = 1, \dots, n$ , given by

$$T_1(u_1, \dots, u_n) = L_1(u, u(b), u^*(a)) + \int_a^t f_1(s, u_1(s), \dots, u_n(s)) ds. \quad (5)$$

As the fixed points of  $T$  are fixed points of  $T_i$ ,  $i = 1, \dots, n$ , and vice-versa, we will use the Arzèla-Ascoli theorem and Schauder's fixed point theorem to prove that the problem (1)-(2) has at least one solution.

For clarity, we consider several claims:

**Claim 1** -  $TD \subset D$ , for some  $D \subset (C[a, b])^n$  a bounded, closed and convex subset.

Consider

$$D = \{(u_1, \dots, u_n) \in (C[a, b])^n : \|(u_1, \dots, u_n)\| \leq k\}$$

where

$$k := \max \left\{ k_i + \int_a^t \psi_{iL}(s) ds, \quad i = 1, \dots, n \right\} < \infty,$$

and, by (H1),

$$k_i := \max \{L_i(u, u(b), u^*(a)), \quad i = 1, \dots, n\}.$$

Then,

$$\begin{aligned} \|T(u_1, \dots, u_n)\| &= \max \{ \|T_1(u_1, \dots, u_n)\|, \dots, \|T_n(u_1, \dots, u_n)\| \} \\ &= \max \left\{ \max \left| \begin{array}{c} L_i(u, u(b), u^*(a)) \\ + \int_a^t f_i(s, u_1(s), \dots, u_n(s)) ds \end{array} \right|, i = 1, \dots, n \right\} \\ &\leq \max \left\{ k_i + \int_a^t \psi_{iL}(s) ds, \quad i = 1, \dots, n \right\} = k, \end{aligned}$$

proving Claim 1.

**Claim 2** - *The operator  $T$  is completely continuous.*

To prove that the operator  $T$  is completely continuous it is sufficient to show that  $T$  is uniformly bounded and  $T$  is equicontinuous.

Applying the above arguments, it can be proved that  $T_i$  are uniformly bounded, for  $i = 1, \dots, n$ , and therefore  $T$  is uniformly bounded.

In order to show that the operator  $T$  is equicontinuous, let us consider  $t_1, t_2 \in [a, b]$ , such that, without any loss of generality,  $t_1 < t_2$ .

Then for  $T_i$ ,  $i = 1, \dots, n$ , we have

$$\begin{aligned} &|T_i(u_1(t_2), \dots, u_n(t_2)) - T_i(u_1(t_1), \dots, u_n(t_1))| \\ &\leq \int_{t_1}^{t_2} |f_i(s, u_1(s), \dots, u_n(s))| ds \leq \int_{t_1}^{t_2} \psi_{iL}(s) ds \rightarrow 0, \end{aligned}$$

as  $t_1 \rightarrow t_2$ . So, each operator  $T_i$  is equicontinuous and, hence, the operator  $T$  is equicontinuous.

Therefore, by Arzèla-Ascoli's theorem, the operator  $T$  is compact and using Schauder's fixed point theorem, we obtain that  $T$  has a fixed point, that is, the problem (1)-(2) has at least a solution  $u \in (C[a, b])^n$ . ■

## 4 The thyroid-pituitary homeostatic mechanism

In [6], the authors develop a mathematical model of the thyroid-pituitary interaction. This model is based on the fact that the anterior lobe of the pituitary gland produces the hormone thyrotropin, under the influence of a thyroid releasing factor (TRF), a releasing hormone secreted by the hypothalamus. The hormone thyrotropin causes the thyroid gland to produce an enzyme, which when activated, produces the hormone thyroxine. This hormone has a negative feedback effect on the secretion of thyrotropin from the pituitary gland. This mechanism can be seen in more detail in [11] and the following mathematical model is suggested

$$\frac{dP}{dt} = \begin{cases} c - h\theta - gP, & \theta \leq \frac{c}{h} \\ -gP, & \theta > \frac{c}{h} \end{cases}, \quad (6)$$

$$\frac{dE}{dt} = mP - kE,$$

$$\frac{d\theta}{dt} = aE - b\theta$$

where  $P$ ,  $E$  and  $\theta$  represent the concentrations of thyrotropin, activated enzyme and thyroxine respectively,  $b$ ,  $g$  and  $k$  represent the loss constants of thyroxine, thyrotropin and activated enzyme, respectively,  $a$ ,  $h$ ,  $m$  are constants expressing the sensitivities of the glands to stimulation or inhibition;  $c$  is the rate of production of thyrotropin in the absence of thyroid inhibition. All constants are assumed to be positive.

We consider, for  $t \in [0, T]$ , with  $T > 0$ , the differential equations (6) coupled with the boundary conditions

$$P(0) = \min_{t \in [0, T]} \theta(t),$$

$$E(0) = \int_0^T E(T)E(s)ds, \quad (7)$$

$$\theta(0) = \max_{t \in [0, T]} P(t).$$

These functional boundary conditions fully reflect the considerations and conclusions presented on [11]. As the concentrations of thyrotropin and thyroxine are based on a negative feedback effect, when one is at its maximum,

the other will be at its minimum and vice-versa. The concentration of the activated enzyme,  $E$ , is considered to be, at its initial moment, a weighted average of the amount present on the system, weighted by the final value of the activated enzyme,  $E$ , at  $T$ . Functional boundary conditions allow these assumption to be considered in full, as they allow for operators to be considered as boundary conditions. The minimum concentration of thyrotropin at start is illustrated by the first condition, the average concentration of the activated enzyme by the second and the maximum concentration of thyroxine is described by the last condition.

This model can now be presented in the form of (1)-(2), where  $u_1 = P$ ,  $u_2 = E$  and  $u_3 = \theta$ ,

$$f_1(t, u_1, u_2, u_3) = \begin{cases} c - hu_3 - gu_1, & u_3 \leq \frac{c}{h} \\ -gu_1, & u_3 > \frac{c}{h} \end{cases},$$

$$f_2(t, u_1, u_2, u_3) = mu_1 - ku_2,$$

$$f_3(t, u_1, u_2, u_3) = au_2 - bu_3,$$

$$L_1(u_1, u_2, u_3, u_1(T), u_2(T), u_3(T), u_2(0), u_3(0)) = \min_{t \in [0, T]} u_3,$$

$$L_2(u_1, u_2, u_3, u_1(T), u_2(T), u_3(T), u_1(0), u_3(0)) = \int_0^T u_2(T)u_2(s)ds,$$

$$L_3(u_1, u_2, u_3, u_1(T), u_2(T), u_3(T), u_1(0), u_2(0)) = \max_{t \in [0, T]} u_1.$$

It is clear to see that  $f_1, f_2$  and  $f_3$  are  $L^1$ -Carathéodory functions such that, for  $\max\{\|u_1\|, \|u_2\|, \|u_3\|\} < L$ ,

$$\begin{aligned} |f_1(t, u_1, u_2, u_3)| &\leq c + hL + gL := \psi_{1L}(t), \\ |f_2(t, u_1, u_2, u_3)| &\leq mL + kL := \psi_{2L}(t), \\ |f_3(t, u_1, u_2, u_3)| &\leq aL + bL := \psi_{3L}(t), \end{aligned}$$

and that the boundary conditions  $L_1, L_2$  and  $L_3$  satisfy (H1). Therefore, by Theorem 3, the system (6)-(7) has at least one solution  $(u_1, u_2, u_3) \in (C[0, T])^3$ .

A similar approach can be taken in several other models, allowing global conditions to be considered as boundary conditions, highly increasing the level of applicability of these models.

## References

- [1] R. P. Agarwal, D. O'Reagan, *A coupled system of boundary value problems*. Appl. Anal. 69, 381-385 (1998)
- [2] N. A. Asif, I. Talib, C. Tunc, *Existence of solutions for first-order coupled system with nonlinear coupled boundary conditions*, Bound. Val. Prob., 134, (2015).
- [3] N. A. Asif, R. A. Khan, *Positive solutions to singular system with four-point coupled boundary conditions*. J. Math. Anal. Appl. 386, 848-861 (2012)
- [4] A. Cabada, J. Fialho, F. Minhós, *Extremal solutions to fourth order discontinuous functional boundary value problems*, Math. Nachr. 286, No. 17–18, (2013) 1744–1751
- [5] A. Cabada, R. Pouso, F. Minhós, *Extremal solutions to fourth-order functional boundary value problems including multipoint condition*, Non-linear Anal.: Real World Appl., 10 (2009) 2157–2170
- [6] L. Danziger, G. L. Elmergreen, *The thyroid-pituitary homeostatic mechanism*. Bull. Math. Biophys. **18** (1956), 1–13.
- [7] J. Fialho, F. Minhós, *Higher order functional boundary value problems without monotone assumptions*, Bound. Val. Prob., 81, (2013).
- [8] J. Fialho, F. Minhós, *Multiplicity and location results for second order functional boundary value problems*, Dynamic Systems and Applications, 23 (2014) 453-464
- [9] J. Graef, L. Kong, Feliz Minhós, *Higher order boundary value problems with  $\phi$ -Laplacian and functional boundary conditions*, Computers and Mathematics with Applications, **61** (2011) 236–249

- [10] J. Graef, L. Kong, F. Minhós and J. Fialho, *On the lower and upper solution method for higher order functional boundary value problems*, Appl. Anal. Discrete Math, **5** no. 1 (2011), 133-146.
- [11] B. Mukhopadhyay, R. Bhattacharyya, *A mathematical model describing the thyroid-pituitary axis with time delays in hormone transportation*, Appl. Math., **51** (2006), 549–564
- [12] J. J. Nieto, *Periodic boundary value problems for first-order impulsive ordinary differential equations*. Nonlinear Anal. 51, 1223-1232 (2002).
- [13] E. Zeidler, *Nonlinear Functional Analysis and Its Applications, I: Fixed-Point Theorems*, Springer, New York (1986).
- [14] W. Zhang, M. Fan, *Periodicity in a generalized ecological competition system governed by impulsive differential equations with delays*. Math. Comput. Model. 39, 479-493 (2004)

Article

# First Order Coupled Systems With Functional and Periodic Boundary Conditions: Existence Results and Application to an SIRS Model

João Fialho<sup>1,2,\*</sup>  and Feliz Minhós<sup>2,3</sup> <sup>1</sup> Department of Mathematics, British University of Vietnam, Ecopark Campus, 160000 Hung Yen, Hanoi, Vietnam<sup>2</sup> Centro de Investigação em Matemática e Aplicações (CIMA), Instituto de Investigação e Formação Avançada, Universidade de Évora, Rua Romão Ramalho, 59, 7000-671 Évora, Portugal; fminhos@uevora.pt<sup>3</sup> Departamento de Matemática, Escola de Ciências e Tecnologia, Universidade de Évora, 7000-812 Évora, Portugal

\* Correspondence: joao.f@buv.edu.vn

Received: 6 January 2019; Accepted: 13 February 2019; Published: 16 February 2019



**Abstract:** The results presented in this paper deal with the existence of solutions of a first order fully coupled system of three equations, and they are split in two parts: 1. Case with coupled functional boundary conditions, and 2. Case with periodic boundary conditions. Functional boundary conditions, which are becoming increasingly popular in the literature, as they generalize most of the classical cases and in addition can be used to tackle global conditions, such as maximum or minimum conditions. The arguments used are based on the Arzèla Ascoli theorem and Schauder's fixed point theorem. The existence results are directly applied to an epidemic SIRS (Susceptible-Infectious-Recovered-Susceptible) model, with global boundary conditions.

**Keywords:** coupled nonlinear systems; functional boundary conditions; Schauder's fixed point theory; Arzèla Ascoli theorem; lower and upper solutions; first order periodic systems; SIRS epidemic model; mathematical modelling

**MSC:** 34B10; 34B15; 34B40

## 1. Introduction

In this paper two different problems are analyzed.

Part one is concerned with the study of a fully nonlinear coupled system of equations

$$\begin{cases} u_1'(t) = f_1(t, u_1(t), u_2(t), u_3(t)) \\ u_2'(t) = f_2(t, u_1(t), u_2(t), u_3(t)) \\ u_3'(t) = f_3(t, u_1(t), u_2(t), u_3(t)) \end{cases}, \quad (1)$$

$f_i : [a, b] \times \mathbb{R}^3 \rightarrow \mathbb{R}$  and  $i = 1, 2, 3$  are  $L^1$ -Carathéodory functions, subject to the nonlinear functional boundary conditions

$$\begin{aligned} u_1(a) &= L_1(u_1, u_2, u_3, u_1(b), u_2(b), u_3(b), u_2(a), u_3(a)) \\ u_2(a) &= L_2(u_1, u_2, u_3, u_1(b), u_2(b), u_3(b), u_1(a), u_3(a)) \\ u_3(a) &= L_3(u_1, u_2, u_3, u_1(b), u_2(b), u_3(b), u_1(a), u_2(a)) \end{aligned} \quad (2)$$



where  $L_i : (C[a, b])^3 \times \mathbb{R}^5 \rightarrow \mathbb{R}$ ,  $i = 1, 2, 3$ , are continuous functions with properties later to be defined. The technique used for the functional problem is based on the Arzèla-Ascoli theorem and Schauder’s fixed point theorem.

Part two, more precisely, Section 4, deals with the fully nonlinear couple system of Equation (1) coupled with the periodic boundary conditions

$$\begin{aligned} u_1(a) &= u_1(b) \\ u_2(a) &= u_2(b) \\ u_3(a) &= u_3(b). \end{aligned} \tag{3}$$

Given that the conditions on  $L_i$ , do not allow the problem (1)–(2) to cover the periodic case, a different approach for the problem (1)–(3) is required. In this case, in order to obtain the existence and location of periodic solutions, the upper and lower solutions method, along with some adequate local monotone assumptions on the nonlinearities, is used.

Mathematical modelling and applications are becoming increasingly popular nowadays. With the sudden outburst of keywords such as big data, data analytics and modelling, the quest for mathematical models is on high demand. In the area of mathematical modelling, systems of differential equations are a must, due to their high applicability in areas such as population dynamics [1–3], finance [4], medicine [5], biotechnology [6] and physics [7,8], and also examples treated in [9,10].

Nevertheless, in the literature available, the cases dealing with coupled systems of equations are not abundant. Such systems can be found in [11–13], however, in this paper the authors present a problem where both equations are coupled. In addition to that, to the best of our knowledge, it is the first time where coupled systems are considered with coupled functional boundary conditions.

This feature allows to generalize the classical boundary data in the literature, such as two-point or multi-point, nonlinear, nonlocal, integro-differential conditions, among others. Indeed, the functional part can deal with global boundary assumptions, such as minimum or maximum arguments, infinite multi-point data, and integral conditions on the several unknown functions. Functional problems, along with their features, can be seen in [14–19] and the references therein.

The methods and techniques applied in this paper can be easily adapted to coupled systems with  $n$  equations and variables. However, as the notation and writing appear to be heavy, and may avoid the clarity of the results, we prefer to prove our theoretical part for  $n = 3$ , which is adequate for our application.

This paper has the following structure: Section 2 contains some definitions and generic assumptions on the nonlinearities. Section 3 shows the main result for problems with functional boundary conditions. In Section 4 it is studied the periodic problem via lower and upper solutions technique together with some local growth conditions. The final section presents an application of (1)–(2) to an epidemic SIRS model to illustrate the applicability of the problem discussed and to show the potentialities of the functional boundary conditions, exploring global initial boundary conditions on the system.

## 2. Definitions and Assumptions

Throughout this work we consider the space of continuous functions in  $[a, b]$ , on the Banach space  $E := (C[a, b])^3$ , equipped with the norm

$$\|u\|_E = \max \{ \|u_i\|, i = 1, 2, 3 \}$$

where  $\|u_i\| = \max_{t \in [a, b]} |u_i(t)|$ .

The functional boundary functions verify the assumption:

**Hypothesis 1.**  $L_i : (C[a, b])^3 \times \mathbb{R}^5 \rightarrow \mathbb{R}$  are continuous functions. Moreover, each of the functions,  $L_i(\eta, x, y)$  are uniformly continuous when  $(\eta, x, y)$  is bounded.

The admissible nonlinearities will be  $L^1$ -Carathéodory functions, according the following definition:

**Definition 1.** The functions  $f_i : [a, b] \times \mathbb{R}^3 \rightarrow \mathbb{R}, i = 1, \dots, n$ , are  $L^1$ -Carathéodory if they verify:

- (i) for each  $(y_1, y_2, y_3) \in \mathbb{R}^3, t \mapsto f_i(t, y_1, y_2, y_3)$  are measurable on  $[a, b]$ , for  $i = 1, 2, 3$ ;
- (ii) for almost every  $t \in [a, b], (y_1, y_2, y_3) \mapsto f_i(t, y_1, y_2, y_3)$  are continuous on  $\mathbb{R}^3$ , for  $i = 1, 2, 3$ ;
- (iii) for each  $L > 0$ , there exists a positive function  $\psi_{iL} \in L^1[a, b], i = 1, 2, 3$ , such that, for  $\max\{\|y_i\|, i = 1, 2, 3\} < L$ ,

$$|f_i(t, y_1(t), y_2(t), y_3(t))| \leq \psi_{iL}(t), \text{ a.e. } t \in [a, b], i = 1, 2, 3.$$

To demonstrate the final result, Schauder’s fixed point theorem will be an important tool to guarantee the existence of fixed points for the operator to be defined:

**Theorem 1.** ([20]) Let  $Y$  be a nonempty, closed, bounded and convex subset of a Banach space  $X$ , and suppose that  $P : Y \rightarrow Y$  is a completely continuous operator. Then  $P$  has at least one fixed point in  $Y$ .

### 3. Main Result for Functional Problems

In this section, we present and prove the main existence result for (1)–(2), given by the following theorem:

**Theorem 2.** If  $f_i$  are  $L^1$ -Carathéodory functions, for  $i = 1, 2, 3$ , and the continuous functions  $L_i, i = 1, 2, 3$ , verify (H1) and

**Hypothesis 2.** there exists  $R > 0$  such that

$$\max\left\{k_i + \int_a^t \psi_{iR}(s) ds, i = 1, 2, 3\right\} \leq R,$$

with

$$\begin{aligned} k_1 &:= \max\{L_1(u_1, u_2, u_3, u_1(b), u_2(b), u_3(b), u_2(a), u_3(a))\}, \\ k_2 &:= \max\{L_2(u_1, u_2, u_3, u_1(b), u_2(b), u_3(b), u_1(a), u_3(a))\}, \\ k_3 &:= \max\{L_3(u_1, u_2, u_3, u_1(b), u_2(b), u_3(b), u_1(a), u_2(a))\}, \end{aligned}$$

then the problem (1)–(2) has at least one solution  $u = (u_1, u_2, u_3) \in (C[a, b])^3$ .

**Proof.** Let us consider the integral system given by

$$\begin{cases} u_1(t) = L_1(u_1, u_2, u_3, u_1(b), u_2(b), u_3(b), u_2(a), u_3(a)) + \int_a^t f_1(s, u_1(s), u_2(s), u_3(s)) ds, \\ u_2(t) = L_2(u_1, u_2, u_3, u_1(b), u_2(b), u_3(b), u_1(a), u_3(a)) + \int_a^t f_2(s, u_1(s), u_2(s), u_3(s)) ds, \\ u_3(t) = L_3(u_1, u_2, u_3, u_1(b), u_2(b), u_3(b), u_1(a), u_2(a)) + \int_a^t f_3(s, u_1(s), u_2(s), u_3(s)) ds, \end{cases} \tag{4}$$

and the operator

$$T : (C[a, b])^3 \rightarrow (C[a, b])^3$$

defined by

$$T(u_1, u_2, u_3) = (T_1(u_1, u_2, u_3), T_2(u_1, u_2, u_3), T_3(u_1, u_2, u_3)), \tag{5}$$

where  $T_i : (C[a, b])^3 \rightarrow C[a, b], i = 1, 2, 3$ , given by

$$\begin{aligned} T_1(u_1, u_2, u_3) &= L_1(u_1, u_2, u_3, u_1(b), u_2(b), u_3(b), u_2(a), u_3(a)) + \int_a^t f_1(s, u_1(s), u_2(s), u_3(s)) ds, \\ T_2(u_1, u_2, u_3) &= L_2(u_1, u_2, u_3, u_1(b), u_2(b), u_3(b), u_1(a), u_3(a)) + \int_a^t f_2(s, u_1(s), u_2(s), u_3(s)) ds, \\ T_3(u_1, u_2, u_3) &= L_3(u_1, u_2, u_3, u_1(b), u_2(b), u_3(b), u_1(a), u_2(a)) + \int_a^t f_3(s, u_1(s), u_2(s), u_3(s)) ds, \end{aligned} \tag{6}$$

As the fixed points of  $T$  are fixed points of  $T_i, i = 1, 2, 3$ , and vice-versa, which are solutions of (1)–(2), the goal of this architecture will be to use the Arzela-Ascoli theorem and Schauder’s fixed point theorem to prove that the problem (1)–(2) has at least one solution.

For clarity, we consider several claims:

**Claim 1.**  $TD \subset D$ , for some  $D \subset (C[a, b])^3$  a bounded, closed and convex subset.

Consider

$$D = \left\{ (u_1, u_2, u_3) \in (C[a, b])^3 : \|(u_1, u_2, u_3)\|_E \leq k \right\},$$

with  $k > 0$  such that

$$\max \left\{ k_i + \int_a^t \psi_{ik}(s) ds, i = 1, 2, 3 \right\} \leq k.$$

Given  $(u_1, u_2, u_3) \in D$ , by Definition 1 (iii) and (Hypothesis 2), we have that for  $(u_1, u_2, u_3) \in D, i = 1, 2, 3$ ,

$$|f_i(s, u_1(s), u_2(s), u_3(s))| \leq \psi_{ik}(s), \quad a.e. s \in [a, b].$$

Therefore,  $\|T(u_1, u_2, u_3)\|_E \leq k$  and Claim 1 is proved.

**Claim 2.** The operator  $T$  is completely continuous.

To prove that the operator  $T$  is completely continuous it is sufficient to show that  $T$  is uniformly bounded and  $T$  is equicontinuous. Using the above arguments, it can be proved that  $T_i$  are uniformly bounded, for  $i = 1, 2, 3$ , and therefore  $T$  is uniformly bounded.

In order to show that the operator  $T$  is equicontinuous, let us consider  $t_1, t_2 \in [a, b]$ , such that, without any loss of generality,  $t_1 < t_2$ .

Then for  $T_i, i = 1, 2, 3$ , we have

$$\begin{aligned} &|T_i(u_1(t_2), u_2(t_2), u_3(t_2)) - T_i(u_1(t_1), u_2(t_1), u_3(t_1))| \\ &\leq \int_{t_1}^{t_2} |f_i(s, u_1(s), u_2(s), u_3(s))| ds \leq \int_{t_1}^{t_2} \psi_{iL}(s) ds \rightarrow 0, \end{aligned}$$

as  $t_1 \rightarrow t_2$ . So, each operator  $T_i$  is equicontinuous and, hence, the operator  $T$  is equicontinuous.

Therefore, by Arzèla-Ascoli’s theorem, the operator  $T$  is compact and using Schauder’s fixed point theorem, we obtain that  $T$  has a fixed point, that is, the problem (1)–(2) has at least a solution  $u \in (C[a, b])^3$ .  $\square$

Remark that (Hypothesis 2) implies that the periodic case is not covered by (2).

#### 4. Existence and Localization Result for the Periodic Case

Consider now the system (1) with the periodic boundary conditions (3). As it is well known, in nonlinear differential equations, the periodic case is more delicate and requires a different approach for general nonlinearities.

The method to be used will apply lower and upper solutions technique, based on the definition:

**Definition 2.** Consider the  $C^1$ -functions  $\alpha_i, \beta_i : [a, b] \rightarrow \mathbb{R}, i = 1, 2, 3$ . The triple  $(\alpha_1, \alpha_2, \alpha_3)$  is a lower solution of the periodic problem (1), (3) if

$$\begin{cases} \alpha'_1(t) \leq f_1(t, \alpha_1(t), \alpha_2(t), \alpha_3(t)) \\ \alpha'_2(t) \leq f_2(t, \alpha_1(t), \alpha_2(t), \alpha_3(t)) \\ \alpha'_3(t) \leq f_3(t, \alpha_1(t), \alpha_2(t), \alpha_3(t)) \end{cases} \tag{7}$$

and

$$\begin{aligned} \alpha_1(a) &\leq \alpha_1(b) \\ \alpha_2(a) &\leq \alpha_2(b) \\ \alpha_3(a) &\leq \alpha_3(b). \end{aligned} \tag{8}$$

The triple  $(\beta_1, \beta_2, \beta_3)$  is an upper solution of the periodic problem (1), (3) if the reversed inequalities hold.

This method allows to obtain an existence and localization theorem:

**Theorem 3.** Let  $(\alpha_1, \alpha_2, \alpha_3)$  and  $(\beta_1, \beta_2, \beta_3)$  be lower and upper solutions of (1), (3), respectively, such that  $\alpha_i(t) \leq \beta_i(t), \forall t \in [a, b]$  and for  $i = 1, 2, 3$ .

Define the set

$$A = \left\{ (t, u_1, u_2, u_3) \in [a, b] \times \mathbb{R}^3 : \alpha_i(t) \leq u_i \leq \beta_i(t), i = 1, 2, 3 \right\}$$

and assume that  $f_i$  are  $L^1$ –Carathéodory functions on  $A$ , for  $i = 1, 2, 3$  verifying

$$f_1(t, x, \alpha_2(t), \alpha_3(t)) \leq f_1(t, x, y, z) \leq f_1(t, x, \beta_2(t), \beta_3(t)), \tag{9}$$

for  $t \in [a, b], \alpha_2(t) \leq y \leq \beta_2(t), \alpha_3(t) \leq z \leq \beta_3(t)$ ,

$$f_2(t, \alpha_1(t), y, \alpha_3(t)) \leq f_2(t, x, y, z) \leq f_2(t, \beta_1(t), y, \beta_3(t)),$$

for  $t \in [a, b], \alpha_1(t) \leq x \leq \beta_1(t), \alpha_3(t) \leq z \leq \beta_3(t)$ ,

$$f_3(t, \alpha_1(t), \alpha_2(t), z) \leq f_3(t, x, y, z) \leq f_3(t, \beta_1(t), \beta_2(t), z),$$

for  $t \in [a, b], \alpha_1(t) \leq x \leq \beta_1(t), \alpha_2(t) \leq y \leq \beta_2(t)$ .

Then the problem (1), (3) has, at least, a solution  $u = (u_1, u_2, u_3) \in (C[a, b])^3$  such that

$$\alpha_i(t) \leq u_i(t) \leq \beta_i(t), i = 1, 2, 3, \text{ for all } t \in [a, b].$$

**Proof.** For  $i = 1, 2, 3$ , define the truncature functions  $\delta_i$  given by

$$\delta_i(t, u_i) = \begin{cases} \alpha_i(t) & \text{if } u_i < \alpha_i(t) \\ u_i & \text{if } \alpha_i(t) \leq u_i \leq \beta_i(t) \\ \beta_i(t) & \text{if } u_i > \beta_i(t) \end{cases}$$

and consider the modified problem composed by the truncated and perturbed differential equations

$$\begin{cases} u_1'(t) + u_1(t) = f_1(t, \delta_1(t, u_1), \delta_2(t, u_2), \delta_3(t, u_3)) + \delta_1(t, u_1) \\ u_2'(t) + u_2(t) = f_2(t, \delta_1(t, u_1), \delta_2(t, u_2), \delta_3(t, u_3)) + \delta_2(t, u_2) \\ u_3'(t) + u_3(t) = f_3(t, \delta_1(t, u_1), \delta_2(t, u_2), \delta_3(t, u_3)) + \delta_3(t, u_3), \end{cases} \tag{10}$$

together with the boundary conditions (3).

As the linear and homogeneous problem associated to (10), (3) has only the null solution, then we can write (10), (3) in the integral form

$$\begin{cases} u_1(t) = \int_a^b G_1(t, s) \left[ \begin{matrix} f_1(s, \delta_1(s, u_1(s)), \delta_2(s, u_2(s)), \delta_3(s, u_3(s))) \\ + \delta_1(s, u_1(s)) \end{matrix} \right] ds \\ u_2(t) = \int_a^b G_2(t, s) \left[ \begin{matrix} f_2(s, \delta_1(s, u_1(s)), \delta_2(s, u_2(s)), \delta_3(s, u_3(s))) \\ + \delta_2(s, u_2(s)) \end{matrix} \right] ds \\ u_3(t) = \int_a^b G_3(t, s) \left[ \begin{matrix} f_3(s, \delta_1(s, u_1(s)), \delta_2(s, u_2(s)), \delta_3(s, u_3(s))) \\ + \delta_3(s, u_3(s)) \end{matrix} \right] ds, \end{cases} \tag{11}$$

where  $G_i(t, s)$  are the Green functions corresponding to the problem

$$\begin{aligned} u_i'(t) + u_i(t) &= f_i(t) \\ u_i(a) &= u_i(b), \end{aligned}$$

for  $i = 1, 2, 3$ .

Then the operator

$$T : (C[a, b])^3 \rightarrow (C[a, b])^3$$

given by

$$T(u_1, u_2, u_3) = (T_1(u_1, u_2, u_3), T_2(u_1, u_2, u_3), T_3(u_1, u_2, u_3)),$$

with  $T_i : (C[a, b])^3 \rightarrow C[a, b], i = 1, 2, 3$ , defined as

$$\begin{aligned} T_1(u_1, u_2, u_3) &= \int_a^b G_1(t, s) \left[ \begin{matrix} f_1(s, \delta_1(s, u_1(s)), \delta_2(s, u_2(s)), \delta_3(s, u_3(s))) \\ + \delta_1(s, u_1(s)) \end{matrix} \right] ds \\ T_2(u_1, u_2, u_3) &= \int_a^b G_2(t, s) \left[ \begin{matrix} f_2(s, \delta_1(s, u_1(s)), \delta_2(s, u_2(s)), \delta_3(s, u_3(s))) \\ + \delta_2(s, u_2(s)) \end{matrix} \right] ds \\ T_3(u_1, u_2, u_3) &= \int_a^b G_3(t, s) \left[ \begin{matrix} f_3(s, \delta_1(s, u_1(s)), \delta_2(s, u_2(s)), \delta_3(s, u_3(s))) \\ + \delta_3(s, u_3(s)) \end{matrix} \right] ds \end{aligned}$$

is completely continuous in  $(C[a, b])^3$ .

By Schauder’s fixed point theorem, we obtain that  $T$  has a fixed point, that is, the problem (10), (3) has at least a solution  $u_* := (u_{*1}, u_{*2}, u_{*3}) \in (C[a, b])^3$ .

To prove that this function  $u_*$  is a solution of the initial problem (1), (3), it will be enough to show that

$$\alpha_i(t) \leq u_{*i}(t) \leq \beta_i(t), i = 1, 2, 3, \text{ for all } t \in [a, b].$$

Suppose that the first inequality does not hold for  $i = 1$  and some  $t_1 \in [a, b]$ , that is

$$u_{*1}(t_1) < \alpha_1(t_1).$$

Extend the function  $u_{*1} - \alpha_1$  by periodicity and consider

$$t_0 := \inf \{t \in [t_1 - b + a, t_1] : \forall s \in ]t, t_1], u_{*1}(s) < \alpha_1(s)\}.$$

Therefore, for  $t \in [t_0, t_1]$  we have, by Definition 2 and (9),

$$\begin{aligned} & u'_{*1}(t) - \alpha'_1(t) \\ & \geq f_1(t, \alpha_1(t), \delta_2(t, u_2), \delta_3(t, u_3)) + \alpha_1(t) - u_{*1}(t) - f_1(t, \alpha_1(t), \alpha_2(t), \alpha_3(t)) \\ & \geq \alpha_1(t) - u_{*1}(t) > 0. \end{aligned}$$

So,  $\alpha_1 - u_{*1}$  is increasing on  $[t_0, t_1]$  and

$$0 > u_{*1}(t_1) - \alpha_1(t_1) > u_{*1}(t_0) - \alpha_1(t_0),$$

where  $t_0 = t_1 - b + a$ , which is in contradiction of the periodicity of the extension of  $u_{*1} - \alpha_1$ . So  $\alpha_1(t) \leq u_{*1}(t)$ , for all  $t \in [a, b]$ .

Applying similar arguments it can be proved that  $u_{*1}(t) \leq \beta_1(t)$ , for  $t \in [a, b]$ , and

$$\alpha_i(t) \leq u_{*i}(t) \leq \beta_i(t), i = 2, 3, \text{ for all } t \in [a, b].$$

□

### 5. An Epidemic Model of an SIRS System With Nonlinear Incidence Rate and Interaction from Infectious to Susceptible Subjects

The existent literature has innumerous examples of applications of SIR models, namely in [21–23] where the population is divided into Susceptible ( $S$ ), Infectious ( $I$ ) and Recovery ( $R$ ). However, in SIR models, recovered individuals are assumed to develop lifelong immunity, which for some diseases such as seasonal flu, influenza or venereal diseases is not necessarily true. A recovered individual becomes susceptible and possibly infected after some time. In this case, SIRS models, where recovered individuals lose immunity and become susceptible again, are far more adequate. Examples can be found in [24–29]. In [30], the authors develop and explore a mathematical model of an SIRS epidemic model where a transfer between infectious and susceptible rate is included, as shown in Figure 1.

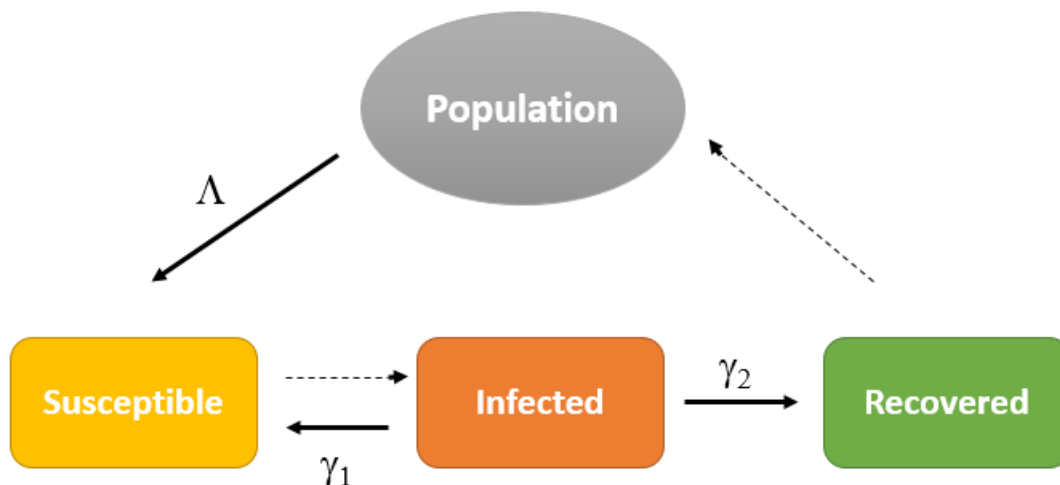


Figure 1. SIRS model diagram.

This approach was designed to model the cases where recovery cannot generate immunity for a long time. Infected individuals may recover after some treatments and go back directly to the susceptible class. In addition, a nonlinear incidence with the average number of new cases of a disease per unit time,  $Sg(I)$ , is included, as suggested in [31]. This nonlinear incidence replicates a more complex dynamic than the ones presented on bilinear or standard incidence models, and it seems to perform better when modelling more complex cholera cases, as shown in [31].

The model presented is then

$$\begin{cases} \frac{dS}{dt} = \frac{1}{100} (\Lambda - \mu S - Sg(I) + \gamma_1 I + \delta R), \\ \frac{dI}{dt} = \frac{1}{100} [Sg(I) - (\mu + \gamma_1 + \gamma_2 + \alpha) I], \\ \frac{dR}{dt} = \frac{1}{100} [\gamma_2 I - (\mu + \delta) R] \end{cases} \tag{12}$$

where:

- $\Lambda$  represents the recruitment rate of susceptible individuals;
- $\mu$  is the natural death rate;
- $\gamma_1$  is the transfer rate from the infected class to the susceptible class;
- $\gamma_2$  is the transfer rate from the infected class to the recovered class;
- $\alpha$  is the disease-induced death rate;
- $\delta$  the immunity loss rate.

In this model  $\Lambda$  and  $\mu$  are assumed to be positive and  $\delta, \gamma_1, \gamma_2$  and  $\alpha$  are assumed to be nonnegative. As per the nonlinear incidence,  $Sg(I)$ ,  $g$  is a real locally Lipschitz function on  $\mathbb{R}^+$  with the following conditions, as presented in [32]:

- $g(0) = 0$  and  $g(I) > 0$  for  $I > 0$ ,
- $g(I) / I$  is continuous and monotonously increasing for  $I > 0$  and  $\lim_{I \rightarrow 0^+} \frac{g(I)}{I}$  exists as  $\beta > 0$ .

Unlike the previous models presented, in this paper we couple the system (12) with the boundary conditions, for  $t \in [0, T]$  and  $T > 0$ ,

$$\begin{aligned}
 S(0) &= \max_{t \in [0, T]} I(t), \\
 I(0) &= \int_0^T S(T)S(s)ds, \\
 R(0) &= \int_0^T S(T)I(s)ds.
 \end{aligned}
 \tag{13}$$

These functional boundary conditions fully reflect the considerations and conclusions presented in [30]. These types of boundary conditions have the following practical meaning:

- $S(0)$ , the initial number of susceptible subjects, is equal to the maximum of the infected subjects;
- $I(0)$ , the initial number of infected subjects, is a weighted average of the susceptible individuals, weighted by the final value of the susceptible  $S$ , at time  $T$ ;
- $R(0)$ , the initial number of individuals who recovered, is equal to a weighted average of the infected individuals, weighted by the final value of the susceptible,  $S$ , at time  $T$ .

Functional boundary conditions allow these assumptions to be examined in full, as operators can be considered as boundary conditions. These types of global conditions, that can include somewhat more abstract conditions, can only be contemplated via functional boundary conditions.

This model can therefore be presented in the form of (1)–(2), where  $u_1 = S, u_2 = I, u_3 = R, a = 0$  and  $b = T$ ,

$$f_1(t, u_1, u_2, u_3) = \Lambda - \mu u_1 - Sg(u_2) + \gamma_1 u_2 + \delta u_3,$$

$$f_2(t, u_1, u_2, u_3) = u_1 g(I) - (\mu + \gamma_1 + \gamma_2 + \alpha) u_2,$$

$$f_3(t, u_1, u_2, u_3) = \gamma_2 u_1 - (\mu + \delta) u_3,$$

$$L_1(u_1, u_2, u_3, u_1(T), u_2(T), u_3(T), u_2(0), u_3(0)) = \max_{t \in [0, T]} u_2 := k_1,$$

$$L_2(u_1, u_2, u_3, u_1(T), u_2(T), u_3(T), u_1(0), u_3(0)) = \int_0^T u_1(T)u_1(s)ds := k_2,$$

$$L_3(u_1, u_2, u_3, u_1(T), u_2(T), u_3(T), u_1(0), u_2(0)) = \int_0^T u_1(T)u_2(s)ds := k_3.$$

It is clear that the boundary conditions  $L_1, L_2$  and  $L_3$  satisfy (H1).

Moreover,  $f_1, f_2$  and  $f_3$  are  $L^1$ -Carathéodory functions such that, for  $\max \{ \|u_1\|, \|u_2\|, \|u_3\| \} < k$ ,

$$\begin{aligned}
 |f_1(t, u_1, u_2, u_3)| &\leq \Lambda + \mu k + k\beta + \gamma_1 k + \delta k := \psi_{1k}(t), \\
 |f_2(t, u_1, u_2, u_3)| &\leq k\beta + (\mu + \gamma_1 + \gamma_2 + \alpha) k := \psi_{2k}(t), \\
 |f_3(t, u_1, u_2, u_3)| &\leq \gamma_2 k + (\mu + \delta) k := \psi_{3k}(t).
 \end{aligned}$$



To satisfy (Hypothesis 2), one must verify that there exists  $k > 0$ , such that,

$$k \geq \max \left\{ \begin{array}{l} k_1 + \int_0^T (\Lambda + k(\mu k + \beta + \gamma_1 + \delta)) ds, \\ k_2 + \int_0^T k(\beta + \mu + \gamma_1 + \gamma_2 + \alpha) ds, \\ k_3 + \int_0^T k(\gamma_2 + \mu + \delta) ds, \end{array} \right\}.$$

Let  $T = 1, \Lambda = 2, \mu = 12.6, \gamma_1 = 2.7, \gamma_2 = 0.28, \alpha = 6.32, \delta = 0.38, k_1 = 2, k_2 = 0.27, k_3 = 5, \beta = 12$ .

For  $k \geq 0.06$ , condition (Hypothesis 2) is verified and therefore, by Theorem 2, the system (12)–(13) has at least one solution  $(S, I, R) \in (C[0, 1])^3$ , for the values considered.

### 6. Conclusions

In this paper, the authors show the existence of solution for a first order fully coupled system of three equations, involving two different cases. The first case, with coupled functional boundary conditions, is an existence result. The second case, with periodic boundary conditions, which is not covered by the first result, is an existence and location result. The extra information obtained in this second case is associated with the technique used, as it relies on the upper and lower solution method.

The application to an SIRS model, with global boundary conditions, underlines the key advantage and flexibility of the functional boundary conditions. The example shown illustrates not only the theorem proved in this paper, but it also provides guidance on how to arrange global conditions, in order to conform with the layout in (2).

As a matter of fact, a similar approach can be taken in several other models, allowing global conditions to be considered as boundary conditions, highly increasing the level of applicability of these models.

**Author Contributions:** The authors equally contributed to this work.

**Funding:** This project was supported by Fundação para a Ciência e a Tecnologia (FCT) via project UID/MAT/04674/2019.

**Conflicts of Interest:** The authors declare no conflict of interest.

### References

1. Al-Moqbali, M.K.A.; Al-Salti, N.S.; Elmojtaba, I.M. Prey–Predator Models with Variable Carrying Capacity. *Mathematics* **2018**, *6*, 102. [CrossRef]
2. Gumus, O.A.; Kose, H. On the Stability of Delay Population Dynamics Related with Allee Effects. *Math. Comput. Appl.* **2012**, *17*, 56–67. [CrossRef]
3. Song, H.S.; Cannon, W.R.; Beliaev, A.S.; Konopka, A. Mathematical Modeling of Microbial Community Dynamics: A Methodological Review. *Processes* **2014**, *2*, 711–752. [CrossRef]
4. Osakwe, C.J.U. Incentive Compatible Decision Making: Real Options with Adverse Incentives. *Axioms* **2018**, *7*, 9. [CrossRef]
5. Deuflhard, P. Differential equations in technology and medicine: Computational concepts, adaptive algorithms, and virtual labs. In *Computational Mathematics Driven by Industrial Problems*; Springer: Berlin/Heidelberg, Germany, 2000; pp. 69–125.
6. Jang, S.S.; de la Hoz, H.; Ben-zvi, A.; McCaffrey, W.C.; Gopaluni, R.B. Parameter estimation in models with hidden variables: An application to a biotech process. *Can. J. Chem. Eng.* **2012**, *90*, 690–702. [CrossRef]
7. Akarsu, M.; Özbaş, Ö. Monte Carlo Simulation for Electron Dynamics in Semiconductor Devices. *Math. Comput. Appl.* **2005**, *10*, 19–26. [CrossRef]
8. Malinzi, J.; Quaye, P.A. Exact Solutions of Non-Linear Evolution Models in Physics and Biosciences Using the Hyperbolic Tangent Method. *Math. Comput. Appl.* **2018**, *23*, 35. [CrossRef]

9. Nieto, J.J. Periodic boundary value problems for first-order impulsive ordinary differential equations. *Nonlinear Anal.* **2002**, *51*, 1223–1232. [[CrossRef](#)]
10. Zhang, W.; Fan, M. Periodicity in a generalized ecological competition system governed by impulsive differential equations with delays. *Math. Comput. Model.* **2004**, *39*, 479–493. [[CrossRef](#)]
11. Agarwal, R.P.; O'Reagan, D. A coupled system of boundary value problems. *Appl. Anal.* **1998**, *69*, 381–385. [[CrossRef](#)]
12. Asif, N.A.; Talib, I.; Tunc, C. Existence of solutions for first-order coupled system with nonlinear coupled boundary conditions. *Bound. Val. Prob.* **2015**, *2015*, 134. [[CrossRef](#)]
13. Asif, N.A.; Khan, R.A. Positive solutions to singular system with four-point coupled boundary conditions. *J. Math. Anal. Appl.* **2012**, *386*, 848–861. [[CrossRef](#)]
14. Cabada, A.; Fialho, J.; Minhós, F. Extremal solutions to fourth order discontinuous functional boundary value problems. *Math. Nachr.* **2013**, *286*, 1744–1751. [[CrossRef](#)]
15. Cabada, A.; Pouso, R.; Minhós, F. Extremal solutions to fourth-order functional boundary value problems including multipoint condition. *Nonlinear Anal. Real World Appl.* **2009**, *10*, 2157–2170. [[CrossRef](#)]
16. Fialho, J.; Minhós, F. Higher order functional boundary value problems without monotone assumptions. *Bound. Val. Prob.* **2013**, *2013*, 81. [[CrossRef](#)]
17. Fialho, J.; Minhós, F. Multiplicity and location results for second order functional boundary value problems. *Dyn. Syst. Appl.* **2014**, *23*, 453–464.
18. Graef, J.; Kong, L.; Minhós, F. Higher order boundary value problems with  $\phi$ -Laplacian and functional boundary conditions. *Comput. Math. Appl.* **2011**, *61*, 236–249. [[CrossRef](#)]
19. Graef, J.; Kong, L.; Minhós, F.; Fialho, J. On the lower and upper solution method for higher order functional boundary value problems. *Appl. Anal. Discret. Math.* **2011**, *5*, 133–146. [[CrossRef](#)]
20. Zeidler, E. *Nonlinear Functional Analysis and Its Applications, I: Fixed-Point Theorems*; Springer: New York, NY, USA, 1986.
21. Angstmann, C.N.; Henry, B.I.; McGann, A.V. A Fractional-Order Infectivity and Recovery SIR Model. *Fract. Fract.* **2017**, *1*, 11. [[CrossRef](#)]
22. Cui, Q.; Qiu, Z.; Liu, W.; Hu, Z. Complex Dynamics of an SIR Epidemic Model with Nonlinear Saturate Incidence and Recovery Rate. *Entropy* **2017**, *19*, 305. [[CrossRef](#)]
23. Secer, A.; Ozdemir, N.; Bayram, M. A Hermite Polynomial Approach for Solving the SIR Model of Epidemics. *Mathematics* **2018**, *6*, 305. [[CrossRef](#)]
24. Alexander, M.E.; Moghadas, S.M. Bifurcation analysis of an SIRS epidemic model with generalized incidence. *SIAM J. Appl. Math.* **2005**, *65*, 1794–1816. [[CrossRef](#)]
25. Chen, J. An SIRS epidemic model. *Appl. Math. J. Chin. Univ.* **2004**, *19*, 101–108. [[CrossRef](#)]
26. Hu, Z.; Bi, P.; Ma, W.; Ruan, S. Bifurcations of an SIRS epidemic model with nonlinear incidence rate. *Discret. Contin. Dyn. Syst. Ser. B* **2011**, *15*, 93–112. [[CrossRef](#)]
27. Liu, J.; Zhou, Y. Global stability of an SIRS epidemic model with transport-related infection. *Chaos Solitons Fract.* **2009**, *40*, 145–158. [[CrossRef](#)]
28. Teng, Z.; Liu, Y.; Zhang, L. Persistence and extinction of disease in non-autonomous SIRS epidemic models with disease-induced mortality. *Nonlinear Anal. Theory Methods Appl.* **2008**, *69*, 2599–2614. [[CrossRef](#)]
29. Jin, Y.; Wang, W.; Xiao, S. An SIRS model with a nonlinear incidence rate. *Chaos Solitons Fract.* **2007**, *34*, 1482–1497. [[CrossRef](#)]
30. Li, T.; Zhang, F.; Liu, H.; Chen, Y. Threshold dynamics of an SIRS model with nonlinear incidence rate and transfer from infectious to susceptible. *Appl. Math. Lett.* **2017**, *70*, 52–57. [[CrossRef](#)]
31. Capasso, V.; Serio, G. A generalization of the Kermack-McKendrick deterministic epidemic model. *Math. Biosci.* **1978**, *42*, 43–61. [[CrossRef](#)]
32. Li, J.; Yang, Y.; Xiao, Y.; Liu, S. A class of Lyapunov functions and the global stability of some epidemic models with nonlinear incidence. *J. Appl. Anal. Comput.* **2016**, *6*, 38–46. [[CrossRef](#)]



See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/336279585>

# CORPORATE GOVERNANCE SYSTEM IN INDIA

Article · January 2012

---

CITATION

1

READS

487

1 author:



Jyotsna Ghildiyal Bijalwan  
Arba Minch University

12 PUBLICATIONS 27 CITATIONS

SEE PROFILE

Some of the authors of this publication are also working on these related projects:



McGraw hill publication [View project](#)



The impact of Digital Finance on Financial Inclusion [View project](#)

# INTERNATIONAL JOURNAL OF MANAGEMENT (IJM)

ISSN 0976 – 6367(Print)

ISSN 0976 – 6375(Online)

Volume 3, Issue 2, May- August (2012), pp. 260-269

© IAEME: [www.iaeme.com/ijm.html](http://www.iaeme.com/ijm.html)

Journal Impact Factor (2012): 3.5420 (Calculated by GIS)

[www.jifactor.com](http://www.jifactor.com)



---

## CORPORATE GOVERNANCE SYSTEM IN INDIA

Jyotsna Ghildiyal Bijalwan,  
Research Scholar, management, Uttarakhand Technical University  
Dehradun, Uttarakhand, 248001, India  
Email- [jyotsnaghildiyal@yahoo.com](mailto:jyotsnaghildiyal@yahoo.com)

---

### ABSTRACT

The root of the word corporate governance is from ‘gubernate’ which means to steer. Corporate governance would mean to steer an organization in the desired direction. Corporate governance is a system by which organization are directed and controlled, it is a process by which company objectives are established, achieved and monitored. So, it is concerned with relationship and responsibilities between the boards, management and stake holders within a legal and regulatory frame work.

The primary objective of this paper is to study the corporate governance policies and practices and system in India .Goodness of corporate governance is checked on the basis of five basic parameters i.e. transparency, ownership structure, board procedure, investor rights and governance strategies.

During the study it was observed that, in India the legislative and regulatory framework for the corporate governance is sound but the implementation part is poor. There is a huge gap between what is de-jure and de-facto.The state is still lagging behind when it comes to particularly private sector small and medium size industries. Major part of industrial set up is just their production units. The government has also set up various committees, passed various regulations for the development of the industries in the country. There is a further need to strengthen the existing governance policies.

**Key words:** Corporate governance, Productivity, National growth, Cost of capital,

The root of the word corporate governance is from ‘gubernate’ which means to steer. Corporate governance would mean to steer an organization in the desired direction. Corporate governance is a system by which organization are directed and controlled, it is a process by which company objectives are established, achieved and monitored. So, it is concerned with relationship and responsibilities between the boards, management and stake holders within a legal and regulatory

frame work. Corporate governance in India can be evident from the koutaliya's arthshastra, which maintain that for good governance all administrators including king were considered as servants of the subjects. Good governance and stability goes hand in hand.

The primary objective of this paper is to study the corporate governance policies and practices and system in India .Goodness of corporate governance is checked on the basis of five basic parameters i.e. transparency, ownership structure, board procedure, investor rights and governance strategies.

During the study it was observed that, in India the legislative and regulatory framework for the corporate governance is sound but the implementation part is poor. There is a huge gap between what is de-jure and de-facto.The state is still lagging behind when it comes to particularly private sector small and medium size industries. Major part of industrial set up is just their production units. The government has also set up various committees, passed various regulations for the development of the industries in the country. There is a further need to strengthen the existing governance policies.

Secondary objectives being

- a) To study the concept of corporate governance
- b) To brief the historical development of corporate governance.
- c) To study the role of corporate governance in National Development.
- d) To study the problem areas of corporate governance.
- e) To suggest the solution to the corporate governance problems.

## **CONCEPT OF CORPORATE GOVERNANCE**

The root of the word corporate governance is from 'gubernate' which means to steer. Corporate governance would mean to steer an organization in the desired direction. The responsibility to steer lies with the board of directors/governing board. Governance is concerned with the intrinsic nature, purpose, integrity and identity of an organization with primary focus on the entity's relevance, continuity and fiduciary aspects.

Contrary to popular misconception about corporate governance in modern times, the roots of corporate governance are not besmirched in negative trail. That is to say, corporate governance did not have its raison d'être in the negative happenings in the corporate world. Looking at corporate governance from that perspective is to undermine its creative, positive, regenerative and prosperous aspects. Good governance has been an eternal source of inspired thinking and dedicated action.

## **EVIDENCE OF CORPORATE GOVERNANCE FROM THE ARTHASHASTRA**

Kautilya's Arthashastra maintains that for good governance, all administrators, including the king were considered servants of the people. Good governance and stability were completely linked. There is stability if leaders are responsive, accountable and removable. These tenets hold good even today.

Kautilya elaborates on the fourfold duty of a king as

- raksha,
- vridhi,
- palana,

- yogakshema.

The substitution of the state with the corporation ,the king with the CEO or the board corporation , and the subjects with the shareholders, bring out the quintessence of corporate governance, because central to the concept of corporate governance is the belief that public should ahead of private good and that the corporation's resources cannot be used for personal benefit.

- (i) Raksha - literally means protection, in the corporate scenario it can be equated with the risk management aspect.
- (ii) Vriddhi - literally means growth in the present day context can be equated to stakeholder value enhancement.
- (iii) Palana - literally means maintenance/ compliance, in the present day context it can be equated to compliance to the law in letter and spirit.
- (iv) Yogakshema - literally means well being and in kautilya's Arthashastra it is used in context of a social security system. In the present day context it can be equated to corporate social responsibility.

Arthashastra talks self –discipline for a king and the six enemies which a king should overcome-- -lust, anger, greed, conceit, arrogance and foolhardiness. In the present day context, this addresses the ethics aspects of businesses and the personal ethics of the corporate leaders.

## **REVIEW OF THE LITERATURE**

There is no universal definition of corporate governance. In the narrowest sense, Noble laureate Milton Friedman defined corporate governance as “the conduct of business in accordance with shareholders’ desires, which generally is to make as much money as possible, while conforming to the society embodied in law and local customs.”

Some of the definitions of corporate governance are given below:-

Monks and Minow have defined corporate governance as “Relationships among various participants in determining the direction and performance of a corporation”.

The primary participants in a corporation are the tripod of shareholders; management-led by the CEO and the Board of Directors .There are other participants as well such as the employees, customers, suppliers, creditors and the community. Keeping in view the interests of various stakeholders in a company, corporate governance is concerned with effective management of relationships. It requires the formulation of the value framework, the ethical framework and the moral framework which will guide the decision-making process.

According to James D.Wolfensohn, President of World Bank, "Corporate Governance is about promoting corporate fairness, transparency and accountability”.

Standard & Poor's has defined Corporate Governance as “the way a company is organised and managed to ensure that all financial stakeholders (shareholders and creditors) receive their fair share of a company's earnings and assets.”

According to Tricker “Corporate Governance is concerned with the way corporate entities are governed , as distinct from the way business within those companies are managed. Corporate Governance addresses the issues facing Board of Directors, such as the interaction with top management and relationships with the owners and others interested in the affairs of the company”.

OECD has defined corporate governance as “A system by which business corporations are directed and controlled”. Corporate Governance structure specifies the distribution of rights and responsibilities among different participants in the company such as board, management,

shareholders and other stakeholders, and spells out the rules and procedures for corporate decision making. By doing this, it provides the structure through which the company's objectives are set along with the means of attaining these objectives as well as for monitoring performance.

Cadbury Committee, U.K. has defined corporate governance as follows:

“(It is) the system by which companies are directed and controlled”.

It may also be defined as a system of structuring, operating and controlling a company with the following specific aims: -

- (i) Fulfilling long-term strategic goals of owners;
- (ii) Taking care of the interests of employees;
- (iii) A consideration for the environment and local community;
- (iv) Maintaining excellent relations with customers and suppliers;
- (v) Proper compliance with all the applicable legal and regulatory requirements.

Confederation of Indian Industry (CII) – Desirable Corporate Governance Code defined Corporate Governance as follows:

“Corporate Governance deals with laws, procedures, practices and implicit rules that determine a company's ability to take informed managerial decisions vis-a-vis its claimants-in particular, its shareholders, creditors, customers, the State and employees. There is a global consensus about the objective of 'good' corporate governance: maximizing long-term shareholder value.”

## **SIGNIFICANCE OF GOOD CORPORATE GOVERNANCE**

Although instituting corporate governance is clearly beneficial for firms and countries, the rapid pace of globalization has made the need urgent. Doing so requires that firms and national governments make some fundamental changes. Companies must change the way they operate, while national governments must establish and maintain the appropriate institutional framework.. Under such conditions business becomes nothing but casino capitalism where investments are simply bets: bets that people will keep their word, bets that the firms are telling the truth, bets that employees will be paid, and bets that debts will be honored. What corporate governance is all about in larger terms is how a structure can be set up that allows for a considerable amount of freedom within the rule of law. Some of the key changes involve adopting international standards of transparency, clarity, and accuracy in financial statements so that investors and creditors can easily compare potential investments.

"Good corporate governance:

- reduces risk
- stimulates performance
- improves access to capital markets
- enhances the marketability of goods and services
- improves leadership
- Demonstrates transparency and social accountability."

"Corporate Governance is concerned with holding the balance between economic and social goals and between individual and communal goals. The corporate governance framework is there to encourage the efficient use of resources and equally to require accountability for the

stewardship of those resources. The aim is to align as nearly as possible the interests of individuals, corporations and society" (Sir Adrian Cadbury in 'Global Corporate Governance Forum', World Bank, 2000)

## **HISTORICAL DEVELOPMENTS**

Ever since the concept of corporate entity was recognized, corporate governance in various manifestations has been in existence. The Foreign Corrupt Practices Act, 1977 (USA) made specific provisions regarding establishment, maintenance and review of systems of internal control. In 1979, US Securities Exchange Commission prescribed mandatory reporting on internal financial controls. Due to high profile failures in the US, the **Treadway Commission** constituted in 1985 highlighted the need of putting in place a proper control environment, desirably of constituting independent boards and its committees and objective internal audit function. As a consequence, the committee of Sponsoring organizations took birth. It produced and stipulated in 1992, a control framework. After the Enron debacle of 2001, came other scandals involving large US Companies such as World Com, Qwest, Global Crossing and the auditing lacunae that eventually led to the collapse of Andersen. These developments triggered another phase of reforms in the area of corporate governance, accounting practices and disclosures-this time more comprehensive than ever before. In July 2002, less than a year from the date when Enron filed for bankruptcy, the **Sarbanes-Oxley Act** popularly called SOX was enacted. The Act made fundamental changes in virtually every aspect of corporate governance in general and auditor independence, conflict of interests, corporate responsibility, enhanced financial disclosures and severe penalties for willful default by managers and auditors, in particular.

A spate of scandals and financial collapses in the UK in the late 1980s and early 1990s made the shareholders and banks worry about their investments. This led the UK Government to recognize insufficiency of existing legislation and role of self-regulation as a measure of controlling scandals and financial collapses. Some of the corporate disasters took place primarily due to insufficiency of implementable governance practices. To prevent the recurrence of such business failures, the Cadbury Committee was set up by the business failures; the Cadbury Committee was set up by the London Stock Exchange in May 1991 inter alia to help raise standards of corporate governance.

### **The Cadbury Report-1992**

The Committee on Financial aspects of Corporate Governance was the first CG code developed in the UK was incorporated in the London Stock Exchange Listing Rules. It was set up under the chairmanship of Sir Adrian Cadbury. The important recommendations were-

- Separation of the role of CEO & Chairman
- Balanced composition of BOD
- Selection process for NED

### **The Greenbury Report-1995**

The report of the committee is popularly called the Greenbury Report. It included a code of Best Practices and its recommendations. The confederation of British Industry set up a group under the Chairmanship of Sir Richard Greenbury. It was set up to examine the remuneration of the directors, particularly compensation packages, large pay increases and share options. The important recommendation was the establishment of Remuneration Committee composed of



Non-Executive Directors which would be responsible for deciding the remuneration of executive directors. The majority of the recommendations of the Committee were incorporated in the Listings Rules of the London Stock Exchange.

### **The Hampel Report-1998**

The Hampel Committee was set up to review the extent to which the Cadbury Committee Report and the Greenbury Committee Report had been implemented and whatever their purposes of recommendations were being achieved. The Hampel Committee's recommendations and further consultations by the London Stock Exchange became the combined Code on Corporate Governance.

### **The Turnbull Report**

The original Combined Code Required companies to include a narrative statement in their Annual Report of how in internal control provisions had been applied. However, the combined code did not have guidelines of how the provisions should be applied by the companies. This led to the establishment of a Working Group under the Chairmanship of Nigel Turnbull. The resulting Internal Control Guidance for Directors on Combined Code was issued.

### **Higgs Report, Smith Report & Tyson Report**

Following the review of the Company Law, a review of the Combined Code was commenced in July 2002. The subject was Review of the role and effectiveness of non-executive directors. It was conducted by Derek Higgs.

A group under the chairmanship Sir Robert Smith was set up to develop Guidance Audit Committee in the Combined Code. The Tyson Report was commissioned on the Recruitment and Development of Non-executive Directors. All the three provided recommendation for the revised combined code which emerged in 2003.

### **Combined Code on Corporate Governance (2008)**

The Combined Code on Corporate Governance sets out standards of good practice in relation to issues such as board composition and development, remuneration, accountability and audit and relations with shareholders.

All companies incorporated in the UK and listed on the main market of the London Stock Exchange are required under the listing Rules to report on how they have applied the Combined Code in their annual Report and accounts.

## **DEVELOPMENTS IN INDIA**

The initiatives taken by the Government in 1991, aimed at economic liberalisation and globalisation of the domestic economy, led India to initiate reform process in order to suitably respond to the developments taking place world over. On account of the interest generated by Cadbury Committee Report, the confederation of Indian Industry (CII), the Associated Chambers of Commerce and industry (ASSOCHAM) and, the Securities and Exchange Board of India (SEBI) constituted Committees to recommend initiatives in Corporate Governance.

### **CII'S DESIRABLE CORPORATE GOVERNANCE CODE**

Confederation of Indian Industry (CII) took a special initiative on Corporate Governance, the first institution initiative in Indian Industry. The objective was to develop and promote a code for Corporate Governance to be adopted and followed by the Indian companies, whether in the

Private Sector, the Public Sector, Banks or Financial Institutions, all of which are corporate entities. The final draft of the said Code was widely circulated in 1997. In April 1998, the Code was released. It was called Desirable Corporate Governance Code.

#### **KUMAR MANGALAM BIRLA COMMITTEE**

Following CII's initiative, the Securities and Exchange Board of India (SEBI) set up a committee under the chairmanship of Kumar Mangalam Birla to promote and raise standards of corporate governance. This Report was the formal and comprehensive attempt to evolve a Code of governance in Indian companies, as well as the state of capital markets at that time.

The recommendations of the Kumar Mangalam Birla Committee, led to inclusion of clause 49 in the Listing Agreement in the year 2000. These recommendations aimed at improving the standards of Corporate Governance, are divided into mandatory and non-mandatory recommendations. The said recommendations have been made applicable to all listed companies with the paid-up capital of Rs.3 crores and above or net worth of Rs.25 crores or more at any time in the history of the company. The ultimate responsibility for putting the recommendations into practice lies directly with the Board of Directors and the management of the company.

#### **NARESH CHANDRA COMMITTEE**

The Enron debacle of 2001 involving the hand-in-glove relationship between the auditor and the corporate client, the scams involving the fall of the corporate giants in the U.S. like the WorldCom, Qwest, Global Crossing, Xerox and the consequent enactment of the stringent Sarbanes Oxley Act in the U.S were some important factors which led the Indian Government to wake up and in the year 2002, Naresh Chandra Committee was appointed to examine and recommend inter alia amendments to the law involving the auditor-client relationships and the role of independent directors.

#### **N.R.NARAYANA MURTHY COMMITTEE**

In the year 2002, SEBI analyzed the statistics of compliance with the clause 49 by listed companies and felt that there was a need to look beyond the mere systems and procedures if corporate governance was to be made effective in protecting the interest of investors. SEBI therefore constituted a Committee under the Chairmanship of Shri N.R.Narayana Murthy, for reviewing implementation of the corporate governance code by listed companies and issue of revised clause 49 based on its recommendations

#### **DR. J J IRANI EXPERT COMMITTEE ON COMPANY LAW**

In 2004, the Government constituted a committee under the Chairmanship of Dr.J.J.Irani, Director, Tata Sons, with the task of advising the Government on the proposed revisions to the Companies Act, 1956 with the objective to have a simplified compact law that would be able to address the changes taking place in the national and international scenario, enable adoption of internationally accepted best practices as well as provide adequate flexibility for timely evolution of new arrangements in response to the requirements of ever-changing business models.

#### **Obstacles in improving Corporate Governance:**

Shareholding patterns in the countries like United Kingdom and United States of America is scattered in the nature. It is in such a way that no single individual investor can hold above a specific mentioned limit of stocks of a particular company. But the conditions in the rest of the world are not the same. Developing countries like India are still suffering from the problems of

concentrated ownership, agency problems and expropriation problems. Some of the main reasons behind poorly defined corporate governance in these countries are:

- a) Resistance to change.
- b) Distributional Carters.
- c) Principal-Agency Problems.
- d) Strategic Oligopolistic Rivalry.
- e) Poorly designed Corporate Governance Institutions.
- f) Poor political Governance.

The creation of corporate regulation is often linked to perceived failures of corporations and their management to behave in the way society expect them to. Corporate governance is not an exception to this trend, and, as with accounting, different countries may well experience difficulties at different times. For example, the development of British codes of best practice, which began with the Cadbury Committee, can be related to governance scandals such as **Polly Peck and Coloroll** in the late 1980s and early 1990s. However, the wave of corporate scandals, mostly in the USA, at the turn of the century has been marked not only by the number of cases but also by the effect they have had on investor confidence and market values worldwide.

The combined impact of various US corporate scandals caused the **Dow Jones Index** to drop from a high for 2002 of 10,632 on 19 March to 7,286 on 9 October, wiping out trillions of dollars in market value. Investor confidence in the fairness of the system and the ability of corporations to act with integrity was ebbing. According to a poll in July 2002, 73 per cent of respondents said that Chief Executive Officers (CEOs) of large corporations could not be trusted (Conference Board, 2003). Amongst the many negative effects of this was a worsening of the pension funding crisis caused by the dramatic drop in the value of pension fund assets. It also increased the cost of capital and caused a virtual cessation in new securities offerings. The International Federation of Accountants (IFAC) claims that while there has been a lot of strategic guidance for business, there has been too little said about the need for good corporate governance. These authors emphasize the fact that successful companies were visionary companies, with a long track record of making a positive impact on the world. They did more than focus on profits; they focused on continuous improvement. They took a long-term view and realised that they were members of society with rights and responsibilities.

Adelphia manipulated its earnings figures for every quarter between 1996 and 2002 to make it appear to meet analysts' expectations. Some of the better known cases of financial irregularities are summarised in following table.

In terms of corporate governance issues, A hold, Enron and WorldCom all suffered from

- Questionable ethics
- Behavior at the top
- Aggressive earnings management
- Weak internal control
- Risk management
- Shortcomings in accounting and reporting

### **REASONS FOR CORPORATE GOVERNANCE FAILURE**

However, the long-term view is something of a rarity in many companies. A critical factor in many corporate failures was:

- Poorly designed rewards package
- Including excessive use of share options (that distorted executive behavior towards the short term)
- The use of stock options, or rewards linked to short-term share price performance (led to Aggressive earnings management to achieve target share prices)
- Trading did not deliver the earnings targets, aggressive or even fraudulent accounting tended to occur. This was very apparent in the cases of Ahold, Enron, WorldCom and Xerox (IFAC, 2003).

### **CORPORATE GOVERNANCE AND THE NATIONAL DEVELOPMENT**

The corporate governance has a very important role to play in the national development. It's significance was ignored for many decades. The East-Asian financial crises of 1997-98 drew attention to it and the problems of "crony capitalism" in the growing economies.

#### **Corporate Governance and Productivity growth-**

Paul Krugman predicted in 1994, by comparing East and South East Asia to Soviet model that 'it is not impossible for any country to achieve and sustain high rates of output and income growth for a long period of time even for decades by massive mobilisation of factors of production. It can be achieved through various kinds of forced savings, significant and sustained investments in the education of the country's population, high rates of rural-urban migration, by more involvement of female population into modern manufacturing, agri-business and service sectors and so on.

#### **Corporate Governance and Cost of capital-**

Good corporate governance ensures the regular supply of funds to the investors, as the traditional resources are not enough to meet the requirements. The good governance also lowers the costs of financial resources.

### **CONCLUSION**

#### **Role of corporate governance in the development:**

Corporate Governance has a major role to play in not only the national development of the developing economies, but also development at state level as a unit of a nation.

#### **Need for good governance:**

The recent trends show a significant flow of Portfolio investment to developing nations, mainly by the financial institutions and the big pension funds etc. It further necessitates the need for improvements in the corporate governance.

#### **Development of basic financial infrastructure:**

A proper attention must be given to strengthen the banking sector and countries financial institutions. Institutions for corporate governance must be fair, transparent and effective in the country.

**Chairman and CEO:** It is considered good practice to separate the roles of the Chairman of the Board and that of the CEO. The Chairman is head of the Board and the CEO heads the management. If the same individual occupies both the positions, there is too much concentration of power, and the possibility of the board supervising the management gets diluted.

**Audit Committee:** Boards work through sub-committees and the audit committee is one of the most important. It not only oversees the work of the auditors but is also expected to independently inquire into the workings of the organization and bring lapse to the attention of the full board.

**Independence and conflicts of interest:** Good governance requires that outside directors maintain their independence and do not benefit from their board membership other than remuneration. Otherwise, it can create conflicts of interest. By having a majority of outside directors on its Board.

**Flow of information:** A board needs to be provided with important information in a timely manner to enable it to perform its roles. A governance guideline of General Motors, for instance, specifically allows directors to contact individuals in the management if they feel the need to know more about operations than what they are being told.

**Too many directorships:** Being a director of a company takes time and effort. Although a board might meet only four or five times a year, the director needs to have the time to read and reflect over all the material provided and make informed decisions. Good governance, therefore, suggests that an individual sitting on too many boards looks upon it only as a sinecure for he or she will not have the time to do a good job.

**Good governance parameters:** In order to have good corporate governance in the organization the firm must ensure:

- Transparency in the organization
- Sound board structure
- Defined board procedure
- Investor right protection
- & Good governance strategy.

### **BIBLIOGRAPHY**

1. D. Tobin, "The Anglo-Saxon paradox: corporate governance best-practices and the reform deficit in China's banking sector," *Journal of Chinese Economic and Business Studies*, vol. 10, pp. 147-168.
2. B. Ford, "In Whose Interest: An Examination of the Duties of Directors and Officers in Control Contests," *Ariz. St. LJ*, vol. 26, p. 91, 1994.
3. W. Rees and S. Sheikh, "Corporate governance and corporate control," London: Cavendish, 1995.
4. R. Monks and N. Minow, "Watching the watchers: Corporate governance for the 21st century," *Recherche*, vol. 67, p. 02, 1996
5. A. Chayes and A. H. Chayes, *The new sovereignty: compliance with international regulatory agreements*: Harvard Univ Pr, 1998.
6. M. O'Neill, "When European integration meets corporate harmonization," *Company Lawyer*. 21 (6), 2000.
7. O. Goswami, "The tide rises, gradually: corporate governance in India," *Development Centre Discussion Paper*, 2001.
8. R. A. G. Monks, "Creating value through corporate governance," *Corporate Governance: An International Review*, vol. 10, pp. 116-123, 2002.
9. J. R. Deckop, K. K. Merriman, and S. Gupta, "The effects of CEO pay structure on corporate social performance," *Journal of Management*, vol. 32, pp. 329-342, 2006.
10. J. Solomon, "Corporate governance and accountability 2e," *Recherche*, vol. 67, p. 02, 2007.
11. L. H. Tan and J. Wang, "Modelling an effective corporate governance system for china €™s listed state-owned enterprises: issues and challenges in a transitional economy," *Corporate Governance*, vol. 151, pp. 154-155, 2007.
12. M. Pattanayak, "Strategic Ownership, Networking Effect and Firm Value: A Study of Indian Corporate Governance," 2008.
13. M. N. Young, M. W. Peng, D. Ahlstrom, G. D. Bruton, and Y. Jiang, "Corporate governance in emerging economies: A review of the principalâ€“principal perspective," *Journal of Management Studies*, vol. 45, pp. 196-220, 2008.
14. OECD guidelines on corporate governance
15. Confederation of Indian Industry (CII) – Desirable Corporate Governance Code
16. The Cadbury Report-1992
17. The Greenbury Report-1995
18. The Hampel Report-1998
19. The Turnbull Report
20. Higgs Report, Smith Report & Tyson Report
21. Kumar mangalam birla committee report
22. Naresh chandra committee
23. N.R.narayana murthy committee report
24. Dr. j j irani expert committee report on company law

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/354143709>

# Plagiarism in higher education: classification, causes and controls

Preprint · November 2019

DOI: 10.13140/RG.2.2.20694.11841

CITATIONS

2

READS

1,906

3 authors:



**Mike Perkins**

British University Vietnam

8 PUBLICATIONS 103 CITATIONS

SEE PROFILE



**Ulas Basar Gezgin**

Galata

169 PUBLICATIONS 115 CITATIONS

SEE PROFILE



**Raymond D. Gordon**

British University Vietnam

14 PUBLICATIONS 320 CITATIONS

SEE PROFILE

---

## Plagiarism in higher education: classification, causes and controls

Mike PERKINS,<sup>†</sup> Ulas Basar GEZGIN,<sup>††</sup> and Raymond D. GORDON<sup>†</sup>

<sup>†</sup> British University Vietnam,

BUV Ecopark Campus, Ecopark Township, Van Giang, Hung Yen, Vietnam

<sup>††</sup> Duy Tan University,

3 Quang Trung, Danang City, Vietnam

---

### Summary

Despite advances in software such as Turnitin, which can assist in the detection of plagiarism, new technologies have made it easier than ever for university students to plagiarise assessments. In this paper, a number of classifications and causes of plagiarism are discussed alongside potential intervention strategies in an attempt to highlight key research showing how institutions can tackle this significant threat to academic integrity. A focus is made on discussions of more complicated and subtle forms of plagiarism, such as plagiarism with technical manipulations, back-translation, and contract cheating, alongside intervention strategies, which may be helpful in these cases. We recommend the use of text matching software to be coupled with targeted interventions, faculty judgment, and institutional support in order to eliminate the barriers against the detection and reporting of these complex plagiarism cases.

### Keywords

Academic misconduct, plagiarism, Turnitin, contract cheating, back-translation

### 1. Introduction

Although plagiarism and academic misconduct are not new concerns for higher education institutions, the last decade has brought with it a rise in the access to the Internet and new information technologies on a global level, and along with this, a rise in the seriousness and number of plagiarism and academic misconduct cases (Aaron & Roche, 2014; Baggaley & Spencer, 2005; Bagraim, Goodman, & Pulker, 2014; Duggan, 2006; Heckler, Forde, & Bryan, 2013; Heckler, Rice & Hobson-Bryan; 2013; Jones, 2011; Joyce, 2007; Kakkonen & Mozgovoy, 2010; McLafferty & Foust, 2004; Mozgovoy, Kakkonen & Cosma, 2010; Park, 2004).

Further clouding the true nature of plagiarism is the potential under-reporting or under-detection of plagiarism cases by faculty. This may occur due to a number of reasons; including not requiring students to submit work through text-matching software such as Turnitin, a lack of knowledge by faculty as to what constitutes plagiarism, or choosing to deal with infractions in ways that do not involve the official university reporting channels (De Jager & Brown, 2010). Furthermore, there may be institutional barriers to reporting, as detecting and following up with plagiarism cases may lead to negative student feedback for the faculty which influences tenure, contract renewal and promotion decisions.

Even if we are to assume that there has been no marked increase in plagiarism cases in recent years, throughout the paper we will see that students have developed various novel ways to try and evade systems which universities put in place to reduce instances of plagiarism.

Fortunately, new information technologies have also allowed for a more detailed and technical examination of assignments submitted by students in an effort to detect cases of plagiarism. Although there is a range of software aimed at assisting in this task, based on the empirical work we highlight below, Turnitin appears to be the most widely utilised. Although Turnitin was initially accompanied with student frustration and

intimidation due to referencing problems (Dahl, 2007), it is a very widely used tool amongst universities with a higher number of advantages than that of disadvantages. In the past decade, the mere introduction of Turnitin to marking made a difference in terms of the number of academic misconduct cases identified (Heckler, Rice & Hobson-Bryan; 2013), as studies show that when students are told that their papers are to be checked using Turnitin, their tendency to plagiarise decreases (Batane, 2010; Ledwith & Rísquez, 2008).

As the initiatives to avoid and discourage plagiarism and academic misconduct develop, we offer a contribution through this paper by providing a summary of the current state of the literature in this area. The aim is to inform readers about some of the different forms of plagiarism in existence, and provide examples of successful anti-plagiarism initiatives. We pay particular attention to the problem of ‘second generation threats’ (Malesky Jr., Baley & Crow, 2016) to academic integrity such as contract cheating, back-translation and technical manipulation, and discuss some potential solutions for dealing with these more complex problems.

## 2. Plagiarism Classification

To enable a discussion on this subject, a detailed characterization and definition of plagiarism is required, however, many authors have differing views about the precise definitions of this term. In order to provide some clarity to this discussion, Table 1 summarises a range of activities which have been proposed in the literature as constituting plagiarism in some form. It also categorises the activity as either ‘simple plagiarism’ or ‘complex plagiarism’. We define ‘simple plagiarism’ as plagiarism which can be readily identified using text matching software, and ‘complex plagiarism’ as plagiarism which is more subtle and difficult to detect. This second form of plagiarism is discussed in more detail in the following section.

This distinction between the two forms of plagiarism is important when discussing this issue, as the initiatives that may be helpful for one category may not be helpful for the other.

Activity	Author	Category
Copying work without acknowledgement	Park (2004); Walker (2010); Bennett, Behrendt, and Boothby (2011); Mozgovoy, Kakkonen and Cosma (2010)	Simple plagiarism
Resubmitting assessed material for more than one course, AKA self-plagiarism/duplication plagiarism <sup>1</sup>	Park (2004); Bennett, Behrendt, and Boothby (2011)	Simple plagiarism
Copying and submitting the work of another student, with or without consent	Park (2004); Walker (2010); Bennett, Behrendt, and Boothby (2011)	Simple plagiarism
Presenting directly copied or slightly edited work as an incidence of paraphrasing	Walker (2010); Bennett, Behrendt, and Boothby (2011); Mozgovoy, Kakkonen and Cosma (2010)	Simple plagiarism
Quoting, paraphrasing or summarising without a correct citation and reference, AKA paraphrasing plagiarism	Bennett, Behrendt, and Boothby (2011), Mozgovoy, Kakkonen and Cosma (2010)	Simple plagiarism

---

<sup>1</sup> Bennett, Behrendt, and Boothby (2011) note that there are disagreements among faculty as to whether recycling one’s own work (duplication plagiarism, i.e. submitting the same or similar paper for two different courses) should be considered as plagiarism or not. Jones (2011) observes that this confusion is also present among students.



Paraphrasing work or ideas without acknowledgement	Park (2004); Mozgovoy, Kakkonen and Cosma (2010)	Complex plagiarism
Collusion with others	Park (2004)	Complex plagiarism
Plagiarism of translated text	Mozgovoy, Kakkonen and Cosma (2010)	Complex plagiarism
Secondary source plagiarism (e.g. referring to articles cited in an article as if the cited articles were directly accessed)	Mozgovoy, Kakkonen and Cosma (2010)	Complex plagiarism
Technical tricks exploiting weaknesses of text-matching software	Mozgovoy, Kakkonen and Cosma (2010)	Complex plagiarism
Contract cheating	Park (2004); Bennett, Behrendt, and Boothby (2011); Mozgovoy, Kakkonen and Cosma (2010)	Complex plagiarism

Table 1: Summary of plagiarism activities

Viewing the table above, we see that what is considered as plagiarism by one author may not necessarily be considered as plagiarism by another. The multiple, and at times overlapping, definitions provided in the current literatures serve to demonstrate that there is currently a lack of agreement as to what is considered by the term ‘plagiarism’, and that readers should be cautious as to the specific definitions of this term being used by authors. Some authors have also broadened the concept of plagiarism to include activities and behaviours which do not relate directly to the submission of written pieces of work, and instead refer more broadly to areas of academic (mis)conduct. These cases are highlighted later in our discussion.

Because of this lack of consensus in the literature, and to aid future researchers, we provide our own definition of plagiarism which we will use for the remainder of this paper:

*‘Misrepresenting the effort that has been carried out by the author of a written document’*

This definition is broad enough to comprise the activities shown in Table 1, whilst excluding other activities which may be considered as broader ‘academic misconduct’ such as attempts to cheat in examinations.

### 3. Complex Plagiarism

Turnitin and other text matching software provide tools which identify the proportion of text that has been found in the submission which is similar to that available in the database of the software, but this in itself is not necessarily accurate measure of whether plagiarism has taken place (Razi, 2015), and authors have critiques Turnitin for not providing a perfect solution to plagiarism problems (Heckler, Forde, & Bryan, 2013; McKeever, 2006; Scheg, 2012). Turnitin is not always successful in the detection of plagiarism, and is often faced with Type 1 (false positive) and Type 2 errors (false negative). The software settings dealing with how small matches in similarity are dealt with will also influence the ability of the software to provide an accurate rating of plagiarism, as this is chosen by the administrator of each assignment. Although Turnitin is developing a new tool called ‘Authorship Investigate’ which they claim utilises linguistic analysis and Natural Language Processing (NLP) in order to assist faculty with complex plagiarism, the use of software to deal with this issue of complex plagiarism is an imperfect solution by itself. Therefore, Turnitin should be considered as a support tool for university faculty, rather than a plagiarism cure. The ultimate arbiter of whether or not plagiarism has occurred still needs to be made by a human judgment (Ledwith & Rísquez, 2008; Walker, 2010).

We now highlight the various sub-categories of the more challenging aspects of plagiarism which are not so easily dealt with through the use of text matching software such as Turnitin. These forms of plagiarism include the use of contract cheating services by students, and related business such as assignment polishers,

the technical manipulation of documents to deceive text matching software, and the back-translation of assignments written in a language other than English.

### 3.1 Contract cheating

Fee-based services that provide students with a paper to submit as their own are not a new concept, and have been discussed in the academic literature for many decades (cf: Stavisky, 1973; Hawley, 1984). However, information technology has increased the ability of students to access custom written papers from organizations and individuals from all over the world, and so an additional focus must now be paid to this topic. The difficulty of detecting the use of such services is shown in a number of more recent papers. Lines (2016) reports on a quasi-experiment, whereby the researcher contacts a 'paper mill' as a customer, pays for the papers, submits them to Turnitin, and receives a pass from the faculty who did not notice that it was a case of contract cheating. Another paper by Malesky Jr., Baley & Crow (2016) focuses on yet another form of contract cheating: paying a company to complete an entire online course in the name of the customer/student. This is an interesting case study because the researchers pay the company to carry out all elements of an online course on behalf of the student, including completing weekly quizzes, assignments and exams. As the course was created specifically for the research project, the instructors were aware that cheating would occur, yet still could not detect the contract cheating service, even with the use of Turnitin. The customer received an 'A' for the course. These quasi-experimental studies show how it is not necessarily possible to detect cases of contract cheating, even when experienced faculty are actively searching for it. They also demonstrate that if the number of students enrolled in some form of accredited online or distance learning programs rises, serious consideration must be given by these providers as to how this particular threat can be combatted.

### 3.2 Technical manipulations of text

Another difficult to detect form of plagiarism stems from the use of technical manipulations to the files submitted to text matching software. Kakkonen and Mozgovoy (2010), and Heather (2010) present studies where they attempt to deceive a variety of text matching software (including Turnitin) by submitting completely plagiarised texts with technical manipulations such as "*fake characters, fake spaces and scanned text*" (Kakkonen & Mozgovoy p.144) or the use of characters in a white font and the manipulation of the machine readable text without altering the appearance of the viewable text (Heather, 2010). Another form of technical manipulation is the replacement of certain letters with those of another language. For example, if students replace the English letter 'O' with the Russian 'О' in their submission, Turnitin cannot easily match the submitted text. This is due to how a Russian 'О' is coded differently, even though the difference will not be noticed on screen or on paper. The same is true for letters such as 'C' and 'P' (Kakkonen & Mozgovoy, 2010). In these two studies, although Turnitin found the manipulated texts suspicious and provided error messages, it could not identify any potential text matches in these manipulated files (Heather, 2010; Kakkonen & Mozgovoy, 2010).

Other similar examples may come from inserting text as an image into a document, or using characters such as quotation marks in a colour that matches the background, which may cause software to ignore certain sections of text.

### 3.3 Translated submissions

Another difficult to detect form of plagiarism is the use of translated submissions by students with multiple language capabilities (Jones & Sheridan, 2015; Meuschke & Gipp, 2013). Although there have been some advances in detecting this form of plagiarism through the use of specialist tools involving machine translation for specific languages (cf: Kent & Salim, 2010; Pataki, 2012), it is not currently possible for Turnitin or other commercially available software to detect a paper translated from a foreign language into the language of submission and then submitted as an original piece of work. Jones and Sherridan (2015) demonstrate how this technique can be used to take an original submission in English, translate it into another language, and then translate it back to English. Despite advances in translation technology, they show it is possible to change the structure and language of the original text enough to render the plagiarism undetectable.

### 3.4 Second-generation threats to academic integrity

The subtler, difficult to detect types of plagiarism detailed above are described by Malesky Jr., Baley and Crow (2016) as “second-generation threats” to academic integrity and are not currently addressed by the existing text matching software widely available in higher education (Meuschke & Gipp 2013). This is quite alarming for academic integrity as a whole (Aaron & Roche, 2014), as it highlights that even if faculty are actively engaged in plagiarism detection, this is not just a simple case of relying on text matching software, but instead requires a more involved approach from schools and individual faculty. Thus, although it may be considered easier to detect plagiarism via new software (McKeever, 2006), it is highly likely that many incidences of these subtler types of plagiarism have gone undetected in the past, and that this academic misconduct will continue until universities are able to implement more advanced detection methods. Continued upgrades to text matching software may assist in overcoming the technical manipulation of documents, and perhaps translated plagiarised documents, but are unlikely to effectively identify incidences of contract cheating. Therefore, alternative methods aimed at combatting these challenging threats to academic integrity, alongside a more holistic approach to reducing, detecting and punishing plagiarism are required. Such potential initiatives are discussed in the following section.

## 4. Factors affecting plagiarism

We now present a review of previous studies exploring why students commit plagiarism offences in submitted work.

In an empirical study with hospitality students, Goh (2015) identifies 6 key factors provided by students in order to explain cases of extreme plagiarism (defined as similarity scores provided by Turnitin of 75% or higher). These explanations are: “(a) poor time management, (b) fear of failure, (c) improve grade point average, (d) personal/family problems, (e) poor level of English, and (f) unsure about referencing and plagiarism policy” (p.80). They find that: “senior students plagiarise for self-actualization needs (to improve their grade point average), whereas Year 1 students tend to engage in extreme plagiarism because of their poor level of English and uncertainty about referencing and plagiarism policies” (p.80).

### 4.1 English language abilities

When English is the language of assessment, authors have also sought to explore how the English Language (ELA) ability of students may be a contributing factor to plagiarism offences. Where studies have examined a combination of Native English Speaking (NES) students and Non-Native English Speaking (NNES) students, English language ability has appeared as one reason behind plagiarism, but not the main reason (Goh, 2015; Walker, 2010). When the focus shifts to exploring NNES student populations, the lack of language ability is given as the primary reason (Bretag, 2007; Chen & Ku, 2007; Currie, 1998). Other studies exploring this relationship and finding similar results include: Li (2015), Marshall & Garry (2006), Pennycook (1996), Perkins, Gezgin and Roe (2018) and Walker & White (2014).

### 4.2 Personality traits

In their empirical study on how plagiarism is affected by self-perceptions of degrees of individualism-collectivism, Martin (2011) found that individualists (as defined as a personality dimension rather than a cultural dimension) plagiarise more often than collectivists. However, Payan, Reardon & McCorkle’s (2010) findings diverge from Martin’s (2011) findings and show that collectivists are more likely to cheat than individualists do. However, this result may be due to a difference in definitions, as Payan, Reardon & McCorkle’s (2010) study focuses more on the broader notion of academic dishonesty, as opposed to plagiarism of submitted assessments which we have focused on so far. For example, within their definition, they also include cheating in exams, which shows that their findings may not be directly comparable to Martin’s (2001) study. Methodological issues may also have confounded the results, as their research instruments shows that they measured university wide student perceptions of academic dishonesty (e.g. “This happens a lot at our school: Copying and pasting material from the Internet for papers or projects.” p. 283) rather than asking students about their own involvement in plagiarism.

### 4.3 Student experience and education on plagiarism

Although some proportion of academic misconduct can be attributed to new students' inexperience, Walker (2010) finds that final year students plagiarise more than any other group. Thus, plagiarism may not just be a matter of orientation to the new culture that students face when entering university.

In a similar study, Jones (2011) lists the following reasons ordered in terms of percentage of student responses:

*“grades (want or need to make better grades); procrastination; too busy, not enough time to complete assignments or study for the test; lack of understanding or unable to comprehend information; no interest in the subject or assignment; workload/schedule (too many classes); everyone does it and gets away with it; no big deal (does not matter to professor); and peer pressure”* (p.144).

In Batane's (2010) study, laziness was found to be the number one reason reported by students, while tolerant plagiarism policies appeared to act as an encouragement to students. Okoro (2011) also found that students sometimes plagiarise due to problems with time management.

In their research conducted through interviews with faculty, Walker & White (2014) noted the following factors given as reasons behind plagiarism: *“low levels of confidence, time pressures resulting from juggling paid employment, poor language skills, cultural and family pressures in addition to an excessive proliferation of online sources of information (...)”* (p.679). However, in their survey conducted on both students and faculty, Aaron & Roche (2014) found *“pressure to succeed, laziness, procrastination, [and] lack of respect for learning”* (p.186) as the main reasons for committing plagiarism. However, there is a clear methodological problem with asking university faculty to infer reasons behind why students commit plagiarism: they are not the ones actually carrying out the offences. Although these studies provide a valuable counterpoint to the student perspectives explored in other cases, they cannot be relied upon for anything other than this.

## 5. Anti-plagiarism interventions

The literature presents and discusses a number of interventions and proposals to counter plagiarism challenges. Aside from the use of text-matching software, there are two major categories of anti-plagiarism interventions discussed in the literature: those that are technology based, and those which are not. Firstly, we consider the technology-based examples.

### 5.1 Technology based anti-plagiarism initiatives

A number of authors advise promoting self-control approaches to plagiarism, rather than punitive methods. Belter and Du Pre (2009) report the positive impacts of the use of an online academic integrity module to reduce the occurrence of plagiarism in written assignments. The module used in Belter and Du Pre's (2009) class consists of four sections: *“(a) Plagiarism Defined and Strategies to Avoid It, (b) Cheating Defined and Strategies to Avoid It, (c) Penalties for Academic Misconduct, and (d) Academic Integrity Evaluation”* (p.259). They also point out those submissions with high levels of plagiarism are also of poor quality, which implies that plagiarism is employed as a strategy to compensate for poor academic performance. Curtis et al. (2013) also investigates the effect of the completion of an online academic integrity module on *“students' awareness of plagiarism and their perception of the seriousness of plagiarism”* (p.282) and reports positive results.

Likewise, Stetter (2013) reports the positive outcomes of a web-based module with a blended method on plagiarism involving paraphrasing exercises. Powell & Singh (2016) share the positive role of an intervention program against academic misconduct. O'Donnell (2011) developed an online quiz about how to avoid plagiarism consisting of 28 multiple choice or 'true or false' questions through Blackboard, which reduced the number of academic misconduct cases occurring in a module. It is recommended by Davis (2011) that an online anti-plagiarism assignment is carried out in an effort to reduce incidences of misconduct. Although no empirical results are reported, anecdotal evidence is given suggesting that these initiatives are successful in improving the writing skills of the students, and reducing incidences of misconduct.

Bradley (2015) considers the use of computer simulations and games as a preventative measure. They present and discuss ten free games and simulations employed by various universities against plagiarism: Goblin Threat, Cheats and Geeks, Frenetic Filing, Murky Misconduct, Decisions on Deadline, The Cite is Right, Plagiarism Match Game, Plagiarism Choose Wisely Game, Xtreme Plagiarism, and Planet in Peril: Plagiarism. Bradley (2015) also suggests promoting digital literacy skills in an attempt to reduce the knowledge gap shown to be a cause of improper citation or unintentional plagiarism.

Stowers & Hummel (2011) discuss software tools which may assist students in reducing the amount of simple plagiarism in their work by allowing them to check for potential problems in their own work before they submit their assignments. These tools may assist students and faculty alike by identifying to students where simple plagiarism may be identified in their work, either by accident, or by design, and allow them to adjust their work accordingly. This is a regular practice encouraged by faculty in an attempt to reduce the number of academic misconduct cases before submission occurs (Probett, 2011). In other words, the focus of anti-plagiarism initiatives shifts to one of prevention and education rather than punishment (Bradley, 2015; Graham-Mateson & Starr, 2013; Ledwith & Rísquez, 2008; McLafferty & Foust, 2004; Park, 2004). As this approach relies on the use of text matching software, it cannot effectively deal with the issue of complex plagiarism.

All of the above initiatives rely on the use of technology, whether these are online modules, quizzes, games or software. In certain instances, the use of these techniques may not be possible (e.g. in institutions where the investment in these tools is not possible), therefore, we must also consider examples of suitable techniques to deal with plagiarism that could be used by these institutions either by themselves or in conjunction with the methods described above.

## **5.2 Anti-plagiarism initiatives not reliant on technology**

One way to discourage and potentially reduce plagiarism would be setting assignments that specifically refer to lecture content or are unique to each student, rather than generic essays (Davis, 2011; McLafferty & Foust, 2004; Probett, 2011). Another way would be to use alternative forms of assessment such as exams, oral presentation (Lines, 2016), internship experience, and field trip-based reports, as part of a holistic assessment methodology (Goh, 2015). Numerous authors have also suggested incorporating assessments that involve critical thinking and personal involvement with the course content, as it is easier to identify plagiarism in these types of assignments (Heckler, Forde, & Bryan, 2013; McLafferty & Foust, 2004; Probett, 2011;). Setting similar types of assignments every semester can encourage plagiarism (Batane, 2010; Walker & White, 2014), so changing the style of assignment each semester could reduce the risk of plagiarism between student cohorts. The inclusion of ‘ethics-related modules’ in a degree program has been shown as a factor which reduces incidences of plagiarism in an empirical study using advanced statistical methods (Guo, 2011).

Voelker, Love & Pentina (2012) identified knowledge gaps about plagiarism among business students at graduate and undergraduate levels, which could be effectively eliminated through face-to-face sessions, or by using student handbooks, module handbooks, and other related materials. These gaps may partially explain the distinction between intentional and unintentional plagiarism (Kaposi & Dell, 2012; Park, 2004). Chao, Wilhelm & Neureuther (2009) agree with this viewpoint and highlight improving students’ paraphrasing and citation skills as a key element to focus on. Using a past submission on Turnitin as an example of what the students are not supposed to do in terms of paraphrasing and citation made a significant difference compared to the control group in their research.

De Jager & Brown (2010) report that in the University of Cape Town, South Africa, students have to sign a statement about plagiarism on all the assignments they submit, while in Lancaster University, UK, students were required to sign such a form every year (Park, 2004). There are many other examples of the use of written statements to fight academic misconduct and plagiarism, although their use has not necessarily proven to be successful.

Unfortunately, while the interventions listed above may reduce the percentage of certain kinds of academic misconduct cases, most of them would not be able to decrease the risk of ‘second generation threats’ (Malesky Jr., Baley & Crow, 2016) to academic integrity such as contract cheating, technical manipulations and back-translation. In order to tackle these issues, more sophisticated interventions are required. As this review has highlighted, the case of contract cheating is a particularly difficult example of plagiarism to detect, even with the help of appropriate software. However, the ‘voice’ of a submission may reveal potential plagiarism due to literary incongruence; copied sections can differ from those written by the student (McLafferty & Foust, 2004), and even if this is not picked up by software, it could indicate a section drawn from the work of another, whether this is due to traditional plagiarism, collusion, contract cheating, or partial back-translation. A potential prevention and detection strategy for these types of plagiarism is collecting a writing sample from all students to check for any incongruence between student’s academic levels and writing styles in the sample and those in the submission (Davis, 2011; Jones & Sherridan, 2015; Kakkonen & Mozgovoy, 2010; McLafferty & Foust, 2004; Perkins, Gezgin & Roe, 2018). This could be carried out manually, or with the use of analysis software (Jones & Sherridan, 2015). Although this method may not be accurate enough to ascertain for certain whether or not contract cheating has occurred, it could be enough to warrant further investigation of the student; for example, requesting they attend a viva voce to defend their work. Maurer and Zaka (2007) highlight Cloze software, in which students must fill in the correct word from their edited submission, as an effective tool to help confirm complex misconduct suspicions.

Observing the development of student work before submission, either manually (Austin & Brown, 1999), or with the use of software (Jones & Sherridan, 2015) and providing formative feedback (Heckler, Forde, & Bryan, 2013) could be particularly useful tools as a preventative measure for plagiarism reduction. This method may also spot where students could be at risk of using back-translated or ghost-written submissions due to their lack of development of work before submission. This could be done with draft versions of the current assignment to check that students are actively engaged in creating their work. In terms of providing feedback, student submissions from previous semesters could be used to provide general hints and tips as to how assignments can be improved, and therefore reduce the knowledge gap that has been shown as a cause of plagiarism (Goh, 2015; Jones, 2011). This would allow students to utilize Turnitin as a support tool rather than a tool of frustration and panic (Chao, Wilhelm & Neureuther, 2009).

## **6. Discussion**

Although the final responsibility concerning academic integrity and misconduct lies with students, the roles of the faculty are also essential for building an institutional culture of academic honesty (Walker & White, 2014). In fact, plagiarism is not only a student problem: Bretag & Carapiet (2007) find in their study using Turnitin that self-plagiarism is common among Australian researchers, and Honig & Bedi (2012) found that 25% of papers presented at an Academy of Management conference contained some amount of plagiarism. Let us keep in mind that by self-plagiarism we mean submitting same works or some parts of one’s past work as if they are new texts. For example, if a student submits the same paper for two different courses or if a researcher submits the same work for two different academic gatherings or journals and treats these as if they are two different works,<sup>2</sup> what we see are cases of self-plagiarism. However, compared to the extant literature on plagiarism, this topic is understudied (Halupa & Bolliger, 2013). Halupa and Bolliger (2013) demonstrate the lack of consistency of views and awareness of faculty on the concept of student self-plagiarism, making it clear that educating faculty in identifying self-plagiarism is an important step to reducing this. At the same time, attempting to tackle this issue in the wider academic community must also be carried out; an issue highlighted by Bretag (2009) and De Jager & Brown (2010). University faculty must

---

<sup>2</sup> Of course we have a grey area here: Sometimes researchers present their works at a conference and then develop the presentation to come up with a journal article. However, even in that case, the author is expected to acknowledge by a footnote the fact that this work is an updated and extended version of the original conference paper. This is not applicable for a student who is expected to submit two different papers for two different courses unless the modules relies on a continuous assessment approach.

act as role models for their own students if we expect to come to a clear understanding of what is acceptable academic practice in this area.

Dyrud (2011) considers the possibility that academic misconduct may also manifest itself as unethical behaviors after graduation. This means plagiarism is not only an institutional problem, but a social one as well. It is feared that students who have plagiarised will be rewarded through their graduation, and this will set a precedent for their future career. According to Okoro (2011), “*well-publicized, high-profile instances of political and corporate dishonesty*” (p.174) could be trivializing plagiarism in the eyes of the students. Even presidents and ministers are found to plagiarise (e.g. Deutsche Welle, 2012, Pidd, 2011, The Guardian, 2013). When more and more of these cases are portrayed in the media, it is likely that plagiarism may be recognized as a normal. Contrary to this situation, universities are assumed to hold a responsibility to ensure students graduate with ethical values (Batane, 2010) and if past students commit some widely publicized act of plagiarism, it is not just the individual who suffers but also the wider university. In these cases, academic integrity is no longer only an ephemeral ethical issue; it holds real life consequences and may involve considerable public relations efforts to retain the good reputation of a university (Aaron & Roche, 2014).

## 7. Conclusion

This work has highlighted that there is still considerable confusion in the literature regarding plagiarism, and has aimed to reduce some of this confusion by clarifying the usage of terms, identifying causal factors, and investigating some potential measures which can be used to reduce both simple and complex plagiarism. There is still considerable scope for future research and in many cases, room for improvement from individual institutions. Although this review has highlighted the problem of ‘complex plagiarism’, as the pace of technology continues to develop, it is likely that new threats to academic integrity will emerge. Therefore, more high-quality empirical research is needed to ensure that new strategies can be developed to ensure that both current and future challenges related to plagiarism can be overcome.

## References

- AARON, L. & Roche, C. (2014). Stemming the tide of academic dishonesty in higher education: It takes a village. *Journal of Educational Technology Systems*, 42(2), 161-196.
- BA, K. D., Ba, K. D., Lam, Q. D., Binh, D. T., Le, A., Nguyen, P. L., Nguyen, P. Q. & Pham, Q. L. (2016). Student plagiarism in higher education in Vietnam: an empirical study, *Higher Education Research & Development*.
- AUSTIN, M. J., & Brown, L. D. (1999). Internet plagiarism: Developing strategies to curb student academic dishonesty. *The Internet and higher education*, 2(1), 21-33.
- BAGGALEY, J. & Spencer, B. (2005). The mind of a plagiarist. *Learning, Media and Technology*, 30(1), 55-62.
- BAGRAIM, J., Goodman, S. & Pulker, S. (2014). Understanding dishonest academic behaviour amongst business students—the business leaders of the future. *Industry & Higher Education*, 28(5), 331-340.
- BATANE, T. (2010). Turning to Turnitin to fight plagiarism among university students. *Educational Technology & Society*, 13(2), 1–12.
- BELTER, R. W. & Du Pre, A. (2009). A strategy to reduce plagiarism in an undergraduate course. *Teaching of Psychology*, 36, 257-261.
- BENNETT, K. K., Behrendt, L. S., & Boothby, J. L. (2011). Instructor perceptions of plagiarism: Are we finding common ground? *Teaching of Psychology*, 38(1) 29-35.
- BRADLEY, E. G. (2015). Using computer simulations and games to prevent student plagiarism. *Journal of Educational Technology Systems*, 44(2) 240–252.
- BRETAG, T. (2007). The emperor's new clothes: yes, there is a link between English language competence and academic standards. *People and Place*, 15(1), 13–21
- BRETAG, T. & Carapiet, S. (2007). A preliminary study to identify the extent of self-plagiarism in Australian academic research. *Plagiarism: Cross-Disciplinary Studies in Plagiarism, Fabrication, and Falsification*, 2, 92-103.
- CHAO, C., Wilhelm, W.J. and Neureuther, B.D. (2009). A study of electronic detection and pedagogical approaches for reducing plagiarism. *Delta Pi Epsilon Journal*, 51(1), 31-42.

- CURTIS, G. J., Gouldthorp, B., Thomas, E. F., O'Brien, G. M. & Correia, H. M. (2013). Online Academic-integrity Mastery Training May Improve Students' Awareness of, and Attitudes toward, Plagiarism. *Psychology Learning and Teaching*, 12(3), 282-289.
- CHEN, T., & Ku, N. K. T. (2007). EFL students: Factors contributing to online plagiarism. In T. S. Roberts (Ed.), *Student plagiarism in an online world: Problems and solutions* (pp. 77–91). New York: IGI Global.
- CURRIE, P. (1998). Staying out of trouble: apparent plagiarism and academic survival. *Journal of Second Language Writing*, 7(1), 1–18.
- DAHL, S. (2007). The student perspective on using plagiarism detection software. *Active Learning in Higher Education*, 8(2), 173-191.
- DAVIS, L. (2011). Arresting student plagiarism: Are we investigators or educators? *Business Communication Quarterly* 74(2), 160-63.
- DE JAGER, K. & Brown, C. (2010). The tangled web: investigating academics' views of plagiarism at the University of Cape Town. *Studies in Higher Education*, 35(5), 513-528.
- DEUTSCHE WELLE (2012, April 02). Hungary's president resigns in plagiarism scandal. Deutsche Welle. Retrieved from <https://www.dw.com/en/hungarys-president-resigns-in-plagiarism-scandal/a-15854197>
- DUGGAN, F. (2006). Plagiarism: prevention, practice and policy, *Assessment & Evaluation in Higher Education*, 31(2), 151-154.
- DYRUD, M.A. (2011). Introduction: Plagiarism and Its discontents. *Business Communication Quarterly*, 74(2), 138-140.
- GOH, E. (2015). Exploring underlying motivations behind extreme cases of plagiarism in tourism and hospitality education. *Journal of Hospitality & Tourism Education*, 27(2), 80-84.
- GRAHAM-MATESON, L. & Starr, S. (2013). Is it cheating or learning the craft of writing? Using Turnitin to help students avoid plagiarism. *Research in Learning Technology*, 21(1), 1-13.
- GUO, X. (2011). Understanding Student Plagiarism: An Empirical Study in Accounting Education. *Accounting Education*, 20(1), 17-37.
- HAWLEY, C.S., 1984. The thieves of academe: Plagiarism in the university system. *Improving college and university teaching*, 32(1) 35-39.
- HALUPA, C., & Bolliger, D. U. (2013). Faculty perceptions of student self plagiarism: An exploratory multi-university study. *Journal of Academic Ethics*, 11(4), 297-310.
- HEATHER, J. (2010). Turnitoff: Identifying and fixing a hole in current plagiarism detection software. *Assessment & Evaluation in Higher Education*, 35(6), 647–660.
- HECKLER, N.C., Forde, D.R., & Bryan, C.H. (2013). Using Writing Assignment Designs to Mitigate Plagiarism. *Teaching Sociology*, 41(1), 94-105.
- HECKLER, N.C., Rice, M. & Hobson-Bryan, C. (2013). Turnitin systems: A deterrent to plagiarism in college classrooms. *Journal of Research on Technology in Education*, 45(3), 229–248.
- HONIG, B., & Bedi, A. (2012). The fox in the hen house: A critical examination of plagiarism among members of the Academy of Management. *Academy of Management Learning & Education*, 11(1), 101-123.
- JOYCE, D. (2007). Academic integrity and plagiarism: Australasian perspectives. *Computer Science Education*, 17(3), 187-200.
- JONES, M. & Sheridan, L. (2015). Back-translation: an emerging sophisticated cyber strategy to subvert advances in 'digital age' plagiarism detection and prevention. *Assessment & Evaluation in Higher Education*, 40(5), 712-724.
- JONES, D. L. R. (2011). Academic dishonesty: Are more students cheating? *Business Communication Quarterly*, 74(2), 141–150.
- KAKKONEN, T. & Mozgovoy, M. (2010). Hermetic and Web plagiarism detection systems for student essays - An evaluation of the state-of-the-art. *Journal of Educational Computing Research*, 42(2), 135-159.
- KAPOSI, D. & Dell, P. (2012). Discourses of plagiarism: moralist, proceduralist, developmental and inter-textual approaches. *British Journal of Sociology of Education*, 33(6), 813-830.
- KENT, C. K., & Salim, N. (2010). Web Based Cross Language Plagiarism Detection, *Second International Conference on Computational Intelligence, Modelling and Simulation*, Bali 199-204



- LAMBERTON, G. & Ashton-Hay, S. (2015). Preparing Chinese international business students for the transition to undergraduate study in Australia. *Journal of Research in International Education*, 14(2), 155-171.
- LEDWITH, A. & Rísquez, A. (2008). Using anti-plagiarism software to promote academic honesty in the context of peer reviewed assignments. *Studies in Higher Education*, 33(4), 371-384
- LI, Y. (2015). Academic staff's perspectives upon student plagiarism: A case study at a university in Hong Kong. *Asia Pacific Journal of Education*, 35(1), 14-26.
- LINES, L. (2016). Ghostwriters guaranteeing grades? The quality of online contract cheating services available to tertiary students in Australia. *Teaching in Higher Education*, 21(8), 889-914.
- MALESKY Jr., L.A., Baley, J. & Crow, R. (2016) Academic dishonesty: Assessing the threat of cheating companies to online education. *College Teaching*, 64(4), 178-183.
- MARSHALL, S., & Garry, M. (2006). NESB and ESB students' attitudes and perceptions of plagiarism. *International Journal for Educational Integrity*, 2(1), 26–37.
- MARTIN, D. E. (2011). Culture and unethical conduct: Understanding the impact of individualism and collectivism on actual plagiarism. *Management Learning*, 43(3), 261-273.
- MAURER, H., Zaka, B. (2007). “Plagiarism – A Problem and How to Fight It.” In *World Conference on Educational Multimedia, Hypermedia and Telecommunications 2007*, (ed C. Montgomerie and J. Seale), Chesapeake, VA: Association for the Advancement of Computing in Education.
- MCKEEVER, L. (2006). Online plagiarism detection services—savior or scourge? *Assessment & Evaluation in Higher Education*, 31(2), 155-165.
- MCLAFFERTY, C. L. & Foust, K. M. (2004). Electronic plagiarism as a college instructor's nightmare—prevention and detection. *Journal of Education for Business*, 79(3), 186-190.
- MEUSCHKE, N. and Gipp, B., 2013. State-of-the-art in detecting academic plagiarism. *International Journal for Educational Integrity*, 9(1), 50-71
- MOZGOVOY, M., Kakkonen, T. & Cosma, G. (2010). Automatic student plagiarism detection: Future perspectives. *Journal of Educational Computing Research*, 43(4), 511-531.
- O'DONNELL, K. G. (2011). Linking multimodal communication & feedback loops to reinforce plagiarism awareness. *Business Communication Quarterly*, 74(2), 216-220.
- OKORO, E. A. (2011). Academic integrity and student plagiarism: guided instructional strategies for business communication assignments. *Business communication quarterly*, 74(2), 173-178.
- PARK, C. (2004). Rebels without a clause: towards an institutional framework for dealing with plagiarism by students. *Journal of Further and Higher Education*, 28(3), 291-306.
- PATAKI, M., (2012). A new approach for searching translated plagiarism. In: *Fifth International Plagiarism Conference*, Gateshead, UK, 16-18 July 2012.
- PAYAN, J., Reardon, J. & McCorkle, D. E. (2010). The Effect of Culture on the Academic Honesty of Marketing and Business Students. *Journal of Marketing Education*, 32(3), 275-291.
- PENNYCOOK, A. (1996). Borrowing Others' words: text, ownership, memory, and plagiarism. *TESOL Quarterly*, 30(2), 201–230.
- PERKINS, M., Gezgin, U. B., & Roe, J. (2018). Understanding the Relationship between Language Ability and Plagiarism in Non-native English Speaking Business Students. *Journal of Academic Ethics*. Advance online publication. doi:10.1007/s10805-018-9311-8.
- PIDD, H. (2011, March 01). German defence minister resigns in PhD plagiarism row. *The Guardian*. Retrieved from <https://www.theguardian.com/world/2011/mar/01/german-defence-minister-resigns-plagiarism>
- POWELL, L. & Singh, N. (2016). An integrated academic literacy approach to improving students' understanding of plagiarism in an accounting course. *Accounting Education*, 25(1), 14-34.
- PROBETT, C. (2011). Plagiarism prevention. *Business Communication Quarterly*, 74(2), 170-172.
- RAZI, S. (2015). Development of a rubric to assess academic writing incorporating plagiarism detectors. *SAGE Open*, 5(2), 1-13.
- SCHEG, A. G. (2012). The impact of Turnitin to the student-teacher relationship. *Journal of Interdisciplinary Studies in Education*, 2(1), 29-38.
- SELWYN, N. (2008). ‘Not necessarily a bad thing...’: A study of online plagiarism amongst undergraduate students. *Assessment & Evaluation in Higher Education*, 33(5), 465-479.

- STETTER, M.E. (2013). Teaching students about plagiarism using a web-based module. *Journal of Further and Higher Education*, 37(5), 675-693.
- STOWERS, R.H. & Hummel, J.Y. (2011). The use of technology to combat plagiarism in business communication classes. *Business Communication Quarterly*, 74(2), 164-169.
- STAVISKY, L. (1973). Term Paper "Mills," Academic Plagiarism, and State Regulation. *Political Science Quarterly*, 88(3), 445-461
- SUTHERLAND-SMITH, W. (2010). Retribution, deterrence and reform: the dilemmas of plagiarism management in universities. *Journal of Higher Education Policy and Management*, 32(1), 5-16.
- THE GUARDIAN (2013, February 09). German education minister quits over PhD plagiarism. *The Guardian*. Retrieved from <https://www.theguardian.com/world/2013/feb/09/german-education-minister-quits-phd-plagiarism>
- VOELKER, T.A., Love, L.G. & Pentina, I. (2012). Plagiarism: What don't they know? *Journal of Education for Business*, 87(1), 36-41.
- WALKER, C. & White, M. (2014). Police, design, plan and manage: developing a framework for integrating staff roles and institutional policies into a plagiarism prevention strategy. *Journal of Higher Education Policy and Management*, 36(6), 674-687.
- WALKER, J. (2010). Measuring plagiarism: researching what students do, not what they say they do. *Studies in Higher Education*, 35(1), 41-59.

# Learner Autonomy in the Vietnamese EAP Context: A Literature Review

Jasper Roe\*, Mike Perkins,

British University Vietnam  
BUV Ecopark Campus, Hung Yen, Vietnam  
[Jasper.r@buv.edu.vn](mailto:Jasper.r@buv.edu.vn) \*Corresponding Author  
[Mike.p@buv.edu.vn](mailto:Mike.p@buv.edu.vn)  
<https://doi.org/10.24191/ajue.v16i1.8490>

Received: 9 November 2019

Accepted: 22 March 2020

Date of online publication: 27 April 2020

Published: 27 April 2020

**Abstract:** This literature review explores the current body of research pertaining to learner autonomy in the Vietnamese English for Academic Purposes (EAP) context, investigating themes and research methodologies, conclusions drawn, limitations and possible avenues for further study and new research directions in the future. We demonstrate that although there are many studies exploring the concept of learner autonomy, the definitions as to how this term is described is not clear throughout the literature, and this is a limitation in the current research field. In addition to this, there is significant evidence suggesting that Vietnamese EAP learners are keen to engage in autonomous learning practices and can demonstrate the self-regulation required to do so, which disagrees with traditional conceptions of Confucian heritage culture learning approaches.

**Keywords:** Autonomy, EAP, Vietnam, Higher Education

## Introduction

Learner autonomy is far from a new subject, having been the focus of discussion in language learning since the 1980s (Littlewood, 1999). This is attributed to the perceived benefits of autonomous learning, which have included increased motivation (Lee, 1996; Tagaki, 2003), active participation in the classroom, (Dam, 1995; Natri, 2007), and a greater sense of self-responsibility for students' learning (Cunningham & Carlton, 2003; Mizuki, 2003; Stephenson & Kohyama, 2003).

However, crafting an adequate, all-encompassing definition of learner autonomy is not straightforward, due to a multiplicity of definitions and interpretations in practice. As an example, the concept of learner autonomy has been defined as 'authoring one's own world without being subject to the will of others' (Young, 1986) and 'the ability to self-regulate and self-determine' (Ryan 1991, p210), as well as the 'the ability to take charge of one's own learning' (Holec, 1981, p3). Others, such as Littlewood (1999) have taken the concept and subdivided it further, proposing multiple levels of autonomy, including proactive and reactive autonomy (1999, p75).

Similarly, authors such as Benson (1997) have argued for technical, psychological, and political dimensions to learner autonomy, which may encompass topics such as learning strategies in technical autonomy, the fostering of psychological autonomy, and learner empowerment in political autonomy (Palfreyman, 2003). Some have postulated that learner autonomy may be considered a human right (Benson, 2000), and that increasing learner autonomy is a more effective method of language learning in comparison to others (Naiman et al., 1978). There are then, a number of interpretations of autonomy, including numerous lenses through which the concept can be viewed. This contributes to the difficulty in analysing the current literature in the Vietnamese HE and EAP context, as although studies may claim to be examining autonomy, the lack of a clear, common definition may lead to different understandings of what autonomy means in practice. Although this has previously been

recognised by other researchers (Nguyen, Tangen and Beutel, 2013) there seems to be no current suggestion as to how this can be resolved in the Vietnamese and wider context. In the following review, autonomy is defined as a broad-spectrum 'ability to take charge of one's own learning' (Holec, 1981, p3).

In terms of the East Asian, or regional context of this research, it must be recognised that autonomy has been the subject of controversy in terms of cultural origin and appropriacy. Researchers have raised questions of ethnocentricity in the practice of encouraging learner autonomy, and it has been suggested that learner autonomy is often implemented by Western teachers and academics (Palfreyman, 2003). Littlewood (1999, p71) has argued that in language learning contexts in East Asia, learner autonomy may be presented as a Western concept which may not match traditional methods of education. However, empirical research has shown that while autonomous learning might be presented in this manner, it does not mean that students in the East are not keen to employ autonomous learning practices. On the contrary, it has been argued that Asian students 'want to explore knowledge themselves and find their own answers' (Littlewood, 1999, p34). In addition to this argument, Littlewood (1999) continues to identify five generalisations surrounding autonomous learning experiences of students in the East Asian context, stating that firstly, students in East Asia will have high levels of reactive autonomy. Secondly, when students are grouped together for learning tasks or projects, they will develop both reactive and proactive autonomy. Thirdly, that students will not have experienced contexts which require individual autonomy, and finally that the language classroom can be a good context in which to develop the capacity of autonomy (Littlewood, 1999, p88). Littlewood does however, accept that these are generalisations (Littlewood, 1999), and this research takes the view that broad-strokes characterisations of learners across multiple nations, cultures and contexts (as of that in 'East Asia') is of little practical use and is not empirically verifiable. Rather, research, and investigations of learner characteristics should focus on the specific context in which it takes place.

Despite this view, a number of commonly held views about East Asian students continue to be put forward in research material, while some authors have actively contested these conceptions of Asian students, labelling them 'cultural stereotypes' (Le Ha, 2004), hence, Vietnamese university learners have attracted more attention as research subjects in recent years, and the 'gap' between English language teaching at university in Vietnam, and the requirements of English in working contexts has recently been explored (Vo, Wyatt and McCullagh, 2016). One explanation for this 'gap' in the Vietnamese context is Confucian values, which are seen as dictating 'traditional beliefs of relational hierarchy in classrooms (Ho & Crookal 1995 cited in Nguyen, Tangen and Beutel, 2013, p211), and Vietnamese EAP learners have been described as 'passive, obedient, and reproductive' (Tuyet, 2013, p75), and familiar with 'rote learning' (Dang, 2010, p3). Similarly Pham (2000, cited in Trinh, 2005, p18), states that 'it is generally believed that it is almost impossible to change the perceived students' passiveness in learning, while language classrooms in Vietnam remain teacher-centered, focusing on grammatical items.' Interestingly, these attitudes recur in other studies in separate geographical regions.

There seems to be a divide in the literature, and in the current research regarding learner autonomy in general, and more specifically, learner autonomy in Vietnam. For this reason, it is an opportune time to comprehensively analyse, investigate, and review the current research, in order to not only draw conclusions about any consensus in the field, but to shape and guide future avenues of research in learner autonomy. Through a more thorough discussion of the important factors relating to the concept of learner autonomy, we aim to attempt to resolve some of the differences currently present in the literature.

### **Examining the Literature on Learner Autonomy for EAP Students in Vietnam**

In reviewing the literature, several themes emerge. Firstly, there is strong evidence that Vietnamese students are able to engage in autonomous learning practices, yet are limited by prescriptive exams, traditional learning methods, and lack of guided support for autonomous learning. On the other hand,

there is also evidence that there is no widely agreed upon definition for learner autonomy in the research area, and this is a significant limitation which detracts from the conclusions drawn.

Of the number of studies investigating learner autonomy in Vietnam, one of the most influential is that of Littlewood (2000). This large-scale study investigated common preconceptions surrounding learner autonomy and learner attitudes, drawing comparisons between East Asian and European contexts. Littlewood's (2000) research encompassed 2,307 students across eight East Asian countries including Vietnam, and a comparison sample of 349 students across three European nations (2000, p39). Although Vietnam was not the sole focus of this research, the findings were strongly in opposition to the traditional view of the Vietnamese learner as 'passive, obedient and reproductive' (Dang, 2010, p3). Littlewood (2000, p33) found that the Vietnamese students surveyed showed the strongest disagreement in the sample with the statement 'the teacher's authority should not be questioned'. This stands in contrast to the traditional conception of education in Confucian heritage culture learning environments.

In addition, a second survey item, that of whether knowledge should be passed down from the teacher, revealed that Vietnamese students showed higher disagreement with this statement than any other nation, including European nations such as Finland, Spain, and Germany (Littlewood, 2000, p33). This contrasts strongly with common viewpoints of teachers' roles in the Vietnamese language classroom, such as Dang (2010, p3) who states that 'teachers are used to dictating the class', and Tuyet (2013, p3) who argues that students have a habit of 'learning by heart the knowledge the teacher provides in class'. Although the results of this research are interesting in that they provide evidence of an alternative view of student autonomy in the Vietnamese classroom, no similar replications of this study have been conducted in the eighteen years since its publication. The study also does not reveal whether the survey findings accurately mirror students' behaviors in class, or merely whether students are in favor of autonomous learning in principle, but as of yet do not, or feel unable to put such principles into practice. Littlewood concludes that on the whole 'Asian students want to explore knowledge themselves and find their own answers' (2000, p34) and this is the salient point of this research paper, although it is necessary to identify that significant changes in the Vietnamese education system have occurred during the two decades since this research was published, thereby presenting an opportunity for a follow-up study in this area.

Van Thai (2015)'s research may help to explain the disjunct between students' preferences and the learning options available to them. The author explored the role of the impact of assessment on learner autonomy in the teaching of English and American literature, through a survey of 241 English-major students at Vietnam National University, Ho Chi Minh City. Van Thai (2015, p146) states that 'until the early 2000s, most Vietnamese tertiary level students were not ready for learner autonomy'. Van Thai's (2015, p150) findings suggested that assessment methods which required rote learning, unsurprisingly perhaps, had a strong negative influence on students' autonomous learning practices. The findings also suggest that it is perhaps not Vietnamese students themselves who lack autonomy, but that other external factors may limit their ability to demonstrate it in a classroom setting, which could be related to traditional cultural learning values. This explanation could help bridge the gap shown in the findings of Littlewood (2000); that between students' perceptions of their own learner autonomy, and the limited demonstration of these practices in the classroom.

Further confirmation that Vietnamese EAP students are keen and able to learn autonomously comes from Nguyen (2008), who surveyed 177 English major students at a single unnamed university in Vietnam. This study, aside from investigating learners' beliefs and practices in self-regulation and self-initiation, aimed to correlate English proficiency measures with measures of autonomy, through the analysis of skills based on end-of-semester scoring in formalised assessments (Nguyen, 2008, p74). This study is one of the few which specifically details an underlying definition of learner autonomy in the project, defining this as self-initiation and self-regulation by the student. These findings contribute to confirming the generally held view that Vietnamese EAP students in tertiary education are keen to embrace autonomous learning practices (Littlewood 2000; Van 2011; Van Thai 2015). The research demonstrated that Vietnamese learners of English who participated in the study

were motivated in their learning practices and had the ability to regulate their own learning processes and found significant positive correlations between measures of learner autonomy and English proficiency. One key point of interest for further research may be Nguyen's (2008, p74) assertion that learning strategies demonstrated by participants are suggestive not of passiveness, but of covert, or unobservable learning behaviors rather than overt learning behaviors. Further research should aim to investigate whether covert learning practices, which are autonomous in nature, are being misinterpreted in the classroom for quietness, passivity, and low motivation.

Van (2011) explored the perceptions of responsibilities and abilities relating to learner autonomy practices among non-English major students from 24 different universities across Vietnam studying in both undergraduate and graduate education programs (n=641). The research explored learners' perceptions of their responsibilities for self-study and any other self-motivated learning activities which students engaged in both inside and outside the classroom (Van, 2011, p44). Van's findings suggested that there is a divide between undergraduate and graduate study modes in the Vietnamese higher education context, and that undergraduates demonstrated a higher sense of belief in the proposition that they should take responsibility for their own study, and a lower belief in this among graduate students (Van, 2011, p46). In addition, the results of this research suggested that students of both undergraduate and graduate programmes across Vietnam perceive themselves as able to carry out autonomous and cooperative learning activities, and wished to play an active role in deciding course aims, content, and assessment (Van, 2011, p46). A specific strength of this study is the diversity of respondents, both in terms of geographic spread and level of study which may be indicative of a more representative set of results. Despite the students' self-perception of their own ability and willingness to incorporate autonomous learning practices, the majority of respondents seemed unwilling to 'take charge' of actually implementing these practices themselves without support. This suggests once again that it is factors external to Vietnamese students' control that restricts their autonomous learning practices, and for that reason, these must be 'built-in' to lesson and curricula design if these practices are to be more easily demonstrated.

Humphreys and Wyatt (2013) investigated an intervention designed to increase learner autonomy through an action-research methodology at a private university in Ho Chi Minh City, Vietnam. They combined Likert-scale questionnaires with focus group meetings and discussions, including eighty-three Vietnamese EAP learners from a range of five different levels of language proficiency, and found that students generally had 'low levels of awareness and involvement in autonomy in practice' (Humphreys and Wyatt, 2013, p57). Specifically, the authors state that most of the participants did not fully understand the concept, and in excess of 80% felt unconfident in planning their own learning, with a further 75% feeling unconfident in identifying areas of strength and weakness within their own English language ability (Humphreys and Wyatt, 2013, p57). Furthermore, of the students surveyed, the majority did not meet the expected hours of self-study, at 20 hours per week (Humphreys and Wyatt, 2013, p57), although the reasons for this were not clearly expressed. Interestingly, the researchers also found that students felt that teachers should be more proactive in supporting autonomous learning practices, assisting with goal-setting and suggesting ideas for resources and self-study, suggesting a form of 'guided autonomy' (Humphreys and Wyatt, 2013, p58). This concept of teacher-supported implementation of autonomous learning practices is highlighted as a potential method for increasing autonomy in several existing studies (Dang 2010; Nga 2012; Ngoc and Ishawita, 2012).

The authors claim that learners entering university after completing secondary school in Vietnam may have acquired 'rigidly held personal constructs as to what language learning involves' (Humphreys and Wyatt, 2013, p53), and that, in contrast to the work of Littlewood (2000), Van Thai (2015), Nguyen (2008), and Van (2011), that these may centre on dependence on the teacher or instructor (Humphreys and Wyatt, 2013, p53). The authors postulate that as a result, making the transition to tertiary education, which may require more autonomous learning practices, can be difficult (Humphreys and Wyatt, 2013, p53).

This study also identified the usefulness of an intervention aimed at promoting autonomous learning practice, in this case an independent learning journal or ILJ. Teachers questioned on the use of the ILJ responded that students appeared to show a high level of autonomous learning (Humphreys and Wyatt, 2013, p60). That said, this study was short in duration at approximately five weeks, and was limited in the lack of student input during the evaluation process. The researchers, drawing on these limitations, suggest that future research in the field follow a longitudinal structure in analysing the efficacy of autonomy-promoting interventions for students. In other geographical contexts, authors such as Aliweh (2011) have studied the use of electronic portfolio interventions in supporting students' writing competence and autonomy. While no significant effects on learner autonomy were found, Aliweh puts forward a strong case for further study of electronic portfolios in increasing learner autonomy (2011, p20), and this may be a potential method of extending the research of Humphreys and Wyatt (2013). Similarly, other authors have examined the use of interventions for improving learner autonomy online, for example, who in an Asian further education learning context designed a learning unit employing online discussion forums, seeing them as 'an opportunity for teachers to raise thought-provoking questions while giving ownership to students in order to foster learner autonomy' (Eckhaus, 2018, p280). This reconfirms the potential of this area of research in future studies of autonomy in the East Asian context.

Nguyen and Gu (2013) investigated the effects of strategy-based instruction, or SBI, on the promotion of Learner Autonomy, which the authors conceptualised as with Nguyen (2008), as learner self-initiation and learner self-regulation. The authors conducted an intervention study with an experimental group of 37 students and two control groups comprising 54 students, all of whom were third year English-major students at a single university in Vietnam (Nguyen and Gu, 2013, p9). Those in the experimental group received an eight-week metacognition training package, which was incorporated into the students' academic writing program. The results of the study demonstrated that participants in the experimental group were able to improve their ability to plan, monitor, and evaluate writing tasks in comparison to the control group. This suggests, in contrast to the views of the participants in other research (Ngoc and Ishawita, 2012) that learner autonomy can be improved among students through the use of learner training (Nguyen and Gu, 2013, p9). Other smaller scale projects have investigated the use of peer-teaching and student selection of learning content (Nga, 2012), and project-based learning (Nguyen, 2017). Nguyen (2017), through the use of a questionnaire analysed with a t-test, found that students' sense of autonomy increased after two semesters of additional autonomous project work was integrated into their curriculum.

Several studies in the Vietnamese context have aimed not just to evaluate students' beliefs, attitudes, and actions towards autonomous learning practices, but have also incorporated teachers' views. Ngoc and Ishawita (2012) conducted a comparative study exploring the attitudes held towards learner autonomy by both teachers and students; collecting data through a questionnaire delivered to 37 Vietnamese teachers of English and 88 pre-intermediate learners of English. One of the authors' key findings is that much like the ideas of guided autonomy (Humphreys and Wyatt, 2013, p58) teachers in the study felt that it was more important to facilitate learner autonomy and train learners to take responsibility for their own learning, rather than leave it up to the learners entirely. In contrast to the common idea that Vietnamese teachers are expected by students to be the expert 'knowers' of the language (Ngoc and Ishawita, 2012, p38), the majority of learners who took part in the research offered similar views to the teachers, with responses stating that an important role for the teacher was to help assist learners in developing autonomy and responsibility (Ngoc and Ishawita, 2012, p38). The authors highlight that the results of the study are somewhat paradoxical. From one perspective, learners' responses seemed to highly advocate learner autonomy practices, while simultaneously implying that in order to be able to take charge of their learning, the students first required input from the teacher, including orientation, guidance, and instruction, in order to achieve the goal of autonomous learning practices (Ngoc and Ishawita, 2012, p38). This result is similar that found in the studies explored above, in that Vietnamese learners are keen to engage in autonomous learning practices but prefer to receive guidance and orientation from teachers on how to do this effectively. This suggests that it is perhaps a matter of confidence which restricts autonomous learning as Ngoc

and Ishawita's (2012) research demonstrates that 'learner participants' were open to what they deem 'Western ideologies' of learner autonomy and learner-centredness.

Nga (2012) investigated Vietnamese teachers' understanding of the concept of learner autonomy, and how these beliefs were applied to teaching practice. Through the collection of both survey data and a range of qualitative methods (interviews, stimulated recall, interviews, and video observations), the researcher found that as a general trend, teachers lacked understanding of the concept of learner autonomy, which matches the findings from other teacher-centred studies (Nguyen, Tangen, and Beutel, 2014). As a result, the researcher concluded that the teachers displayed little evidence of autonomous learning practices in the classroom (Nga, 2012, p11).

Nga's (2012) research also identified a key concern in researching learner autonomy in the Vietnamese context, namely, that there are issues in translating the concept of learner autonomy into Vietnamese, as the standard translation is 'too general, as it doesn't identify the dimensions of learner autonomy that are being discussed' (Nga, 2012, p149), which leads to confusion. In one case, research participants in Nga's study (2012, p153) saw self-study as synonymous with autonomy. Issues with confusion are highlighted by several researchers (Benson, 1997; Nguyen Tangen and Beutel, 2014), and this suggests that developing a single, shared definition for research projects should be a future avenue of study. Finally, Nga expresses the view of other researchers (Dang, 2010; Nguyen, 2010; Oliver, 2004; Phan, 2006), that teachers in Vietnam are seen by students as 'controllers' and 'knowledge providers', and this, among other factors, means that learners do not tend to take responsibility for their own learning (Nga, 2012, p153) as they believe it is the role of the teacher to guide their study. This, may be seen as an explanation of the results showing an existence of teacher-supported or teacher-guided autonomy practices, in the studies of Humphreys and Wyatt (2013) and Ngoc and Ishawita (2012); students will not engage in autonomous learning practices until their teacher initiates this. In summary, Nga's (2012) research suggests that learner autonomy is not well understood among Vietnamese teachers, and possible explanations include the complexity of the term itself, and the traditional relationship between students and teachers, as well as the learning context which limits teachers' opportunities for innovation in the classroom (Nga, 2012, p178). The limitations of this research include the limited scope of the research and that it cannot be said to be consistent with all universities in Vietnam (Nga, 2012, p178).

One of the few studies to focus solely on the point of view of the teacher, rather than students or both students and teachers, comes from Nguyen, Tangen and Beutel (2014) They conducted structured interviews with four university lecturers of unspecified subjects at a university in Hanoi, Vietnam, with the intention of exploring the understanding of learner autonomy in Vietnamese Higher Education. The authors argue that much like in other countries such as China, Hong Kong, Taiwan, Japan, Malaysia and Korea, the influence of Confucianism, contributes to a particular image teachers hold of their students as a 'passive, reproductive, and surface learner', and that this leads to 'traditional beliefs of relational hierarchy in classrooms' (Ho & Crookall cited in Nguyen, Tangen and Beutel, 2014, p211). This could explain the unwillingness shown by Vietnamese students to engage in autonomous learning practices without guidance from their teacher, as the cultural expectations of the learning environment held by both teacher and student may restrict autonomous learning practices from being demonstrated independently by the student. The research conducted here focuses more on the lecturers' perceptions of the learner, rather than the beliefs of the learner themselves and therefore enables an alternative perspective of the concept of learner autonomy to be gained.

Nguyen, Tangen, and Beutel's (2014) study is also affected by the complexities of translation equivalence in the concept of learner autonomy. The authors state that in the Vietnamese context, learner autonomy is often translated into a range of different definitions, thus creating confusion and uncertainty. Ultimately, the authors suggest that a clearer definition of learner autonomy be adopted, if not in a global context, then at least for the context of Vietnam, as failure to do so leads to cultural impact affecting the interpretation of the concept of learner autonomy (Nguyen, Tangen, and Beutel, 2014, p205).

The lack of clarity regarding the concept of learner autonomy is therefore a pivotal point of this



research, as the authors state that one reason for lecturers not fostering autonomous approaches to learning in class was the result of a lack of understanding of the concept (Nguyen, Tangen, and Beutel, 2014, p209). However, the authors claim that this is not the largest factor restricting learner autonomy in Vietnam, and state that from their research, the largest factor hindering this is that of centralised final-semester examinations maintaining the status-quo of traditional teaching practices in the classroom,(Nguyen, Tangen, and Beutel, 2014, p209). This is coherent with the author's assertion that bureaucratic constraints render lecturers and students unable to make changes to the learning environment (which could incorporate autonomous learning practices), even if they wished to (Phan, 2006, cited in Nguyen, Tangen and Beutel, 2014, p205). This research highlights the previously discussed issues which are important to consider in further autonomy studies in Vietnam, namely that of clearly defining the understanding of the concept itself the translation of this into Vietnamese. . That said, this research is limited to a small sample size of four lecturers, and thus cannot be said to be representative of attitudes held throughout Vietnamese HE. As an example, one participant was said to believe that learner autonomy was innate in some students and could not be taught (Nguyen, Tangen and Beutel, 2014, p212), yet it seems unlikely that this opinion is shared throughout the HE context. For this reason, care must be exercised when generalising about views on learner autonomy from such a small cohort of participants.

## **Conclusion**

By reviewing the work carried out in the field of learner autonomy in higher education EAP in Vietnam, this review has identified several areas of consensus in the literature. A common issue identified by current researchers in the field (Nga, 2012; Nguyen, Tangen, and Beutel, 2012) is that a single definition of learner autonomy is not shared between research projects, and that this can lead to confusion, especially when researching student or teacher beliefs and practices. This issue is further compounded when the term 'learner autonomy' is required to be translated into Vietnamese, as the literal translation does not adequately cover the complex set of practices and behaviours that the term implies in English. For this reason, further research is needed to create a shared, adequate and satisfactory translation which refers to a generally agreed on definition of learner autonomy. This will lead to greater consistency of results among researchers.

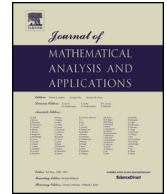
The second point of agreement is that despite traditional conceptions of the East Asian learner as being passive learners, multiple studies have demonstrated that on the contrary, Vietnamese learners are keen to adopt autonomous learning practices (Littlewood, 2000; Van 2011; Van Thai 2015). Subsequently, we believe it is now clear that Vietnamese students are not un-autonomous by nature (Trinh, 2005, p25), but are restricted in their ability to engage in autonomous learning practices by the educational culture prevalent in Vietnam (Nguyen, Tangen, and Beutel, 2014) . Several authors have achieved positive results through the use of autonomy-stimulating practices (Humphreys and Littlewood, 2013; Nga 2012; Trinh 2005), and this is an important area for further exploration. Multiple authors advocate for the implementation of autonomous learning techniques by teachers, to offer a 'guided autonomy' practice (Humphreys and Wyatt 2013; Ngoc and Ishawita, 2012) which may further stimulate learner autonomy amongst Vietnamese EAP learners.

Currently, most literature revolves around student and teacher self-assessed surveys, while there are comparatively few studies actively involving change-making practices and implementing autonomy-promoting tools for learners, even though preliminary studies have demonstrated the effectiveness of such tools (Humphreys and Wyatt, 2013). Other studies of this nature should be encouraged, especially those which aim to explore the effectiveness of autonomy-promoting methods and learning resources, or the 'profitability' of autonomy-enhancing interventions (Trinh, 2005, p179) in order to understand the differences between what Vietnamese students think about learner autonomy, compared to how they actually put this into practice. Regardless of the specific methodology used, we agree with the statements made by Dang (2010) in there being a general lack of research examining students' perceptions of learner autonomy within Vietnam and believe that further research in this area, evaluating attitudes and behaviours in regards to autonomous learning practices, may reveal deeper insights into this topic.

## References

- Aliweh, A. M. (2011). The effect of electronic portfolios on promoting Egyptian EFL college students' writing competence and autonomy. *Asian EFL Journal*, 13, 90-132.
- Benson, P., & Lor, W. (1998). *Making sense of autonomous learning. Conceptions of learning and readiness for autonomy* (English Centre Monograph, No. 2). Hong Kong: English Centre, The University of Hong Kong.
- Benson, P. (2001). Teaching and researching autonomy in language learning. *New York*.
- Benson, P., & Voller, P. (1997). Introduction: Autonomy and independence in Language Learning. In *Autonomy and Independence in Language Learning*. London: Routledge
- Cunningham, J., & Carlton, W. (2003). Collaborative newsletters. In A. Barfield & M. Nix (Eds.), *Autonomy you ask!* (pp. 113–128). Tokyo: Learner Development Special Interest Group of the Japan Association for Language Teaching.
- Dam, L., & Legenhausen, L. (1996). The acquisition of vocabulary in an autonomous learning environment—the first months of beginning English. In R. Pemberton, E. S. L. Li, W. W. F. Or, & H. D. Pierson (Eds.), *Taking control: Autonomy in language learning* (pp. 265–280). Hong Kong: Hong Kong University Press.
- Dang, T. T. (2010). Learner autonomy in EFL studies in Vietnam: A discussion from sociocultural perspective. *English Language Teaching*, 3, 3-7.
- Eckhaus, R. (2018) Supporting the adoption of business case studies in ESP instruction through technology. *Asian ESP Journal*, 14, 280-281.
- Ho, J., & Crookall, D. (1995). Breaking with the Chinese cultural traditions: Learner autonomy in English language teaching. *System*, 23, 235–243.
- Holec, H. (1981). *Autonomy in foreign language learning*. Oxford: Pergamon.
- Holec, H. (1987). The learner as manager: Managing learning or managing to learn. In A. Wenden & J. Rubin (Eds.), *Learner strategies in language learning* (pp. 145–157). Englewood Cliffs, New Jersey: Prentice-Hall Inc.
- Humphreys, G., & Wyatt, M. (2014). Helping Vietnamese university learners to become more autonomous. *ELT Journal*, 68, 52-63.
- Lee, W. (1996). The role of materials in the development of autonomous learning. In R. Pemberton, E. S. L. Li, W. W. F. Or, & H. D. Pierson (Eds.), *Taking control: Autonomy in language learning* (pp. 265–280). Hong Kong: Hong Kong University Press
- Le Ha, P. (2004) University classrooms in Vietnam: contesting the stereotypes. *ELT Journal*, 58, 50-57
- Littlewood, W. (1999). Defining and Development Autonomy in East Asian Contexts. *Applied Linguistics*, 20, 71–94.
- Littlewood, W. (2001). Students' attitudes to classroom English learning: a cross-cultural study. *Language Teaching Research*, 5, 3–28.
- Le , Quynh X . ( 2013 ) Fostering learner autonomy in language learning in tertiary education : an intervention study of university students in Hochiminh City , Vietnam . PhD thesis, University of Nottingham.
- Le Vo, T. H., Wyatt, M., & McCullagh, M. (2016). Exploring the gap between Vietnamese workplace communication in English and English language teaching at a university. *The Asian ESP Journal*, 8-38.
- Mizuki, P. (2003). Metacognitive strategies, reflection, and autonomy in the classroom. In A. Barfield & M. Nix (Eds.), *Autonomy you ask!* (pp. 143–156). Tokyo: Learner Development Special Interest Group of the Japan Association for Language Teaching.
- Ngoc, K. M., & Iwashita, N. (2012). A comparison of learners' and teachers' attitudes toward communicative language teaching at two universities in Vietnam. *University of Sydney Papers in TESOL*, 7, 25–49.
- Nguyen, L. T. C., & Gu, Y. (2013). Strategy-based instruction: A learner-focused approach to developing learner autonomy. *Language Teaching Research*, 17, 9-30.

- Nguyen, V. L. (2017). Promoting learner autonomy: Lesson from using project work as a supplement in English skills courses. *Can Tho University Journal of Science*, 07, 118.
- Nguyen, N. T. (2012). "Let students take control!" Fostering learner autonomy in language learning: An experiment. *International Conference on Education and Management Innovation*, 30, 318–320.
- Nguyen, N. T. (2014). *Learner Autonomy in Language Learning: Teachers' Beliefs*. Queensland University of Technology.
- Nguyen, N. T., Tangen, D., & Beutel, D. (2014). Exploring the concept of learner autonomy in cross-cultural research. *Studies in Self-Access Learning Journal*, 5, 202-216.
- Palfreyman, D., & Smith, R. C. (Eds.). (2003). *Learner autonomy across cultures*. New York: Palgrave Macmillan.
- Phan, T. T. T. (2012). Teacher Autonomy and Learner Autonomy: An East Asian's Perspective. *International Journal of Social Science and Humanity*, 2, 468–471.
- Sert, N. (2006). EFL student teachers' learning autonomy. *The Asian EFL Journal*, 8, 180-201.
- Stephenson, J., & Kohyama, M. (2003). Tuning freshmen into autonomy through student-directed language learning projects. In A. Barfield & M. Nix (Eds.), *Autonomy you ask!* (pp. 101–112). Tokyo: Learner Development Special Interest Group of the Japan Association for Language Teaching.
- Tagaki, A. (2003). Learner autonomy and motivation in a cooperative learning class. In A. Barfield & M. Nix (Eds.), *Autonomy you ask!* (pp. 129–142). Tokyo: Learner Development Special Interest Group of the Japan Association for Language Teaching.
- Thai, V. V (2015). Impacts of assessment on learner autonomy in literature study: a case study in Vietnam (pp. 146–151). Singapore: Proceedings of the 23rd The IIER International Conference.
- Young, R. (1986). *Personal autonomy: Beyond negative and positive liberty*. London: CroomHelm.



# Periodic $n$ dimensional first order coupled systems and periodic schizophrenia phenomena



Feliz Minhós <sup>a,b</sup>, João Fialho <sup>b,c</sup>, Robert de Sousa <sup>b,d,\*</sup>

<sup>a</sup> *Departamento de Matemática, Escola de Ciências e Tecnologia, Portugal*

<sup>b</sup> *Centro de Investigação em Matemática e Aplicações (CIMA), Instituto de Investigação e Formação Avançada, Universidade de Évora, Rua Romão Ramalho, 59, 7000-671 Évora, Portugal*

<sup>c</sup> *British University of Vietnam, Hanoi, Viet Nam*

<sup>d</sup> *Faculdade de Ciências e Tecnologia, Núcleo de Matemática e Aplicações, Universidade de Cabo Verde, Campus de Palmarejo, 279 Praia, Cape Verde*

## ARTICLE INFO

### Article history:

Received 13 April 2020

Available online 10 August 2020

Submitted by J. Shi

### Keywords:

Coupled nonlinear systems

Periodic problems

Coupled lower and upper solutions

Thyroid-pituitary homeostatic mechanism

Mathematical modeling

Periodic catatonia

## ABSTRACT

This paper introduces some existence and location results for periodic solutions of first-order coupled nonlinear systems of  $n$  ordinary differential equations. The arguments used are based on the Arzela-Ascoli theorem and Schauder's fixed point theorem, combined with the upper and lower solution technique. To illustrate the applicability of these problems, an application to a mathematical model of the thyroid-pituitary interaction and their homeostatic mechanism is included, for specific cases of periodic events, such as relapsing catatonia.

© 2020 Elsevier Inc. All rights reserved.

## 1. Introduction

This paper is concerned with the study of a fully nonlinear coupled system of  $n$  differential equations

$$u'_i(t) = f_i(t, u_1(t), \dots, u_n(t)), \tag{1}$$

with  $i = 1, 2, \dots, n$ ,  $t \in [a, b]$  and  $f_i : [a, b] \times \mathbb{R}^n \rightarrow \mathbb{R}$  are  $L^1$ -Carathéodory functions, subject to the nonlinear functional boundary conditions

$$u_i(a) = u_i(b), i = 1, 2, \dots, n. \tag{2}$$

Coupled or uncoupled systems of first order differential equations can model various phenomena, which makes the motivation for its study significant. Among the applications we can highlight some as in ecology

\* Corresponding author.

E-mail address: [robert.sousa@docente.unicv.edu.cv](mailto:robert.sousa@docente.unicv.edu.cv) (R. de Sousa).

[29], neural bursting [19], several epidemic models [6,8,17,18,20], energy management [27], models of the radioactive decay series, predator-prey model, electrical network [30], among others.

Throughout the years many authors have explored the existence of solution for first-order systems of differential equations, combined with different types of boundary conditions. One can refer to [1,2,4,25,29], just to name a few.

In terms of literature involving periodic first-order differential equations, several approaches have been proposed. For example: in [21], Kong addresses criteria for the existence of positive  $T$ -periodic solutions of the first order functional differential equation system, as well as the study of solutions to the eigenvalue problem associated with the same problem. In this context, the author, essentially used the fixed point index theory and the smallest positive values of characteristics of some linear operators related to the systems; in [22], Lakshmikantham and Leela study the existence and multiplicity of periodic solutions of first-order nonlinear differential equations, combining the method of upper and lower solutions, the Lyapunov-Schmidt method and the monotone iterative technique; in [23], Li et al., using Schaeffer's theorem, prove new existence theorems for a nonlinear periodic boundary value problem of first-order differential equations with impulses; in [26], Walther investigates the existence of a periodic solution for a differential equation with state-dependent delay employing the ejective fixed point principle on a compact convex set of Lipschitz continuous functions; in [15], the authors consider the existence of  $T$ -periodic and multiple  $T$ -periodic solutions of some first order functional differential equations by assuming the existence of a pair of lower and upper solutions combined with Corollary 2.2.

On the other hand, we highlight some works about first-order coupled systems:

In [3], Asif et al. study the nonlinear coupled system

$$\begin{aligned}u'(t) &= f(t, v(t)), \quad t \in [0, 1] \\v'(t) &= g(t, u(t)), \quad t \in [0, 1],\end{aligned}$$

subject to the nonlinear boundary conditions

$$h(u(0), v(0), u(1), v(1)) = (0, 0),$$

where the nonlinear functions  $f, g : [0, 1] \times \mathbb{R} \rightarrow \mathbb{R}$  and  $h : \mathbb{R}^4 \rightarrow \mathbb{R}^2$  are continuous. The authors investigated the existence of at least one solution applying coupled lower and upper solution approach.

In [16], Gupta approaches the existence of periodic solutions for the coupled system of ordinary differential equations

$$\begin{aligned}-x' + f(t, x, y) &= p(t), \quad t \in [0, T] \\-y' + g(t, x, y) &= q(t), \quad t \in [0, T] \\x(0) = x(T); \quad y(0) &= y(T),\end{aligned}$$

with  $f, g : [0, T] \times \mathbb{R}^2 \rightarrow \mathbb{R}$  and  $p, q : [0, T] \rightarrow \mathbb{R}$  given continuous functions such that  $f(0, x, y) = f(T, x, y)$ ,  $g(0, x, y) = g(T, x, y) \forall x, y \in \mathbb{R}$ ,  $p(0) = p(T)$ ,  $q(0) = q(T)$  and  $\int_0^T p(t)dt = \int_0^T q(t)dt = 0$ . Existence of a solution is obtained via the use of Liapunov-Schmidt method, Leray-Schauder degree theory and a sharpening of the methods of sum of ranges of operators.

Recently, in [10], Fialho and Minhós consider a fully nonlinear coupled system of three equations

$$u'_i(t) = f_i(t, u_1(t), u_2(t), u_3(t)) \quad t \in [a, b], \quad i = 1, 2, 3,$$

where  $f_i : [a, b] \times \mathbb{R}^3 \rightarrow \mathbb{R}$  and  $i = 1, 2, 3$  are  $L^1$ -Carathéodory functions, subject to two types of boundary conditions: the nonlinear functional case

$$\begin{aligned} u_1(a) &= L_1(u_1, u_2, u_3, u_1(b), u_2(b), u_3(b), u_2(a), u_3(a)) \quad t \in [a, b] \\ u_2(a) &= L_2(u_1, u_2, u_3, u_1(b), u_2(b), u_3(b), u_1(a), u_3(a)) \quad t \in [a, b] \\ u_3(a) &= L_3(u_1, u_2, u_3, u_1(b), u_2(b), u_3(b), u_2(a), u_2(a)) \quad t \in [a, b], \end{aligned}$$

with  $L_i : (C[a, b])^3 \times \mathbb{R}^5 \rightarrow \mathbb{R}$ ,  $i = 1, 2, 3$ , are continuous functions verifying some properties that do not allow the periodic frame, which is considered too, but with the periodic boundary conditions

$$u_1(a) = u_1(b), \quad u_2(a) = u_2(b), \quad u_3(a) = u_3(b).$$

The technique used is based on the Arzèla-Ascoli theorem, Schauder’s fixed point theorem and the upper and lower solutions method, along with some adequate local monotone assumptions on the nonlinearities.

Motivated by the works above, we consider the study of existence and localization result of problem (1)-(2). In this paper, we emphasize the fact that the nonlinearities  $f_i$  specified in (1) generalize most of the ones presented in the above mentioned papers. The method applied relies on the same type of topological tools, but extends the range of applicability, as it is shown in the last section. Moreover, it obtained an existence and localization result, giving estimations on the unknown functions. These methods are well documented and can be seen, for instance, in [5,7,11–14]. In this specific case, the nonlinearities fulfill some monotone conditions for well ordered lower and upper solutions. However the monotone properties may change if lower and upper solution definition is adequate modified. To single out this localization feature and the ability to interconnect the monotone conditions with the definition of upper and lower solution, an application of (1)-(2) to a mathematical model describing the thyroid-pituitary homeostatic mechanism, as it is shown in [9] and later developed in [24].

The outline of the present paper is as follows: Section 2 contains definitions and assumptions of this paper. In Section 3, we present an existence and localization result. Lastly, an application to a real phenomenon is shown, a model to study the thyroid-pituitary homeostatic mechanism.

## 2. Definitions and assumptions

Along this work we consider the space of continuous functions in  $[a, b]$ ,  $(C[a, b])$ , equipped with the norm  $\|u\| = \max \{\|u_i\|, i = 1, \dots, n\}$  where  $\|u_i\| = \max_{t \in [a, b]} |u_i(t)|$ .

As it is well known, in this way,  $C[a, b]$  is a Banach space.

The admissible functions for our work will be the  $L^1$ –Carathéodory functions, according the following definition:

**Definition 1.** The functions  $f_i : [a, b] \times \mathbb{R}^n \rightarrow \mathbb{R}$ ,  $i = 1, \dots, n$ , are  $L^1$ –Carathéodory if they verify

- (i) for each  $(y_1, \dots, y_n) \in \mathbb{R}^n$ ,  $t \mapsto f_i(t, y_1, \dots, y_n)$  are measurable on  $[a, b]$ , for  $i = 1, \dots, n$ ;
- (ii) for almost every  $t \in [a, b]$ ,  $(y_1, \dots, y_n) \mapsto f_i(t, y_1, \dots, y_n)$  is continuous in  $\mathbb{R}^n$ , for  $i = 1, \dots, n$ ;
- (iii) for each  $L > 0$ , there exists a positive function  $\psi_{iL} \in L^1[a, b]$ ,  $i = 1, \dots, n$ , such that, for  $\max \{\|y_i\|, i = 1, \dots, n\} < L$ ,

$$|f_i(t, y_1(t), \dots, y_n(t))| \leq \psi_{iL}(t), \quad a.e. \ t \in [a, b], \quad i = 1, \dots, n.$$

The method to be used will rely on the following definitions of lower and upper solutions.

**Definition 2.** Consider the  $C^1$ -functions  $\alpha_i, \beta_i : [a, b] \rightarrow \mathbb{R}$ ,  $i = 1, \dots, n$ . The functions  $(\alpha_1, \dots, \alpha_n)$  are lower solutions of the periodic problem (1), (2) if

$$\alpha'_i(t) \leq f_i(t, \alpha_1(t), \dots, \alpha_n(t)), \quad \text{for } i = 1, \dots, n, \tag{3}$$

and

$$\alpha_i(a) \leq \alpha_i(b), \quad i = 1, \dots, n. \quad (4)$$

The functions  $(\beta_1, \dots, \beta_n)$  are upper solutions of the periodic problem (1)-(2) if the reversed inequalities remain true.

Schauder's fixed point theorem will be an important tool to guarantee the existence of fixed points for our operator. The version considered in this paper is then

**Theorem 3.** ([28]) *Let  $Y$  be a nonempty, closed, bounded and convex subset of a Banach space  $X$ , and suppose that  $P : Y \rightarrow Y$  is a compact operator. Then  $P$  has at least one fixed point in  $Y$ .*

### 3. Existence and localization result

This method allows to obtain an existence and localization result for periodic nontrivial solutions in presence of well ordered lower and upper solutions:

**Theorem 4.** *Let  $(\alpha_1, \dots, \alpha_n)$  and  $(\beta_1, \dots, \beta_n)$  be lower and upper solutions of (1), (2), respectively, such that  $\alpha_i(t) \leq \beta_i(t)$ ,  $\forall t \in [a, b]$  and for  $i = 1, \dots, n$ .*

*Assume that, for  $i = 1, \dots, n$ ,  $f_i$  are  $L^1$ -Carathéodory functions on the set*

$$\{(t, u_i) \in [a, b] \times \mathbb{R}^n : \alpha_i(t) \leq u_i \leq \beta_i(t), i = 1, \dots, n\},$$

*not identically null, with*

$$f_i(t, x_1, \dots, x_n) \text{ nondecreasing on } x_j, \quad (5)$$

*for  $t \in [a, b]$ ,  $\alpha_j(t) \leq x_j \leq \beta_j(t)$ ,  $j \neq i$ ,  $i, j = 1, \dots, n$ .*

*Then problem (1), (2) has, at least, a solution  $u = (u_1, \dots, u_n) \in (C[a, b])^n$  such that*

$$\alpha_i(t) \leq u_i(t) \leq \beta_i(t), \quad i = 1, \dots, n, \text{ for all } t \in [a, b].$$

**Proof.** For  $i = 1, \dots, n$ , define the truncature functions  $\delta_i$  given by

$$\delta_i(t, u_i) = \begin{cases} \alpha_i(t) & \text{if } u_i < \alpha_i(t) \\ u_i & \text{if } \alpha_i(t) \leq u_i \leq \beta_i(t) \\ \beta_i(t) & \text{if } u_i > \beta_i(t) \end{cases} \quad (6)$$

and consider the modified problem composed by the truncated and perturbed differential equations

$$u_i'(t) + u_i(t) = f_i(t, \delta_1(t, u_1), \dots, \delta_n(t, u_n)) + \delta_i(t, u_i), \quad (7)$$

for  $i = 0, 1, \dots, n$ , together with the boundary conditions (2).

**Step 1:** As the linear and homogeneous problem associated to (7), (2) has only the null solution, then we can write (7), (2) in the integral form

$$u_i(t) = \int_a^b G_i(t, s) [f_i(s, \delta_1(s, u_1(s)), \dots, \delta_n(s, u_n(s))) + \delta_i(s, u_i(s))] ds, \quad (8)$$

for  $i = 0, 1, \dots, n$ , where  $G_i(t, s)$  are the Green functions corresponding to the problem

$$\begin{aligned} u_i'(t) + u_i(t) &= h_i(t) \\ u_i(a) &= u_i(b), \end{aligned}$$

where

$$h_i(t) = f_i(t, \delta_1(t, u_1), \dots, \delta_n(t, u_n)) + \delta_i(t, u_i),$$

for  $i = 0, 1, \dots, n$ .

Then the operator

$$T : (C[a, b])^n \rightarrow (C[a, b])^n$$

given by

$$T(u_1, \dots, u_n) = (T_1(u_1, \dots, u_n), \dots, T_n(u_1, \dots, u_n)),$$

with  $T_i : (C[a, b])^n \rightarrow C[a, b]$ ,  $i = 1, \dots, n$ , defined as

$$T_i(u_1, \dots, u_n) = \int_a^b G_i(t, s) \begin{bmatrix} f_i(s, \delta_1(s, u_1(s)), \dots, \delta_n(s, u_n(s))) \\ + \delta_i(s, u_i(s)) \end{bmatrix} ds.$$

Consider now a convergent sequence  $(u_{1k}, \dots, u_{nk})$ , convergent to  $(u_1, \dots, u_n)$  in  $(C[a, b])^n$ .

Then, for each  $i = 1, \dots, n$ ,

$$\begin{aligned} & \|T_i(u_{1k}, \dots, u_{nk}) - T_i(u_1, \dots, u_n)\| \\ &= \left\| \int_a^b G_i(t, s) \begin{bmatrix} f_i(s, \delta_1(s, u_{1k}(s)), \dots, \delta_n(s, u_{nk}(s))) \\ + \delta_i(s, u_{ik}(s)) \end{bmatrix} ds \right. \\ & \quad \left. - \int_a^b G_i(t, s) \begin{bmatrix} f_i(s, \delta_1(s, u_1(s)), \dots, \delta_n(s, u_n(s))) \\ + \delta_i(s, u_i(s)) \end{bmatrix} ds \right\| \\ & \leq \int_a^b G_i(t, s) \left\| \begin{bmatrix} f_i(s, \delta_1(s, u_{1k}(s)), \dots, \delta_n(s, u_{nk}(s))) \\ - f_i(s, \delta_1(s, u_1(s)), \dots, \delta_n(s, u_n(s))) \end{bmatrix} \right\| ds \\ & \quad + \int_a^b G_i(t, s) \|\delta_i(s, u_{ik}(s)) - \delta_i(s, u_i(s))\| ds, \end{aligned}$$

which by Lebesgue Dominated convergence theorem and (6), converges to 0 as  $(u_{1k}, \dots, u_{nk})$ , converges  $(u_1, \dots, u_n)$ . Therefore  $T(u_1, \dots, u_n)$  is completely continuous in  $(C[a, b])^n$ .

**Step 2:** To apply Schauder's fixed point theorem, it remains to prove that  $TD \subset D$ , for some  $D \subset (C[a, b])^n$  a bounded, closed and convex subset.

So, consider

$$D = \{(u_1, \dots, u_n) \in (C[a, b])^n : \|(u_1, \dots, u_n)\| \leq k\}$$

where

$$k := \max \left\{ \int_a^b G_i(t, s) \psi_{iL}(s) ds, i = 1, \dots, n \right\} < \infty.$$



Then, for  $i = 1, \dots, n$

$$\begin{aligned} \|T(u_1, \dots, u_n)\| &= \max \{ \|T_1(u_1, \dots, u_n)\|, \dots, \|T_n(u_1, \dots, u_n)\| \} \\ &= \max_{i=1, \dots, n} \left\{ \max_{t \in [a, b]} \int_a^b G_i(t, s) \left[ \begin{array}{l} f_i(s, \delta_1(s, u_1(s)), \dots, \delta_n(s, u_n(s))) \\ + \delta_i(s, u_i(s)) \end{array} \right] ds \right\} \\ &\leq \max \left\{ \int_a^b G_i(t, s) \psi_{iL}(s) ds, i = 1, \dots, n \right\} = k. \end{aligned}$$

Therefore, by Schauder's fixed point theorem,  $T$  has a fixed point, that is, the problem (7), (2) has at least a solution  $u_* := (u_{*1}, \dots, u_{*n}) \in (C[a, b])^n$ .

**Step 3:** To prove that this function  $u_*$  is a solution of the initial problem (1), (2), it will be enough to show that

$$\alpha_i(t) \leq u_{*i}(t) \leq \beta_i(t), i = 1, \dots, n, \text{ for all } t \in [a, b]. \quad (9)$$

So, suppose that there are  $i_0 \in \{1, \dots, n\}$  and  $t_1 \in [a, b]$  such that

$$u_{*i_0}(t_1) < \alpha_{i_0}(t_1).$$

Extend by periodicity the function  $(u_{*i_0} - \alpha_{i_0})(t)$  and define

$$t_0 := \min \{ t \in [t_1 - b + a, t_1] : u_{*i_0}(s) < \alpha_{i_0}(s), \forall s \in [t, t_1] \}.$$

For  $t \in [t_0, t_1]$ , we have

$$\begin{aligned} u'_{*i_0}(t) - \alpha'_{i_0}(t) &\geq f_{i_0}(t, \delta_1(t, u_{*1}), \dots, \alpha_{i_0}(t), \dots, \delta_n(t, u_{*n})) \\ &\quad - u_{*i_0}(t) + \alpha_{i_0}(t) - f_{i_0}(t, \alpha_1(t), \dots, \alpha_n(t)) \\ &\geq \alpha_{i_0}(t) - u_{*i_0}(t) > 0. \end{aligned}$$

Therefore the function  $\alpha_{i_0}(t) - u_{*i_0}(t)$  is increasing on  $[t_0, t_1]$ , and

$$(\alpha_{i_0} - u_{*i_0})(t_1) > (\alpha_{i_0} - u_{*i_0})(t_0),$$

with  $t_0 = t_1 - b + a$ , which is a contradiction with the periodicity of the extension  $(u_{*i_0} - \alpha_{i_0})(t)$ .

So,  $\alpha_i(t) \leq u_{*i}(t)$ , for every  $i = 1, \dots, n$ , and for all  $t \in [a, b]$ .

The arguments for the remaining inequalities are similar, proving that (9) and, consequently, that problem (1), (2) has at least a solution.  $\square$

#### 4. Relation between nonlinearities monotony and lower and upper-solutions definition

The monotonies required by the nonlinearities on Theorem 4 could be an handicap for some applications. In this section we present a method to overcome this issue relating different monotone assumptions with adequate lower and upper solutions definition.

So let us consider the following assumption:

(A) There are  $k, j_0 \in \{1, \dots, n\}$ , with  $k \neq j_0$ , such that

$$f_k(t, x_1, \dots, x_{j_0}, \dots, x_n) \text{ is nonincreasing on } x_{j_0} \tag{10}$$

and nondecreasing on  $x_j$ , for  $j \neq j_0$  and  $j \neq k$ ,

for  $t \in [a, b]$ ,  $\alpha_j(t) \leq x_j \leq \beta_j(t)$ , for  $j = 1, \dots, n$  and  $j \neq j_0, k$ .

For the functions  $f_k$  verifying (10), lower and upper solutions must be modified:

**Definition 5.** Consider the  $C^1$ -functions  $\alpha_i, \beta_i : [a, b] \rightarrow \mathbb{R}$ ,  $i = 1, \dots, n$ . The functions  $(\alpha_1, \dots, \alpha_n)$  are lower solutions of the periodic problem (1), (2) verifying (A), if

$$\begin{cases} \alpha'_i(t) \leq f_i(t, \alpha_1(t), \dots, \alpha_n(t)), \text{ for } i = 1, \dots, n, \\ \alpha'_k(t) \leq f_k(t, \alpha_1(t), \dots, \alpha_{j_0-1}(t), \beta_{j_0}(t), \alpha_{j_0+1}(t), \dots, \alpha_n(t)), \end{cases}$$

for some  $k = 1, \dots, n, k \neq i, j_0$ , and the boundary conditions (4).

The functions  $(\beta_1, \dots, \beta_n)$  are upper solutions of the periodic problem (1)-(2) verifying (A), if the reversed inequalities hold.

The existence and localization theorem will be:

**Theorem 6.** Assume that, for  $i = 1, \dots, n$ ,  $f_i$  are  $L^1$ -Carathéodory functions, not identically null, satisfying condition (A).

Let  $(\alpha_1, \dots, \alpha_n)$  and  $(\beta_1, \dots, \beta_n)$  be lower and upper solutions of (1), (2), respectively, according Definition 5, such that  $\alpha_i(t) \leq \beta_i(t)$ ,  $\forall t \in [a, b]$ .

Then problem (1), (2) has, at least, a solution  $u = (u_1, \dots, u_n) \in (C[a, b])^n$  such that

$$\alpha_i(t) \leq u_i(t) \leq \beta_i(t), i = 1, \dots, n, \text{ for all } t \in [a, b].$$

**Proof.** The proof follows similar methods to the ones suggested in Theorem 4.

Let us see in detail the proof for function  $f_k$  which assumption (A) holds.

Arguing as in Step 3 of previous section, suppose that there is  $t_2 \in [a, b]$  such that

$$u_{*k}(t_2) < \alpha_k(t_2).$$

Extend by periodicity the function  $(u_{*k} - \alpha_k)(t)$ , consider

$$t_0 := \min \{t \in [t_2 - b + a, t_2] : u_{*k}(s) < \alpha_k(s), \forall s \in [t, t_2]\}.$$

Assuming, without loss of generality, that  $k < j_0$ , then, on  $[t_0, t_2]$ , by Definition 5,

$$\begin{aligned} u'_{*k}(t) - \alpha'_k(t) &\geq f_k(t, \delta_1(t, u_{*1}), \dots, \alpha_k(t), \dots, \delta_{j_0}(t, u_{*j_0}), \dots, \delta_n(t, u_{*n})) \\ &\quad - u_{*k}(t) + \alpha_k(t) - f_k(t, \alpha_1(t), \dots, \alpha_{j_0-1}(t), \beta_{j_0}(t), \alpha_{j_0+1}(t), \dots, \alpha_n(t)) \\ &\geq f_k(t, \alpha_1(t), \dots, \alpha_k(t), \dots, \beta_{j_0}(t), \dots, \alpha_n(t)) \\ &\quad - u_{*k}(t) + \alpha_k(t) - f_k(t, \alpha_1(t), \dots, \alpha_{j_0-1}(t), \beta_{j_0}(t), \alpha_{j_0+1}(t), \dots, \alpha_n(t)) \\ &\geq \alpha_k(t) - u_{*k}(t) > 0. \end{aligned}$$

So, function  $\alpha_k(t) - u_{*k}(t)$  is increasing on  $[t_0, t_1]$ , and the contradiction is similar to the proof of Step 3 of Theorem 4.  $\square$

## 5. The thyroid-pituitary homeostatic mechanism and periodic catatonia

In [9], the authors develop a mathematical model of the thyroid-pituitary interaction. This model is based on the fact that the anterior lobe of the Pituitary gland produces the hormone thyrotropin, under the influence of a thyroid releasing factor (TRF), a releasing hormone secreted by the hypothalamus. The thyrotropin induces the thyroid gland to generate an enzyme, that will produce thyroxine, when activated. The thyroxine has a negative feedback effect on the release of thyrotropin by the pituitary gland. More details can be found in [24] where the mathematical model is introduced

$$\begin{aligned} \frac{dP}{dt} &= \begin{cases} c - h u(\theta) - g P, & \theta \leq \frac{c}{h} \\ -g P, & \theta > \frac{c}{h} \end{cases}, \\ \frac{dE}{dt} &= m f(P) - kE, \\ \frac{d\theta}{dt} &= v s(E) - b\theta \end{aligned} \quad (11)$$

where  $P$ ,  $E$  and  $\theta$  represent the concentrations of thyrotropin, activated enzyme and thyroxine respectively,  $g$  and  $k$  represent the loss constants of thyroxine, thyrotropin and activated enzyme, respectively,  $v$ ,  $h$ ,  $m$  are constants expressing the sensitivities of the glands to stimulation or inhibition,  $c$  is the rate of production of thyrotropin in the absence of thyroid inhibition. All constants are assumed to be positive,  $u, f, s$  are real-valued nonnegative continuous functions and  $f, j$  are nondecreasing.

As we are looking for periodic solutions, we consider the boundary conditions, for  $t \in [0, T]$ ,  $T > 0$ ,

$$\begin{aligned} P(0) &= P(T), \\ E(0) &= E(T), \\ \theta(0) &= \theta(T). \end{aligned} \quad (12)$$

This model can now be presented in the form of (1)-(2), where  $u_1 = P$ ,  $u_2 = E$  and  $u_3 = \theta$ .

If the function  $u$  is nonincreasing then Theorem 4 can be applied. On the contrary, if  $u$  is nondecreasing then Theorem 6 must be applied with  $i = 2, 3$ ,  $k = 1$ ,  $j_0 = 3$ , that is,  $j_0 = \theta$ .

Let us see two examples of this problem, for some values of the parameters and distinct methods.

In the first example we consider lower and upper solutions technique to guarantee the existence of a solution and to obtain localization strips for the three functions.

In this case, we take  $T = 1$ ,  $c = 4$ ,  $h = 3$ ,  $g = 1$ ,  $b = 2$ ,  $m = 1$ ,  $k = 2$ ,  $v = 0.1$ ,  $u(w) = w^2$ ,  $f(w) = w^3$ ,  $s(w) = w^2$ .

The system (11), now becomes

$$\begin{aligned} \frac{dP}{dt} &= \begin{cases} 4 - 3\theta^2 - P, & \theta \leq 0.1 \\ -P, & \theta > 0.1 \end{cases}, \\ \frac{dE}{dt} &= P^3 - 2E, \\ \frac{d\theta}{dt} &= 0.1E^2 - 2\theta \end{aligned} \quad (13)$$

the triples

$$(\alpha_1, \alpha_2, \alpha_3) = (P, E, \theta) = (t^2, 0, 0)$$

and

$$(\beta_1, \beta_2, \beta_3) = (P, E, \theta) = (1, 1, 1)$$

are coupled lower and upper solutions of problem (11), (12), respectively, according Definition 5.

The nonlinearities are  $f_1, f_2$  and  $f_3$  are  $L^1$ -Carathéodory functions such that, for  $\max \{\|P\|, \|E\|, \|\theta\|\} < k$ ,

$$|f_1(t, u_1, u_2, u_3)| \leq |4 - 3\theta^2 - P| \leq 8 := \psi_{1k}(t),$$

$$|f_2(t, u_1, u_2, u_3)| \leq |P^3 - 2E| \leq 3 := \psi_{2k}(t),$$

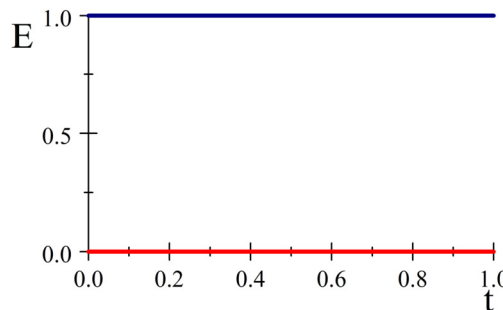
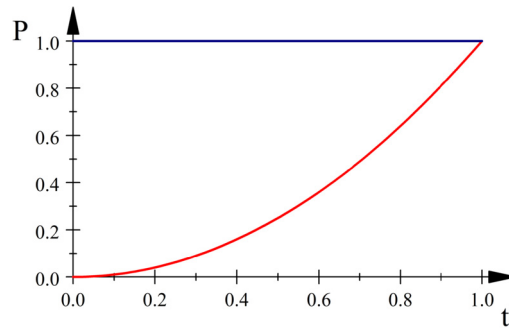
$$|f_3(t, u_1, u_2, u_3)| \leq |0.1E^2 - 2\theta| \leq 2.1 := \psi_{3k}(t),$$

and verify the monotone assumptions, therefore, by Theorem 6, the system (11)-(12) has at least one non trivial periodic positive solution  $(P, E, \theta) \in (C[0, 1])^3$ , that is, there are periodic catatonic schizophrenia phenomena, if the concentration of thyrotropin,  $P$ , holds in

$$t^2 \leq P(t) \leq 1, \forall t \in [0, 1], \tag{14}$$

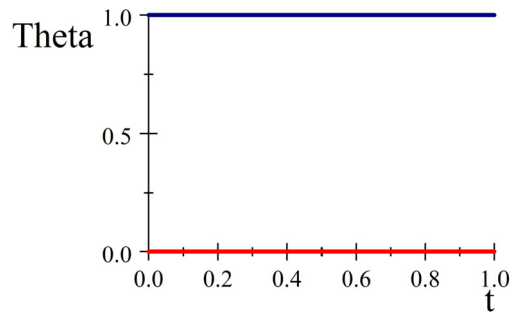
the concentration of thyroid gland enzyme,  $E$ , varies in

$$0 \leq E(t) \leq 1, \forall t \in [0, 1],$$



and the levels of thyroxine ( $\theta$ ) are between

$$0 \leq \theta(t) \leq 1, \forall t \in [0, 1].$$



The authors would like to emphasize that the solution highlighted is in fact a non-trivial periodic solution. For instance, from (14), the only constant solution would be  $P = 1$ . However, by replacing in (13) one would obtain the triple

$$(P, E, \theta) = (1, 1, \sqrt{20})$$

as the constant solution of (13)-(12), which is not covered in the combination of areas for upper and lower solution for  $P, E$  and  $\theta$ .

## 6. Conclusion

In this paper the authors show the existence of solution for a periodic  $n$  dimensional first order coupled systems. The results presented, explore the technique of the upper and lower solutions. As a consequence and to illustrate the sophisticated connections between the definition and the monotone conditions assumed, two separate results are presented, exploring this feature. To highlight the high level of applicability of these results an application to relapsing catatonia is presented and the concentrations of one of the hormones are estimated, using the localization features of this technique.

## References

- [1] R.P. Agarwal, D. O'Reagan, A coupled system of boundary value problems, *Appl. Anal.* 69 (1998) 381–385.
- [2] R.P. Agarwal, J. Chen, Periodic solutions for first order differential systems, *Appl. Math. Lett.* 23 (3) (2010) 337–341.
- [3] N.A. Asif, I. Talib, C. Tunc, Existence of solutions for first-order coupled system with nonlinear coupled boundary conditions, *Bound. Value Probl.* 134 (2015).
- [4] N.A. Asif, I. Talib, C. Tunc, Existence of solutions to second-order nonlinear coupled systems with nonlinear coupled boundary conditions, *Electron. J. Differ. Equ.* 313 (2015), 11 pp.
- [5] N.A. Asif, R.A. Khan, Positive solutions to singular system with four-point coupled boundary conditions, *J. Math. Anal. Appl.* 386 (2012) 848–861.
- [6] T. Bailey, *The Mathematical Theory of Infectious Diseases and Its Applications*, Charles Griffin & Company Ltd, 5a Crenndon Street, High Wycombe, Bucks HP13 6LE, 1975.
- [7] A. Cabada, J. Fialho, F. Minhós, Extremal solutions to fourth order discontinuous functional boundary value problems, *Math. Nachr.* 286 (17–18) (2013) 1744–1751.
- [8] J. Chasnov, *Mathematical Biology, Lecture Notes*, The Hong Kong University of Science and Technology, 2009.
- [9] L. Danziger, G.L. Elmergreen, The thyroid-pituitary homeostatic mechanism, *Bull. Math. Biophys.* 18 (1956) 1–13.
- [10] J. Fialho, F. Minhós, First order coupled systems with functional and periodic boundary conditions: existence results and application to an SIRS model, *Axioms* 8 (1) (2019) 23.
- [11] J. Fialho, F. Minhós, Higher order functional boundary value problems without monotone assumptions, *Bound. Value Probl.* 81 (2013).
- [12] J. Fialho, F. Minhós, Multiplicity and location results for second order functional boundary value problems, *Dyn. Syst. Appl.* 23 (2014) 453–464.
- [13] J. Graef, L. Kong, Feliz Minhós, Higher order boundary value problems with  $\phi$ -Laplacian and functional boundary conditions, *Comput. Math. Appl.* 61 (2011) 236–249.
- [14] J. Graef, L. Kong, F. Minhós, J. Fialho, On the lower and upper solution method for higher order functional boundary value problems, *Appl. Anal. Discrete Math.* 5 (1) (2011) 133–146.
- [15] J. Graef, L. Kong, Periodic solutions of first order functional differential equations, *Appl. Math. Lett.* 24 (2011) 1981–1985.
- [16] C. Gupta, Periodic solutions for coupled first order systems of ordinary differential equations, *Nonlinear Anal.* 3 (2) (1979) 213–227.

- [17] H. Hethcote, The mathematics of infectious diseases, *SIAM Rev.* 42 (4) (2000) 599.
- [18] H. Hethcote, The basic epidemiology models: models, expressions for  $R_0$ , parameter estimation, and applications. Mathematical understanding of infectious disease dynamics, in: Stefan Ma, Yingcun Xia (Eds.), World Scientific, 2007.
- [19] J. Hindmarsh, R. Rose, A model of neural bursting using three coupled first order differential equations, *Proc. R. Soc. Lond. B* 221 (1984) 87–102.
- [20] W. Kermack, A. McKendrick, A contribution to the mathematical theory of epidemics, *Proc. R. Soc. Edinb., Sect. A, Math.* 115 (1927) 700–721.
- [21] L. Kong, Positive periodic solutions for systems of functional differential equations, *Commun. Appl. Anal.* 14 (2010) 137–154.
- [22] V. Lakshmikantham, S. Leela, Existence and monotone method for periodic solutions of first-order differential equations, *J. Math. Anal. Appl.* 91 (1983) 237–243.
- [23] J. Li, J. Nieto, J. Shen, Impulsive periodic boundary value problems of first-order differential equations, *J. Math. Anal. Appl.* 325 (2007) 226–236.
- [24] B. Mukhopadhyay, R. Bhattacharyya, A mathematical model describing the thyroid-pituitary axis with time delays in hormone transportation, *Appl. Math.* 51 (2006) 549–564.
- [25] J.J. Nieto, Periodic boundary value problems for first-order impulsive ordinary differential equations, *Nonlinear Anal.* 51 (2002) 1223–1232.
- [26] H-O. Walther, A periodic solution of a differential equation with state-dependent delay, *J. Differ. Equ.* 244 (2008) 1910–1945.
- [27] M. Zainea, A. Van der Schaft, J. Buisson, Stabilizing control for power converters connected to transmission lines, in: Proceedings of the 2007 American Control Conference, 2007.
- [28] E. Zeidler, *Nonlinear Functional Analysis and Its Applications, I: Fixed-Point Theorems*, Springer, New York, 1986.
- [29] W. Zhang, M. Fan, Periodicity in a generalized ecological competition system governed by impulsive differential equations with delays, *Math. Comput. Model.* 39 (2004) 479–493.
- [30] D. Zill, M. Cullen, *Differential Equations with Boundary-Value Problems*, 7th ed., Brooks Cole, 2008.



---

# CORPORATE GOVERNANCE IN EMERGING ECONOMIES: AN INDIAN INSIGHT

**Dr. Rupa Khanna Malhotra**

Professor, Department of Commerce  
Graphic Era Deemed to be University, Dehradun, India

**Dr. Jyotsna Ghildiyal Bijalwan**

Assistant Professor, Department of Accounting and Finance, College of Business &  
Economics, Arba Minch University, Ethiopia, Africa

**Bijaya Laxmi Thapliyal**

Asst. Professor, Department of Commerce  
Graphic Era Hill University, Dehradun, India

## ABSTRACT

*India is emerging as one of the fastest growing economy on the global platform. Being a mixed economy it has both the public and private sector functioning but corporate governance practices of both the public and private sector firms is a constant debatable. Private sector companies are highly efficient and productive, their prime focus is on profiteering whereas socioeconomic development tops the agenda of public sector companies.*

*Corporate governance practices of both the public and private limited companies in India is the focal point of our study. It comprises of 242 firms listed on Bombay Stock Exchange (BSE) for the period of 2015 to 2019. In order to check the validity and the level of significance of the hypothesis we applied various statistical tool and tests.*

*On the basis of the results of the statistical analysis it is found that the corporate governance practices of private sector and the public sector companies are not the same. It is further observed that the corporate governance practices of public sector firms are better as compare to the private sector.*

**Keywords:** Corporate Governance, Firm Performance, Public Sector Company, Private Sector Company, Emerging Economies.

**Cite this Article:** Dr. Rupa Khanna Malhotra, Dr. Jyotsna Ghildiyal Bijalwan and Bijaya Laxmi Thapliyal, Corporate Governance in Emerging Economies: An Indian Insight, *International Journal of Management*, 11 (9), 2020, pp. 663-670.

<http://www.iaeme.com/IJM/issues.asp?JType=IJM&VType=11&IType=9>

---

## 1. INTRODUCTION

For many decades the public sector firms have being criticised for their lower productivity and bureaucracy similarly the morality of private sector is also constantly under scanner. On one hand the public sector is dedicated to societal causes on the other side the private sector's lust for money is clearly evident in the series of corporate scams around the world. Our investigation is aimed at finding the reality in the Indian context for which we have chosen both the public limited companies owned by the government and the private limited companies owned and controlled by the individuals, groups and corporate families. Corporate governance of Indian corporate sector is the kingpin of our study entire investigation revolves around it.

## 2. REVIEW OF LITERATURE

The corporate governance practices of both the public and private sector firms is a constant debatable topic among the researchers. Some find the private sector companies highly efficient and productive whereas others find public sector companies more responsible. Like (Hodges, Wright and Keasy, 1996) in their book related to the corporate governance in the public sector firms suggest that the public sector corporate governance distinguishes itself from its private sector counter part by the considerable diversity of the objectives and management structure. The study results further suggest the need to improve the performance as well as conformance issues in the public sector governance.

(Xu and Wang, 1999) in their study related to the public sector firms in China, attempts to investigate the relationship between ownership structure and firm performance of publicly listed companies in the China within the corporate governance framework. The study results reveals that the firms performance (profitability) is either negatively correlated or uncorrelated with the fraction of state shares. It further shows that the labor productivity tends to decline as the proportion of the state share increases. It further reveals the inefficiency of the state ownership where as the empirical result further suggests that the large institutional shareholders are of great significance in any overly dispersed ownership structure.

Another study by (Mulgan, R., 2000) on comparing the accountability of public and private sectors on Australian firms shows that the private sector firms are more accountable as compare to the public sector firms in Australia. Similarly a study on private and public sector firms by (Chen, J., 2001) advocates that the private sector firms have better corporate governance system. On similar grounds Goel, P. (2018) advocated the corporate reforms and governance for the Indian companies.

In another study by (Borisova, G., et. al., 2012) related to the government ownership and corporate governance in the Europe the government ownership is negatively associated with the corporate governance quality. And it further reveals that the government owned firms are poor in the corporate governance quality.

Study based on the Indian firms, by (Patibandla, M., 2006) shows that the government owned local financial institutions have lower incentives in monitoring the managers. The empirical results show that the increasing presence of private foreign institutional investors has a positive effect on the firm performance, whereas the firms depending on the government financial institutions for external finance show decline in the performance.

(Claessens, Djankov and Pohl, 1997) in their study suggest that the state owned firms are less efficient than the privately owned firms. (Megginson et al., 2004) also suggested the same.

There is very limited literature available which shows that the public sector firms have better corporate governance system better than private sector firms. Majority of the studies related to private sector and public sector firms reveals that the private sector firms have better corporate governance system. However there are some studies which advocate that the level of



transparency and disclosure is very high in public sector firms like (Eng and Mak, 2003) in their study found that the firms owned by the government i.e. Public sector firms are associated with the increased disclosure.

Yameen, M., Farhan, N. H., Tabash, M. I. (2019) in their study on Indian tourism industry found that the good governance practices of the privately owned companies was positively affecting their financial performance.

Bijalwan, J. G. ,Bijalwan, A , Amare, L (2019).. in their research on Indian firms suggested that the firms with good governance practices perform good and the public sector companies have better corporate governance implementation in India.

In order to come out of this dilemma we have classified the ownership structure of the firms into public sector and private sector and performed the empirical analysis to check the individual performance of both the sectors in the Indian context. This facilitated us the stronger grounds for comparison of corporate governance system between the private sector companies and public sector companies. On the basis of the review of literature and for backing our claim more scientifically we have developed a null hypotheses as mentioned below

H<sub>01</sub> - There is no significant difference between corporate governance of public and private sector companies.

### 3. METHODOLOGY

The study is based on 242 firms enlisted on stock exchange of Mumbai popularly known as BSE for a time period of 2015 to 2019. Random purposive sampling technique is used for taking the sample for the study. In order to derive the adequate sample size Cohen's formulae was utilised.

$$\text{Cohen's } d = (M_2 - M_1) / SD_{\text{pooled}}$$

Where,

$$SD_{\text{pooled}} = \sqrt{((SD_1^2 + SD_2^2) / 2)}$$

For facilitating a rational and objective comparison between the corporate governance practices of public and private companies two parameters were developed I.e. Corporate Governance Scores (CGS) and Financial Performance (FP) as explained below.

#### 3.1. Corporate Governance Score (CGS)

After analysing all the corporate governance variables utilised for the study i.e. board composition (BCN), ownership structure (OS) , ownership concentration (OC), board and shareholders meetings (BSM), board remuneration (BR) , corporate governance policies and practices (CGP) and transparency and shareholders rights (TSH) over all corporate governance of the company was measured. On the basis of these scores, corporate governance of the firms was categorised into four categories viz. firms with very strong corporate governance, firms with strong corporate governance, firms with moderate corporate governance and the firms with weak corporate governance practices. Table no 1 shows the benchmark for categorisation of the corporate governance on the basis of scores earned by the individual companies on standard governance practices laid down in clause 49 of the Companies Act, 2013.

**Table 1** Overall Corporate Governance Score (CGS)

Category	Scores
Very Strong Corporate Governance	80 and above
Strong Corporate governance	65-80
Moderate Corporate Governance	50-65
Weak Corporate Governance	50 below

On the basis of the GAMMA score criteria and review of the literature (Das, 2008), the benchmarking for corporate governance scores (CGS) were developed for corporate governance variables used in the study.

### 3.2. Financial Performance

Financial performance of the company was measured by using accounting based method. Different financial ratios such as Return on Assets (ROA), Return on Capital Employed (ROCE), Profit After Tax (PAT), Return on Equity (ROE), Inventory Rate (IR), Total Assets (TA), Financial Leverage (LEV) and Current Ratio (COR) were used for measuring the financial performance of both the public and private sector companies.

## 4. RESULTS AND DISCUSSION

In our attempt of gaining the understanding of the corporate governance system of India we further developed the null hypothesis. The null hypothesis states that, "There is no significant difference between corporate governance of public and private sector companies". In order to check the validity and the level of significance of the hypothesis we applied various statistical tool and tests. The tests reveal the multi facet relationship and degree of accoutumance between the variables under study. The study results are discussed as follows.

**Table 2** Group Statistics

	Sector of Co	N	Mean	Std. Deviation	Std. Error Mean
Total Assets	Public Sector	26	3.9706	37296.6884	10344.2401
	Private Sector	216	1.1021	23115.6648	2224.3058
ROCE Percentage	Public Sector	26	19.4377	12.4556	3.4545
	Private Sector	216	17.6939	16.6953	1.6065
Financial Performance Category	Public Sector	26	1.54	0.660	0.183
	Private Sector	216	1.56	0.687	0.066
Financial Leverage	Public Sector	26	0.5100	0.6093	0.1689
	Private Sector	216	0.7084	0.7628	0.0734
COR	Public Sector	26	1.7677	0.7956	0.2206
	Private Sector	216	4.7884	24.7273	2.3793
Inventory Rate	Public Sector	26	18.2338	15.2549	4.2309
	Private Sector	216	1.4385	921.0180	88.6250

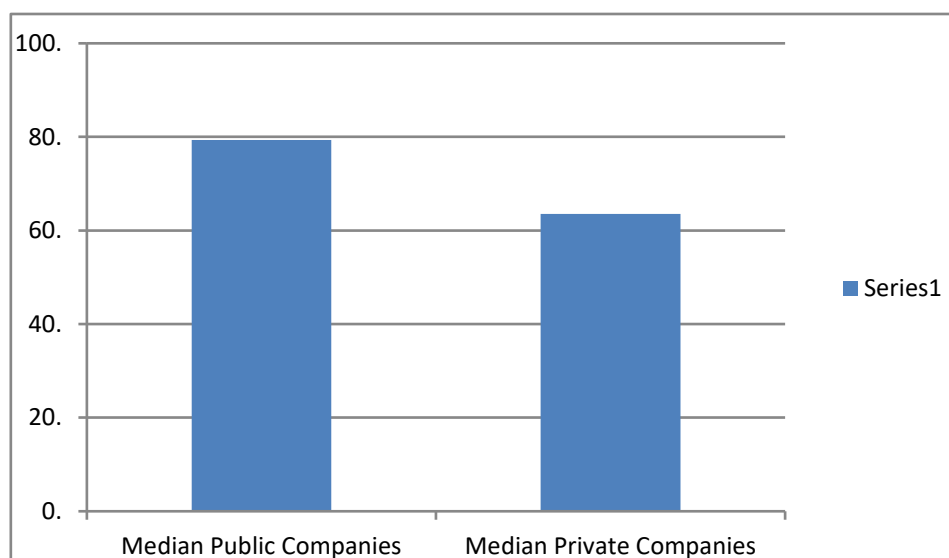
PAT	Public Sector	26	4.4541	5013.4534	1390.4818
	Private Sector	216	1.2160	2864.6464	275.6507
ROA	Public Sector	26	1.2391	8.47406	2.35028
	Private Sector	216	1.6023	45.7903	4.4061
ROE	Public Sector	26	1.5970	12.5849	3.4904
	Private Sector	216	1.1339	21.3404	2.0534

**Table 3** Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Total Assets	Equal variances assumed	8.307	0.005	3.92	240	.000	28685.567	7314.062	14202.9928	43168.1418
	Equal variances not assumed			2.71	26.26	.018	28685.567	10580.682	5850.7618	51520.3729
ROCE Percentage	Equal variances assumed	.044	.834	.364	240	.716	1.7438	4.7903	-7.7416	11.2292
	Equal variances not assumed			.458	35.30	.653	1.7438	3.8098	-6.2714	9.7590
Financial Performance Category	Equal variances assumed	.186	.667	-.131	240	.896	-.026	.201	-.424	.372
	Equal variances not assumed			-.135	30.60	.894	-.026	.195	-.441	.388
Financial Leverage	Equal variances assumed	.603	.439	-.903	240	.369	-.19843	.21983	-.6337	.2368
	Equal variances not assumed			-1.077	33.60	.297	-.19843	.18425	-.5873	.1905
COR	Equal variances assumed	.642	.425	-.439	240	.662	-3.0207	6.8838	-16.6513	10.6099

## Corporate Governance in Emerging Economies: An Indian Insight

	Equal variances not assumed			-1.26	217.54	.209	-3.0207	2.3896	-7.7569	1.7154
Inventory Rate	Equal variances assumed	1.001	.319	-.490	240	.625	-125.61597	256.39076	-633.2952	382.0633
	Equal variances not assumed			-1.416	214.96	.160	-125.61597	88.72594	-301.4957	50.2638
PAT	Equal variances assumed	5.349	.022	3.503	240	.001	3238.1032	924.31020	1407.8767	5068.3298
	Equal variances not assumed			2.284	25.90	.040	3238.1032	1417.54119	174.7180	6301.488
ROA	Equal variances assumed	.832	.363	-.284	240	.777	-3.6324	12.7712	-28.92080	21.65596
	Equal variances not assumed			-.727	205.06	.469	-3.6324	4.99382	-13.53702	6.2721
ROE	Equal variances assumed	.316	.575	.765	240	.446	4.631417	6.055354	-7.358788	16.621623
	Equal variances not assumed			1.144	42.90	.265	4.6314	4.0496	-3.7794	13.0423



**Chart 1** Median of Corporate Governance

Table 2 exhibits sample size, mean, standard deviation, and standard error for both the public sector and private sector firms. On an average the Return on Capital Employed Percentage (ROCP) of public sector firms is 1.744% more than private sector firms, similarly average of (PAT) of public sector firms is 3.23% more than private sector firms further the averages of (ROE) 0.464%, (TA) 2.868% and (IR) 16.795% are more than the private sector firms. However the odds between the means is ponderable amongst PAT, ROCE, TA, ROE and IR.

The procedure produces two tests of the difference between the two groups (Public sector companies and private sector companies). The Levene statistic tests testifies the assumption that the variances of the two groups are equally same kind.

Table 3 gesticulates the F statistic's significance value is 0.834 for ROCEP%, 0.022 for PAT, 0.363 for ROA ,0.575 for ROE, 0.005 for TA, 0.667 for financial performance category (FCP), 0.439 for LEV, 0.425 for COR and 0.319 for IR. Any value bigger than 0.10 reveals that the equal variances can be conjectured which is evident in the case of ROCEP, ROE, ROA, FCP, LEV, COR, IR groups but same cannot be assumed in the context of PAT and TA.

The t column shows described t statistic for every sample in the form of a ratio I.e. difference among sample means / standard error of the difference. In the Table df column shows degrees of freedom which is used in the independent samples t test. It is equal to the total number of cases in both samples minus 2. Another column in table with heading Sig. (2-tailed) reveals a probability from the t distribution with 240 degrees of freedom with the notion of equal variances. The value shown is the probability of getting an absolute value  $\geq$  to the obtained t statistic, provided the disparity among the sample means is absolutely random. The Mean Difference is calculated as the sample mean for group 2 (Private sector company) minus the sample mean for group 1 (Public sector company). The 95% Confidence Interval of the Difference provides an estimation of the range within which the actual mean difference lies in the 95% of all probable random samples of 242 companies under investigation. It is observed that the significance value of the test is lower than the standard 0.05 for the PAT and TA which further strengthens the point that the average difference of 3.23% of PAT between two groups and 2.868% among TA has some strong reasons. The t statistic stands rock solid grounds for a difference in PAT and TA between public companies and private companies. The confidence interval promulgates that in tautologized samplings the difference is not likely to be lower than 1407.87 (PAT) and 14202.99 (TA). In such situation the companies will attempt to keep back these returns and this gives us rational grounds for rejecting the null hypothesis. As per the observed median in the chart no 1 the median of corporate governance score for private sectors firms is 63.55 and for public sector firms' median is 79.35. It can be clearly stated that the corporate governance practices of public sector firms are better than the private sector firms in India.

## 5. CONCLUSION

On the basis of the results of the statistical analysis it is found that the corporate governance practices of private sector and the public sector companies are not the same. It is further observed that the corporate governance practices of public sector firms are better as compare to the private sector firms in India. Therefore it can be concluded that in India the public sector firms have much better adherence to the governance laws and their corporate governance policies and practices are far better when it comes to practical implementation on the ground level.

## REFERENCES

- [1] Borisova, G., Brockman, P., Salas, J. M. & Zagorchev, A . Government ownership and corporate governance: Evidence from the EU. *Journal of Banking & Finance* , 36 (11), 2012pp. 2917-2934.
- [2] Cohen, J. Statistical Power Analysis for the Behavioral Sciences. *Current Directions in Psychological Science*, 1(3),1992, pp. 98-101.
- [3] Claessens, S., Djankov, S. & Pohl, G. Ownership and corporate governance: Evidence from the Czech Republic, 1997. <https://ssrn.com/abstract=11074>
- [4] Chen, J. Ownership structure as corporate governance mechanism: Evidence from Chinese listed companies. *Economics of Planning*, 34 , 2001, pp ,53-72.
- [5] Eng, L. L. & Mak, Y. T . Corporate governance and voluntary disclosure . *Journal of Accounting and Public Policy* ,22, 2003, pp. 325-345.
- [6] Goel, P. Implications of corporate governance on financial performance: an analytical review of governance and social reporting reforms in India. *Asian Journal of Sustainability and Social Responsibility*, 3 (4), 2018.
- [7] Hodges, R., Wright, M. & Keasey, K. Corporate governance in the public services: concepts and issues . *Public Money & Management*, 16, 1996, pp.7-13.
- [8] Bijalwan, J. G. ,Bijalwan, A , Amare, L An Exploratory Analysis of Corporate Governance using Supervised Data Mining Learning . *International journal of recent technology & Engineering*, 8, 2019.
- [9] Mulgan, R. Comparing accountability in the public and private sectors . *Australian Journal of Public Administration* , 59,2000, pp. 87-97.
- [10] Megginson, W. L. Toward a global model of venture capital? . *Journal of Applied Corporate Finance*, 16 , 2004, pp. 89-107.
- [11] Patibandla, M. Equity pattern, corporate governance and performance: A study of India's corporate sector . *Journal of Economic Behavior & Organization*, 59,2006, pp. 29-44.
- [12] Xu, X. & Wang, Y. Ownership structure and corporate governance in Chinese stock companies. *China economic review*, 10, 1999, pp. 75-98.
- [13] Yameen, M., Farhan, N. H., Tabash, M. I. The impact of corporate governance practices confirm's performance: An empirical evidence from Indian tourism sector. *Journal of International Studies*, 12(1), 2019, pp.208-228.



# Corporate Social Responsibility Reporting in Locally Owned Hotel Chains in Singapore

Justin Matthew Pang<sup>1\*</sup>, Adrian Tiong Weng Wee<sup>2</sup>

<sup>1</sup> Lecturer at School of Business and Management, Royal Melbourne Institute of Technology University, Vietnam.

<sup>2</sup> Lecture of British University in Vietnam.

---

**Keywords:**

CSR, reporting, websites, annual reports, hotels, Singapore.

**Abstract.**

This exploratory study looked at the Corporate Social Responsibility (CSR) programmes of 10 locally owned and operated Singapore hotel chains. By using a Content Analysis methodology, the 10 hotel chains' CSR efforts were analysed vis-à-vis to their annual reports and websites. This gave clear indication of whether the hotel chains were complying with the promises and standards that they had stated and promised. This report found that the CSR reported by the hotel chains were inclined toward Environmental efforts. This could probably be due to this Environmental practice being more tangible and visible. It was also noted that while the initiatives taken by the hotel chains were relatively numerous, many failed to report on whether these efforts amounted to an achievement. Moreover, CSR reporting on the hotel chains' websites were almost non-existent. Given this, recommendations have been included to assist Singapore hotel companies manage their reporting of CSR activities.

---

**Kata Kunci:**

CSR, pelaporan, website, laporan tahunan, hotel, Singapura.

**Abstrak.**

Studi eksplorasi ini meneliti program Corporate Social Responsibility (CSR) dari 10 jaringan hotel Singapura yang dimiliki dan dioperasikan secara lokal. Dengan menggunakan metodologi Analisis Konten, upaya penerapan CSR di 10 hotel jejaring dianalisis berdasarkan laporan tahunan dan website mereka. Studi ini menunjukkan indikasi yang jelas tentang apakah hotel jejaring memenuhi janji dan standar yang telah mereka nyatakan dan janjikan. Laporan ini menemukan bahwa CSR yang dilaporkan oleh hotel jejaring cenderung mengarah pada upaya perlindungan terhadap lingkungan. Ini mungkin karena praktik penjagaan lingkungan menjadi lebih jelas. Studi mendapati bahwa meskipun inisiatif yang diambil oleh hotel jejaring relatif banyak, banyak yang gagal melaporkan apakah upaya ini merupakan pencapaian. Selain itu, pelaporan CSR di situs web hotel jejaring hampir tidak ada. Mengingat hal ini, rekomendasi telah dimasukkan untuk membantu perusahaan perhotelan Singapura mengelola pelaporan kegiatan CSR mereka.

---

\* Corresponding author.

E-mail addresses: Justin.pang@rmit.edu.vn (Justin Matthew Pang) & Adrian.w@buv.edu.vn (Adrian Tiong Weng Wee)

Article history: Received 08 April 2020; Accepted 05 May; Available 15 June 2020.

---

## 1. Introduction

In our present day, there is greater awareness of Corporate Social Responsibilities (CSR) by the public, investors, customers and clients of private companies. People generally want companies that they deal with to have a greater sense of accountability to the needs of society, community and the environment. People are more inclined to work with companies that are more active and more in-tuned with their CSR efforts (Hsieh, 2012). Therefore, in order to appease the public, customers and stakeholders, many companies are driven to take a more proactive stance in their CSR efforts.

While there are many different understandings of what CSR means or is about (Holcomb, Upchurch & Okumus, 2007), it has been defined by Robbins and Coulter (2005) as the efforts that are taken by a company to go above and beyond what it is needed, i.e. in terms of its economic, financial and legal efforts to help society, community and the environment to its betterment. This can be in terms of donations, volunteerism, education and the reduction and/or recycling of resources. The World Business Council for Sustainable Development (World Business Council for Sustainable Development, 1999) has a similar understanding of CSR. It maintains that CSR is an organisation's commitment to long-term developments and improvements in the economy, environment, employees, families and communities around them. The European Commission's stand on CSR is also similar. It views CSR as the incorporation of the establishment's interest in the environment and its community in its daily routines and operations (Commission of the European Communities, 2001).

With people being more educated and socially aware, there is a greater demand from society to ensure that companies are accountable - socially and environmentally, for its policies and practices that can invariably damage the environment and its surrounding communities. As such, there is a great demand by society on the establishments to report them and to hold them accountable to their operational standards and promises (Holcomb *et al.*, 2007; Hsieh, 2012). In this way, the public and stakeholders are made aware of the companies' efforts and can influence the direction and decision-making of the companies. Discerning customers, investors and the government can also use the information shown to decide what to buy, where to invest and whom to support. This essentially impacts businesses and compels them to take on more and greater responsibilities to society, communities and the environment, instead of just earning a profit and being financially successful. While there are many differing views on the business such as Friedman (2007) who stated that the business establishments should only focus on the economic and legal aspects of the business and not be distracted by other non-business related issues, that are not directly related to its core offering. There is also a growing view that CSR needs to be incorporated into part of an organisation's business plan. Carroll (1979) mentioned that businesses are intrinsically linked to their communities and have a responsibility to see to the needs of them especially if the organisation is indirectly affecting them.

However, even though there is greater awareness of CSR for business establishments, there is scant research on CSR and CSR reporting in the hospitality and tourism industry, specifically in the hotels sector (Holcomb, Okumus & Bilgihan, 2010). While research in the western countries and societies are considered low, countries outside of Europe and North America especially in Asia is extremely limited (Hsieh, 2012; Tsai, Tsang & Cheng, 2012). This could probably be due to the high number of small, medium enterprises (SME) and local chains that need not comply to CSR regulations such as in Western countries. Moreover, according to Tsai, Tsang and Cheng (2012), there is limited research of hotel CSR especially in developing countries in Asia.

The study aims to address the research gap by look at the CSR reporting by the local hotel chains in Singapore. The study will explore how local hotel chains report their CSR activities in their annual reports and websites and investigate whether there is any dissonance. This study will



focus on locally owned and operated hotel chains in Singapore, ranging from the Meritus Group, Hotel Properties Limited to Far East Hospitality Trust, and others.

In order to ensure uniformity, these hotel chains need to fulfil the following requirements. Firstly, all the researched hotel chains must be in operation for a minimal of three years and have at least three hotels within their chain. Next, they are all owned by large and established public listed companies in Singapore. Due to the chain being linked to public listed companies allows them to draw from the funds of the parent company and from the financial market. Lastly, many of the hotel chains have been in operation for several years and have expanded their brand overseas and have gained international recognition.

This study on the hospitality industry in Singapore is importance and of great relevance because of the tourism and hospitality industry account for up to 4% of the Gross Domestic Product (GDP), making it one of the major contributors to the Singapore economy. It has contributed more than Singapore \$17.7 billion to the economy through direct sources (Singapore Tourism Board, 2019). Moreover, the hospitality and tourism industry, supported more than 169,500 jobs in Singapore and this is about 4.6% of the jobs in the city-state (Li, 2018).

While many hotel chains are starting to be more transparent in their disclosure of their practices, there is hardly any research made on CSR reporting by the local hotel chains in Singapore. As for nearby countries within the region of South East Asia, there has been some studies conducted in Malaysia. Wee and Ross-Smith (2018) conducted a research that investigated the CSR reporting Malaysian local hotels. There was another research that looked at sustainability in Malaysian hotels by Joseph, Lin, Nichol and Jussem (2014). Unlike this previous study, which was quantitative in nature, the current study is a qualitative in nature and is centred around the content analysis of the hotel chain's websites and annual reports on their CSR efforts.

This study has been organised along the following sections. The first part will introduce the objective of the study and the research gap. The subsequent parts will review the literature of CSR reporting in the hospitality and tourism industry. The research approach and research method will be highlighted in the Methodology section. The Discussion section will highlight the findings and issues raised and finally, the Concluding section will summarise the salient aspects and possible future research for this study.

## 2. Literature review

Hotels are known to be direct contributors to the economy. They help to increase the GDP of countries and indirectly drive tourism to specific regions within a country. Other benefits to the economy would be that of job creation, skills and knowledge creation. However, it is also known that hotels are a great consumer of resources and is directly linked to many forms of wastages, including food, water and electricity. Some of these wastes include linen, amenities, food, energy, sanitation chemicals and others (Kasim, 2007; de Grosbois, 2012). With an increase in the number of hospitality properties, higher wastages are postulated and will have a greater effect on the social and environmental level.

In terms of CSR, there is a greater awareness in an organisation's contribution to social, community and environmental causes. According to Font *et al.* (2012) and Hsieh (2012), there is a growing interest among stakeholders in the CSR affairs of their invested companies. Conscientious customers, stakeholders, partners and suppliers desire more information from the companies that they deal with so that they can align their business values with that of the organisation. While CSR reporting is optional in many countries, many organisations report CSR activities to obtain public approval and to generate publicity. Certain countries in Asia, such as Singapore and Malaysia have put in place CSR reporting as a requirement for listed companies (Abaeian, Yeoh & Khong, 2014).

In the hotel industry, many of the established brands are keen to report CSR activities as part of a public relations effort and for transparency reasons. However, a study by Holcomb *et al.* (2007) on the top ten hotels in the world as listed in the 'Hotels magazine' revealed mixed responses. Some hotels openly disclosed CSR efforts and had CSR accountable personnel in place to oversee their activities. Other hotels were less forthcoming in revealing their CSR efforts. With the study on the top 150 global hotels, de Grosbois (2012) found that most hospitality companies reported a commitment to support CSR activities and efforts, however, many did not reveal the exact activities, and execution efforts in these plans. Using the study from de Grosbois (2012) and with further examination, Font *et al.* (2012) applied the similar methodology to ten international hotel chains. They examined the CSR disclosure – performance gap of these hotels and found significant gaps between the variables. Font *et al.* (2012) noted that there was much disparity between what was committed and what was actually delivered by the hotels. Other studies have also found similar variations in actuality and reporting. Clarkson, Li, Richardson and Vasvari (2011) conducted a study on hotels in Australia and found that there were also considerable discrepancies between disclosure and the actual performance in terms of CSR reporting.

This disparity between the actual result and the reported CSR is also prevalent in larger hotel companies (Font *et al.*, 2012) to the point where it has now been noted by a particular vernacular, i.e. 'greenwashing'. This term of 'greenwashing' is generally referred to companies who only highlight the positive action and effects of their sustainable and eco-efforts, while hiding the negative aspects of their doings (Lyon & Maxwell, 2011). The companies only report positive aspects of their CSR, so that they can garner favourable public relations and put seen in a 'good light' (Holcomb, 2007).

In terms of hotel CSR reporting, there has been a shift of CSR from community and employee action to the environment. A study by Holcomb *et al.* (2007) mentioned that hotels generally favoured CSR on community and employees in the early 21<sup>st</sup> century. About 80% of all hotels which had CSR actions plan focused on community and 60% had programmes to help their employees. In recent years, there has been a greater emphasis on environmental CSR (Font *et al.*, 2012; de Grosbois, 2012; Cherapanukon & Focken, 2014; Hsieh, 2012). This can be attributed to a greater awareness on environmental trends and issues and green practices.

In terms of benefits, CSR has ensued many benefits for hospitality companies. The most compelling of the benefits would that be of cost-savings. Such savings are usually attributed to savings in the areas of utilities management, i.e. water, energy and heating (Levy & Park, 2011; Sprinkle & Maines, 2010). Another area that hospitality companies looked at was in the areas of employees and their guest. All these CSR efforts ultimately led to improving the public relations image of the hospitality company and greater guest satisfaction (Martinez, Perez & Del Bosque, 2014; Martinez & Del Bosque, 2013).

CSR activities also affects employees in terms of their loyalty (Brammer, Millington & Raton, 2007), their retention and affinity to join an organisation (Sprinkle & Maines, 2010) and their motivation to work (Kim & Scullion, 2013). These CSR activities has also been shown to increase investor relations (Petersen & Vredenburg, 2009) and competitive advantage (Kramer & Porter, 2006). On a whole, CSR helps to increase the positive well-being, image and financial success of an organisation (Sinha, Dev & Salas, 2002).

There are many ways by which hospitality companies convey their CSR efforts. There are traditional and technological means. Traditional methods of highlighting CSR activities would be through annual reports, press releases, newsletters, and other forms of print media. With internet being used more frequently and a choice medium of conveying information, more companies are keen to use this technological platform as a channel. The use of the internet is also seen as a CSR effort with the minimal use of resources. Hsieh (2012) and Jose and Lee (2007) highlights that the internet allows quick dissemination of information to their employees, customers and stakeholders in a cost-effective manner.

From a technological perspective, the use of websites has been the most popular means by which hospitality companies share CSR activities, efforts and measurements. Most hospitality companies imbed their CSR information as part of their corporate websites to give the public a holistic understanding of the mission of the company and their direct and indirect goals. A study was undertaken by Basil and Erlandson (2008) on Canadian corporations' website on their CSR efforts. They found that 67% of these companies had some form of CSR reporting in 2006, compared to 2004, where only 27% reported their CSR activities online. Another study by Gomez and Chalmeta (2011) which examined 50 corporate websites from the USA, revealed that 80% of these organisations reported their CSR efforts on their webpages.

In Singapore, there has been much interest in the CSR reporting and activities within the hospitality trade. Singapore developed the 'ASEAN Green Hotel Awards' which was initiated by ASEAN member countries (Chung & Parker, 2010), based on assessing environmental and energy conservation methods taken. However, despite the interest in CSR in hospitality companies in Singapore, the Brand Company (2012) in their study on CSR reporting in luxury chains in Singapore only listed one Singapore company in their top 10 Asian international hotel companies. While this report only reflects international luxury chains in Singapore, this lack of CSR reporting might be reflective of other categories of hotels in the city-state.

### 3. Methodology

This study looked at the CSR reporting of Singapore hotel chains. The objective is to investigate the content and nature of CSR reporting by local hotel companies. This study uses content analysis to identify and describe the patterns and congruency emerging from the data samples. The use of content analysis has been used as a research method as it is advantageous in gathering and analysing text-based content (Neuman, 2007).

There have been previous studies which used this methodology of content analysis to measure CSR reporting in hospitality organisations, i.e. Holcomb *et al.* (2007) study on CSR reporting on 10 international hotel chains; Font *et al.* (2012) study on CSR disclosure and performance gap; and Hsieh (2012) looked at sustainable practices and policies of over 50 hotel chains in Europe, the USA and in Asia. These studies have showed that the Content Analysis methodology is reliable and valid for this form of analysis.

Using content analysis, a set of sustainable related concepts must be identified. These concepts should have in turned been identified and have been used in the earlier literature reviews. In past studies, Levy and Park (2011), Holcomb *et al.* (2007) and de Grosbosis (2012) identified 5 categories of CSR activities that hotels actively participated in. These included Community, Environment, workplace (Employee Welfare), Marketplace and Mission. However, for this study, only 4 of the 5 activities will be reviewed, namely Community Affairs, Environmental Concerns, Employee Welfare and Marketplace Interest.

The data that will be examined is determined from the hotel and corporate websites, annual financial statements and annual report from the 10 Singapore owned and operated hotel chains. Only 2017 and 2018 financial and annual reports were examined. Data was taken from the websites in the month of November 2019. From the data set, the commitments, initiatives, plans and achievements of the 4 CSR categories of each hotel chain were noted, recorded and tallied.

It should be noted that the hotel chains sampled were all part of a larger parent companies. Table 1 displays the names of these companies and their parent establishments. Table 1 also list the number of hotels under each respective chain. The number of hotels is shown as it is important to depict the size of the company due to the relevance of this study. Hsieh (2012) has noted that

larger companies in terms of size and capital are more likely to acknowledge the benefits of CSR activities and are more likely to report them.

Another reason for choosing larger, established hospitality companies gives accessibility to obtaining data from their annual reports and from their corporate websites. While most companies are not obligated to disclose their corporate dealings of a financial year, other than for listed companies, many companies openly list their corporate finances to ensure transparency and accountability to their stakeholders. These reports are generally a credible source of data and false reporting can be noted as a criminal offence. Many companies also derive these data after they have been audited and accounted for, so that their account reports are a true and fair representation of their companies' business and financial well-being.

Therefore, this focus of this study is to examine how the local hotel chains in Singapore report their CSR activities. This study will use the content analysis to analyse the websites and annual reports of the Singapore hotel companies, specifically regarding the category of the CSR reporting. The result of this study will be analysed and presented in accordance to the categories which has been mentioned earlier, i.e. Community Affairs, Environmental Concerns, Employee Welfare and Marketplace Interest.

**Table 1.** List of sampled Singapore Hotel Companies

<b>Hotel Name</b>	<b>Listed Parent Company</b>	<b>Location of Headquarters</b>	<b>Number of Properties</b>
Meritus Hotels and Resorts	Overseas Union Enterprise	Singapore	3
Frasers Properties	Frasers Hospitality Trust	Singapore	71
Banyan Tree	Banyan Tree Holdings	Singapore	39
Far East Hospitality	Far East Hospitality Trust	Singapore	51
Concorde Hotels	Hotel Properties Limited	Singapore	4
Park Avenues Hotel	United Engineers	Singapore	4
Fragrance	Fragrance Group	Singapore	8
Amara Hotels	Amara Holdings	Singapore	5
Parkroyal-Pan Pacific Hotels	UOL Group Limited	Singapore	29
Millennium and Cophthorne	City Developments Limited	London, United Kingdom	129

#### 4. Results

The results of the analysis of commitments, initiatives and achievement on the four categories of Community Affairs, Environmental Concerns, Employee Welfare and Marketplace Interest are depicted on Appendix A. The results are from the analysis of samples hotel companies' websites, annual financial and/or sustainability reports.

All the hotels listed provided a fair amount of information on CSR. Despite the information obtained, each company depicted CSR differently. Most of the companies had their CSR information on their annual report downloaded from their corporate website or on their parent companies' webpage. Some companies reflected these CSR activities on both former and latter webpages, although some were listed differently, and cross referencing was necessary.

**Table 2.** Analysis of CSR reporting in annual reports and websites

CSR Activities	Commitments	Initiatives	Achievements
<b>Environmental Concerns</b>			
Water Savings	5	5	5
Energy Management	5	5	5
Waste Recycling	5	5	3
Green Products	4	4	4
Nature Conservation	5	5	5
<b>Employee Welfare</b>			
Health & Safety	7	7	4
Fair & Equitable Wages	4	4	0
Employee Assistance Programme	2	2	1
Opportunities for Training & Development	7	7	4
Diversity & Equal Opportunity	7	7	3
Work Life Balance	2	2	2
<b>Community Affairs</b>			
Scholarship & Grants	1	1	0
Blood Donation	1	0	0
Community Giving	6	6	1
Gifts to Disadvantaged Groups	5	5	3
<b>Marketplace Interest</b>			
Quality Products	3	3	1
Supplier Diversity	3	3	2
Ethical Behaviour	4	4	0
Fair Trade & Negotiation	3	3	0

Most of the CSR efforts and activities were listed on the hotel's sales and marketing / corporate communications webpages. These webpages often depict the properties and establishments under their purview. The pages often showed images of their staff in the course of their work. The annual reports also focused in its entirety on the financial status and economic well-being of the hospitality parent companies. The CSR efforts were marginally depicted, both pictorially and informatively. Most of the CSR information was on the annual reports imbedded on the websites and not directly placed on their webpages per se.

As mentioned, the CSR information on the hotel websites were very scarce. Only 1 out of the 10 hotel studies had details of their CSR activities wholly embedded their corporate websites. Most of the other hotels had their CSR information listed on the parent holding companies' corporate websites and their annual report were imbedded on their parent companies' websites. In most of the CSR reported for all 10 companies, CSR activities were often not detailed and were ambiguous with no measurement of the activities. Moreover, the CSR activities described were generally related to the parent company, rather than the specific hotel chain or specific properties.

While most of the companies were legally bound to report their endeavours, financial or otherwise to the public, non-public listed companies were obligated to do so. Nonetheless, all 10 companies' information on CSR were obtained either through their (proprietary or parent companies) websites, or from print media. It was noted that the CSR information of each

company were often found towards the end of the qualitative content of the report (prior to the financial statements section). The CSR information were generally not detailed and vague.

On the same note, the CSR information on most parent companies are difficult to find. Financial and accounting information dominated the annual reports. Little information, i.e. less than 5% of the reports reflected the CSR activities, which amounted to 2 – 5 pages for each report. As mentioned earlier, the activities reported were general superficial and non-detailed and listed the actions taken without any form of accountability, measurements or standards (national or international). The results of the findings are highlighted in Appendix A. The below sections break the findings into their different categories, namely Community Affairs, Environmental Concerns, Employees Welfare, and Marketplace Interest.

#### *4.1 Community Affairs*

Many of the hotels are generally into community giving, especially to disadvantaged groups. These disadvantaged groups are represented by elderly groups to children welfare and illness societies. This form of CSR is generally one of the highest of CSR efforts with almost half of the hotel group sample helping out in this aspect. From the annual reports, many companies feature pictorial aspects with visits to elderly homes, disadvantaged groups, such as children with illness and disabilities. Donations and gift presentation have been clearly noted in the pictures. In terms of scholarship and grants, there is a clear indication that CSR to schools and educational institutions are generally low with only a single hotel group supporting this form of CSR. Unknowingly, blood donations are generally not a form of CSR practised for Singapore hotel groups.

#### *4.2 Environmental Concerns*

In terms of environmental CSRs, about half of the sampled hotels practised environmental CSR. The range of CSR covered all aspects of water saving, energy management, waste recycling, nature conservation and green products. Almost all the commitments and initiatives taken were back up with quantitative data of achievements in the annual reports. From the data collected, hotels take the most effort in their environmental CSR practices, probably it has the greatest tangible and visible effect on guest and on their operational cost.

#### *4.3 Employee Welfare*

Under Employee Welfare, the most practised CSR would be that of Health and Safety, Opportunities for Training and Development and Diversity and Equal Opportunity- each with similar rankings. The least practised and committed CSR efforts were that of employee assisted programmes and work-life balance. Unlike the Environment achievements which were consistently highlighted with measurable data, the results of employee-related CSR practices were not featured on the annual reports.

#### *4.4 Marketplace Interest*

Marketplace CSR practices were only highlighted in about a-third of the hotel group's annual report. The highest committed CSR effort was that of having ethical behaviour when dealing with their suppliers. The other efforts i.e. having quality products, having supplier diversity and fair trade and negotiation were equally matched in terms of being highlighted in the annual reports. It is noted that in terms of achievements, these CSR practices were not mentioned if they attained their desired target.

In terms of Achievements, the hotel chains that showed and met their targets, often related their target to some to some form of international standard and abided by proper certification systems. While there might be certain variations in the standards based on the different certifications such as ISO, SERQUAL, HACCP etc. for standards in assurances, all these provide corporate companies as a yardstick of measurement (Cherapanukorn & Focken, 2014). In terms of sustainability and CSR standards, many of the hotels adopt standards from Earth Check and Green Globe as a form of adherence and measurement. The hotel groups in the sample that used these international standards were Banyan Tree, Frasers Properties and Far East Hospitality.

## 5. Discussion

From the findings, it can be surmounted that CSR is an important aspect of the business of Singapore hotel chains. Many hotels chains perceive the implementation CSR as a means by which their guest see them as caring for the world. (Holcomb *et al.*, 2007; Chung & Parker, 2010; Levy & Park, 2011). It has also been noted that in terms of comparison of a study by Wee and Ross-Smith (2018), the hotels chains in Singapore had comparable CSR efforts and commitments to their Malaysian counterparts. This clearly reinforced that CSR is indeed important to the business well-being and public image of the Singapore hotels.

The factors within the Employee category which are rated the highest is that of Health and Safety, Opportunities for Training and Development and having a Diverse and Equal Opportunity. The reasons these factors having a higher rating could be because of the direct impact they have on the business returns for the hotel companies, as compared to other factors such as Employee Assistance programmes and having a balance-work life. Moreover, the factor of a Diverse and Equal opportunity is in-line with Singapore's national multi-racial and cosmopolitan population and equity policy where all people are given equal opportunities and racial mix in a hospitality company is highly encouraged for operational sustainability reasons.

The Environmental Concerns factors are seen to be rated highly in terms of commitments, initiatives and achievements. These factors are often of high emphasis for most hotels as it brings about positive economic gains to a hotel's bottom line (Font *et al.*, 2012). Moreover, these factors are often the most noted by hotel guest and they are easiest to quantify by means of measurement tools (Levy & Park, 2011). This can be noted from the researched annual reports where almost all commitments are validated and accounted for through actual achievements. Lastly, in terms of CSR for hotels, many guest equate CSR generally to the environmental action taken, rather than factors associated with the well-being of staff and to suppliers (Font *et al.*, 2012).

In terms Community Affairs, it is the lowest category of CSR. In terms of grants and scholarships, it has been noted that only a single commitment from the Singapore hotel chains. The reason for this non-committal could be due to a perceived biasness by the hotel chains towards specific educational institutions, resulting in low participation in this area. Moreover, most schools, while not considered as charity organisation or causes, within the Singapore fall under the purview of the Ministry of Education. These schools have already received funding through the Government and from social and racial associations such as the Chinese Developmental Assistance Council, the Singapore Indian Development Association and the Mendaki Association. However, in terms of community giving and gifts to the disadvantaged groups, the Singapore hotel chains are more inclined to provide assistance through their CSR endeavours. The reason for this could be due to the community and disadvantaged groups being registered as charity organisations and deemed for organisation donations. Likewise, CSR efforts linked to aiding disadvantaged group are often perceived to have greater mileage from a public relations perspective (Frankental, 2001).

As for Marketplace Interest, there is consistently low CSR activities in this category. The reason for this could be because at the Marketplace level, there is minimal publicity. There is generally greater public awareness when activities are carried out on a Business-to-Consumer than on a Business-to-Business level. Moreover, it is presumed that there is greater public relations mileage when CSR is conducted from an Environmental and Community level as compared to it being done on a marketplace level. In terms of Achievements, there is not many international industry yardstick or measurements for the Marketplace, as compared to Environment issues. Furthermore, activities such as Ethical Behaviour is arbitrary and subjective. Hence, the achievements quantified are generally low.

From the findings, it has been noted that despite the quantitative data obtained, the annual reports do not feature details of the CSR efforts, other than for several hotel chains, such as Banyan Tree, Frasers Hospitality Trust, Far East Hospitality Trust and Millennium and Copthorne. Many of the hotel chains are generally not very forthcoming in terms of the specifics of their activities, often giving generic and scant information. Many did not feature the implementations of the CSR programmes, initiative developed, and achievement made, resulting in difficulties in obtaining the relevant data. This is supported by studies conducted by de Grosbois (2012) and Font *et al.* (2012) that many hotel chains often do not detail their CSR efforts in terms of execution and performance. Singapore hotel were also similar to their Malaysian counterparts, where CSR effort mentioned in their annual reports were often more narrative rather than focused on objectives, targets and performances (Wee & Ross-Smith, 2018).

While the hotel chains in Singapore depict a fair amount of CSR practices within the companies, it should be noted that the CSR practices found in the annual reports of the hotel chains as well as the parent companies of these chains. An example of that would be City Development Limited (CDL). The CSR practices of the Millennium and Copthorne hotels, a subsidiary business unit under CDL, were obtained from CDL's annual reports. While diligent work has been put in to ensure that the CSR practices were specific to the hotel group, this could be the reason why the details of CSR were scant, i.e. being part of the entire holding company's annual report.

With a greater awareness of CSR and more initiatives taken by the global hotel chains, it would seem that more hotels would be keener to take on greater CSR activities. Moreover, with Singapore being a headquarters of many such global chains, it would have been presumed that local Singapore hotel chains would follow suit. However, the CSR efforts noted in the annual reports are generally similar to a study conducted on Malaysian hotels by Wee and Ross-Smith (2018). They concluded that the results (like this current study) is lacking in the expected CSR efforts.

The reasons for the lack of expected CSR efforts as reflected in the annual reports could stem from several reasons. Firstly, the costs attributed to CSR might be a substantial amount, impacting their overall operational cost. While hotels might see CSR as part of the business or as a cost, these costs can be managed and trimmed without an impact their profits. Moreover, for many hotel companies there is no definitive mandate from their owners, guest and stakeholders. To many hotel chains, CSR efforts are a 'want-to-have' rather than a 'need-to-have'. Another reason for the lack of interest in CSR activities is that of the lack of awareness of CSR practices and the benefits that they offer. According to Tsai *et al.* (2012), Hong Kong hotel staff were not aware of the benefits of CSR. This is further supported by Kasim (2009) who mentioned that small and medium sized hotels (SME hotels) in Malaysia were severely lacking in their awareness of CSR practice and the reciprocal benefits. The lack of understanding and awareness can often result in the lack of CSR initiatives and expedition (Scanlon, 1997).

While most of the chains provided some form of CSR efforts, it has been noted a single hotel chain failed to provide any information on their CSR efforts. This hotel group which did not



mention any CSR effort was that of Hotel Properties Ltd (HPL), which had several local and overseas properties including the Four Seasons Singapore, Concorde Hotel Singapore, Hilton Singapore and others. The possible reason for the lack of CSR could have stem from the fact that HPL represent an owner hotel company, rather than an operations management company. Hence the prerogative of the company is essentially to depict the profitability of the organisation and leave the operational aspects including CSR endeavour to the respective brands to showcase.

It has also been noted that this study has sort to obtain CSR practices from annual reports and from the online hotel chain proprietary websites. However, almost all information derived for this report were obtained from only the annual reports. The reason is due to the lack of CSR information and programmes on the hotel chains proprietary websites. Most hotel websites depicted their operational aspects of the hotels. Several of the hotels showed the financial successes of the hotel chain. Banyan Tree hotels was the only hotel chain in the study that cleared stated their CSR mission and programmes. Therefore, from this, we can see that CSR can be used to better inform the public of the hotel's pursuits and to better integrate holistic digital marketing.

From the study, it has been noted that most corporate information on the hotels can be found on the websites, other than their CSR efforts. This could be because CSR reporting on websites are still a relative phenomenon, and CSR does not help to contribute to the top line of finances, therefore by deeming it as unimportant by the hotel chains (Holcomb *et al.*, 2007). However, websites being used as a source of information and as a point of booking (Shin, Pang & Kim, 2015). Therefore, the Singapore hotel companies would need to leverage on their websites to a platform where the public can access more of their information. By doing so, they can use their websites to generate greater positivity and customer loyalty through CSR (Cyr, 2008). However, it should be noted that while CSR depicted in a non-professional manner on a poorly designed website with vague information might create customer distrust.

Vague and limited CSR information on hospitality corporate websites might not be desirable and might hurt the image of the organisation. It has been noted by Vassilikopoulou, Siomkos and Mylonakis (2005) that consumers are generally willing to support businesses that practise CSR and meet their expectations. On that note, they are also not hesitant to boycott businesses that are damaging the environment and the community. From the above, hotels should leverage on their internet corporate websites to feature more of their CSR practices and efforts. In current times, websites are often perceived by guest to be the first-stop hub for information. Therefore, with added attention on the hotel chains' commitment and implementation on CSR will not only create more awareness, brand loyalty and guest demand in terms of patronage.

## 6. Conclusion

The general theme of this study is on the CSR reporting by Singapore hotel chains in terms of their activities and efforts. For most of the hotels that were investigated, they generally focused on the commitments and implementations of their CSR efforts. However, in many of the annual reports, most of the companies did not digress into their achievement criteria and failed to mention if they met their targets. This limited reporting in CSR could be because the hotels do not use website holistically and strategically – aiming only at obtaining economic benefits for their companies (Schmidt, Cantalops, & Dos Santos, 2008). In this sense, the holistic development of hotels in Singapore seen to be relatively weak. Welford (2005) mentioned that there is a close link between CSR and economics. Hence this clearly reflects that the Singapore hotel chains are still 'economically' developing.

The limited reporting could possibly raise the issue of 'greenwashing', which means that CSR efforts and reporting are generally seen as the way of making a company look good in the eyes of the public. It has been noted by Hsieh (2012) and Holcomb *et al.* (2007) that many companies

look at CSR as a public relations tool to generate a positive image for the corporation or to recover from negative criticism. Although many a times, this helped in building the image of the corporation, it can cause companies to become blind-sighted to the goal and purpose of the CSR effort and in way trivialise the benefits of CSR. Therefore, non-profit organisations and ministerial boards in Singapore, such as the Singapore Environment Council, Zero Waste SG and Ministry of Environment respectively should continue to accredit and educate Singapore hotels about the benefits of the CSR movement, encourage better reporting and avoid 'greenwashing'.

On the matter of reporting, it has been noted that there is no requirement by the hotel chains to report their CSR efforts in their annual reports. Moreover, non-public listed companies are not obligated to publically feature their annual reports, yearly endeavours and CSR efforts. It was reported by Tsang (1998) that many hotels and food and beverage establishments only disclosed scattered information on the CSR efforts and hardly any 'bad news' were disclosed. This is because CSR reporting is not mandatory under the Singapore law and all information disclosed is on a volunteer basis. Moreover, it was mentioned by de Grosbois (2012) that most hospitality companies were generally hesitant to disclose their CSR effort and provide only sporadic information. The hotel chains on a whole did not disclose much on their corporate websites. Therefore, to promote more CSR reporting, the Singapore Environment council and other green movement groups could provide more guidelines to companies on website reporting. As mentioned earlier, there is no mandate for companies in Singapore to provide CSR activities openly, websites are the 'go-to place' for obtaining information on the companies. This is especially so for the millennial generation who are more computer savvy. The corporate websites are the public face of the company. Therefore, it would be advisable for the Singapore government to mandate corporate organisation to conform certain standards of CSR report to ensure consistency in reporting with the country.

In order to encourage more CSR efforts and reporting, more education, training and encourage is needed from both the management corporate headquarters, the government and from non-profit green organisations. Kasim (2009) has noted that there is a lack of knowledge and the importance of raising awareness and appreciation of the benefits of CSR especially in the SME hotels. The management corporate headquarters could incentivise CSR efforts implemented in their subsidiary hotels and even place CSR efforts as part of the hotels' key performance indicators. The companies can even work with the owners of the properties as part of their operating cost and revenues. The government, with the non-profit green organisations can organise workshops, lecturers and seminars for the local hotels on the benefits of a comprehensive CSR and CSR reporting regime in the annual reports and websites. It is only by having a transparent reporting of CSR system, coupled together with the commitments and targets achievement that transcend all levels of the hotel employee hierarchy, can a hotels monitor their CSR results and have a holistic appreciation of CSR practices and activities.

Finally, many studies on companies listed on the New York Stock Exchange indicates that the financial performance of companies that take sustainability and CSR importantly and proactively tend to surpass companies that don't (Kasim, 2009). On the similar note, these companies are equally well supported by investors. These findings go to show that at present times, CSR is of great importance in the corporate world. Companies who choose to ignore taking CSR seriously would no doubly face harsh consequences.

This study contributes to the overall literature on CSR and CSR reporting in the hospitality line. It gives a microcosm aspect of the said topic within the sphere of the Singapore hotel chain terms of their CSR actions taken and their reporting through the various mediums. This study also looks at the different CSR practised by the different hotel groups and which category is

deemed the most popular and the probable reasons why they are so. Finally, this study identifies companies which provide useful and informative CSR reporting. As for limitations, the study looks at only 10 Singapore based hotel groups through their websites and annual reports. While it might be conclusive to obtain the CSR efforts from these mediums, the results might be represented if interviews were conducted on the staff and management of the hotels. There could have been CSR efforts conducted that might have not been published on the researched mediums.

## References

- Abacian, V., Yeoh, K. K., & Khong, K. W. (2014). An exploration of CSR initiatives undertaken by Malaysian hotels: Underlying motivations from a managerial perspective. *Procedia-Social and Behavioral Sciences*, 144, 423-432.
- Basil, D. Z., & Erlandson, J. (2008). Corporate social responsibility website representations: A longitudinal study of internal and external self-presentations. *Journal of Marketing Communications*, 14(2), 125-137.
- Brammer, S., Millington, A., & Rayton, B. (2007). The contribution of corporate social responsibility to organizational commitment. *The International Journal of Human Resource Management*, 18(10), 1701-1719.
- Carroll, A. B. (1979). A three-dimensional conceptual model of corporate performance. *Academy of management review*, 4(4), 497-505.
- Cherapanukorn, V., & Focken, K. (2014). Corporate social responsibility (CSR) and sustainability in Asian luxury hotels: Policies, practices and standards. *Asian Social Science*, 10(8), 198.
- Chung, L. H., & Parker, L. D. (2010, March). Managing social and environmental action and accountability in the hospitality industry: A Singapore perspective. In *Accounting Forum* (Vol. 34, No. 1, pp. 46-53). Taylor & Francis.
- Clarkson, P. M., Li, Y., Richardson, G. D., & Vasvari, F. P. (2008). Revisiting the relation between environmental performance and environmental disclosure: An empirical analysis. *Accounting, organizations and society*, 33(4-5), 303-327.
- Commission of the European Communities (2001). *Promoting a European framework for Corporate Social Responsibilities*. Brussels: CEC.
- Cyr, D. (2008). Modeling web site design across cultures: relationships to trust, satisfaction, and e-loyalty. *Journal of Management Information Systems*, 24(4), 47-72.
- De Grosbois, D. (2012). Corporate social responsibility reporting by the global hotel industry: Commitment, initiatives and performance. *International Journal of Hospitality Management*, 31(3), 896-905.
- Font, X., Walmsley, A., Cogotti, S., McCombes, L., & Häusler, N. (2012). Corporate social responsibility: The disclosure–performance gap. *Tourism Management*, 33(6), 1544-1553.
- Frankental, P. (2001). Corporate social responsibility—a PR invention?. *Corporate Communications: An International Journal*, 6(1), 18-23.
- Friedman, M. (2007). *The social responsibility of business is to increase its profits*. Corporate Ethics and Corporate Governance. W. C. Zimmerli, M. Holzinger, & K. Richter, eds, New York City: Springer. 173 – 178.
- Gomez, L., & Chalmers, R. (2011). *Corporate responsibility in US corporate websites: A pilot study*. Public Relations Review, 37 (1), 93 – 95.
- Holcomb, J. L., Okumus, F. & Bilgihan, A. (2010). *Corporate social responsibility: What are the top three Orlando theme parks reporting?* Worldwide Hospitality and Tourism Themes, 2 (3), 316 – 337.
- Holcomb, J. L., Upchurch, R. S. & Okumus, F. (2007). Corporate social responsibility: What are top hotel companies reporting? *International Journal of Contemporary Hospitality Management*, 19(6), 461 – 475.

- Hsieh, Y. C. (2012). Hotel companies' environmental policies and practices: A content analysis of their webpages. *International Journal of Contemporary Hospitality Management*, 24(1), 97 – 121.
- Jose, A., & Lee, S. M. (2007). Environmental reporting of global corporations: A content analysis based on website disclosures. *Journal of Business Ethics*, 72(4), 307-321.
- Joseph, C., Lin, V. C. S., Nichol, E. O., & Jussem, P. M. (2014). Sustainability disclosure on Malaysian hotel websites. In *Proceedings Conference: International Conference on Governance (ICG 2014)*, Universiti Utara, Malaysia (Vol. 29).
- Kasim, A. (2009). Managerial attitudes towards environmental management among small and medium hotels in Kuala Lumpur. *Journal of Sustainable Tourism*, 17(6), 709-725.
- Kasim, A. (2007). Towards a wider adoption of environmental responsibility in the hotel sector. *International Journal of Hospitality & Tourism Administration*, 8(2), 25-49.
- Kim, C. H., & Scullion, H. (2013). The effect of Corporate Social Responsibility (CSR) on employee motivation: A cross-national study. *Poznan university of economics review*, 13(2).
- Kramer, M., & Porter, M.E. (2011). Strategy and society: The link between competitive advantage and corporate social responsibility. *Harvard Business Review*, 84 (12), 78 -92.
- Levy, S. E., & Park, S. Y. (2011). An analysis of CSR activities in the lodging industry. *Journal of Hospitality and Tourism management*, 18(1), 147-154.
- Li, D. (2018, September). *Bright outlook for Singapore's hotel industry*. The New Paper, [www.tnp.sg/news/views/bright-outlook-singapores-hotel-industry](http://www.tnp.sg/news/views/bright-outlook-singapores-hotel-industry). (24 September 2018).
- Lyon, T. P., & Maxwell, J. W. (2011). Greenwash: Corporate environmental disclosure under threat of audit. *Journal of Economics & Management Strategy*, 20(1), 3-41.
- Martínez, P., & Del Bosque, I. R. (2013). CSR and customer loyalty: The roles of trust, customer identification with the company and satisfaction. *International Journal of Hospitality Management*, 35, 89-99.
- Neuman, L. W. (2007). *Social Research Methods: Qualitative and Quantitative Approaches*. India: Pearson.
- Petersen, H. L., & Vredenburg, H. (2009). Morals or economics? Institutional investor preferences for corporate social responsibility. *Journal of Business Ethics*, 90(1), 1.
- Robbins, S. P., & Coulter, M. (2012). *Management 7<sup>th</sup> Ed.* Upper Saddle River, New Jersey: Prentice Hall.
- Scanlon, L. N. (2007). An analysis and assessment of environmental operating practices in hotel and resort properties. *International Journal of Hospitality Management*, 26 (3), 711 – 723.
- Schmidt, S., Cantallops, A. S., & dos Santos, C. P. (2008). The characteristics of hotel websites and their implications for website effectiveness. *International Journal of hospitality management*, 27(4), 504-516.
- Shin, W., Pang, A., & Kim, H. J. (2015). Building relationships through integrated online media: Global organizations' use of brand web sites, Facebook, and Twitter. *Journal of Business and Technical Communication*, 29(2), 184-220.
- Singapore Tourism Board, (2009). *Overview*. Singapore Tourism Board. [www.stb.gov.sg/content/stb/en/about-stb/overview.html](http://www.stb.gov.sg/content/stb/en/about-stb/overview.html).
- Sinha, P., Dev, C. S., & Salas, T. (2002). *The relationship between corporate social responsibility and profitability of hospitality firms: do firms that do good also do well?* (pp. 1-21). Cornell University, Center for Hospitality Research.
- Sprinkle, G. B., & Maines, L. A. (2010). The benefits and costs of corporate social responsibility. *Business Horizons*, 53(5), 445-453.
- The Brand Company. (2012). *Asian Hospitality Brand Survey 2012: Summary of Results*. The Brand Company: [http://www.thebrandco.com/the-fount-of-wisdom/FINAL\\_TBC\\_Research\\_2011\\_05\\_18\\_V6.pdf](http://www.thebrandco.com/the-fount-of-wisdom/FINAL_TBC_Research_2011_05_18_V6.pdf).

- Tsai, H., Tsang, N. K., & Cheng, S. K. (2012). Hotel employees' perception on corporate social responsibility: The case of Hong Kong. *International Journal of Hospitality Management*, 31(4), 1143 – 1154.
- Tsang, E. (1998). A longitudinal study of corporate social reporting in Singapore: The case of banking, food and beverages and hotel industries. *Accounting, Auditing & Accountability Journal*, 11(5), 624 – 635.
- Vassilikopoulou, A. I., Siomkos, G. J., & Mylonakis, J. (2005). Clustering consumers according to their attitudes on corporate social responsibility. *International Journal of Business Governance and Ethics*, 1(4), 317-328.
- Wee, A. T., & Ross-Smith, P. M. (2018). CSR reporting in locally owned hotel chains in Malaysian. *Asian Social Science*, 14(8), 16 – 26.
- Welford, R. (2005). Corporate social responsibility in Europe, North America and Asia: 2004 survey results. *Journal of Corporate Citizenship*, 17, 33 – 52.
- World Business Council for Sustainable Development. (1999). *Corporate Social Responsibility: Meeting Changing Expectations*. Switzerland.

ORIGINAL ARTICLE

Open Access

# Reducing plagiarism through academic misconduct education



Mike Perkins<sup>1\*</sup> , Ulas Basar Gezgin<sup>2</sup> and Jasper Roe<sup>1</sup>

\* Correspondence: [mgperkins@gmail.com](mailto:mgperkins@gmail.com)

<sup>1</sup>British University Vietnam, BUV  
Ecopark Campus, Ecopark Township,  
Hung Yen, Vietnam  
Full list of author information is  
available at the end of the article

## Abstract

Although there is much discussion exploring the potential causes of plagiarism, there is limited research available which provides evidence as to the academic interventions which may help reduce this. This paper discusses a bespoke English for Academic Purposes (EAP) programme introduced at the university level, aimed at improving the academic writing standards of students, reducing plagiarism, and detecting cases of contract cheating. Results from 12 semesters of academic misconduct data ( $n = 12,937$ ) demonstrate a 37.01% reduction in instances of detected plagiarism following the intervention, but due to limited data, cannot demonstrate a direct impact on reducing detected rates of contract cheating. The results also show a lower than expected proportion of plagiarised assignments (3.46%) among submissions.

**Keywords:** Academic misconduct, Plagiarism, Contract cheating, Turnitin, Academic dishonesty, Ghost-writing, EAP intervention, fingerprinting

## Introduction

Academic dishonesty is not a new problem for higher education service providers. However, the rising availability of information sources which can easily be accessed by student writers, as well as essay-writing services heavily marketed towards university students, has led to an increase in discussions on this topic in both the media and academic journals. One way in which universities have attempted to monitor and control academic integrity is through the use of text matching software such as Turnitin. However, Turnitin and other software packages used to detect similarities between text submissions have been widely acknowledged as far from a perfect solution to 'solve' plagiarism (Heckler et al. 2012; McKeever 2006; Scheg 2012) as they do not inherently detect whether plagiarism has occurred.

Aside from cases of plagiarism that can be detected using text matching software, other, more subtle and difficult to detect forms of plagiarism such as contract cheating also need to be addressed. Throughout this paper, we use the term 'contract cheating' to refer to any form of plagiarism where a student has contracted another individual or organisation to carry out assessed work on their behalf.



© The Author(s). 2020 **Open Access** This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>. The Creative Commons Public Domain Dedication waiver (<http://creativecommons.org/publicdomain/zero/1.0/>) applies to the data made available in this article, unless otherwise stated in a credit line to the data.

Although student use of contract cheating services are not new (Lancaster and Culwin 2007) and prevalence of this behaviour is low (Rundle et al. 2019), they are becoming more visible, to the point where it is not uncommon to see these services advertised on social media. These services show evidence of being mature, well-established commercial operations, suggesting that there is a substantial demand feeding this supply (Ellis et al. 2018).

In this study, we present and discuss an intervention designed to improve the academic writing skills of students, reduce levels of plagiarism, and provide a tool to assist in the detection of contract cheating, by capturing a 'fingerprint' of a writing sample in an offshore international higher education service provider: British University Vietnam (BUV). BUV has operated in Vietnam's capital city, Hanoi, since 2009. Although the faculty are entirely expatriate employees, almost all the students are Vietnamese, and therefore use English as their second or even third language. BUV faces the same problems as any other university with regards to plagiarism threats. However, due to the suggested negative relationship in the literature between English language ability and the propensity to commit plagiarism (Abasi and Graves 2008; Bretag 2007; Chen and Ku 2007; Goh 2015; Jones 2011; Li 2015; Marshall & Garry 2006; Perkins et al. 2018; Pennycook 1996; and Walker and White 2014), BUV must be more aware of the potential threats of plagiarism in its student body. In this paper we focus specifically on how the use of a bespoke English for Academic Purposes (EAP) programme (referred to internally as the Academic English Masterclass) may improve the academic writing skills of students, assist in reducing overall plagiarism levels within BUV, and specifically, assist in the identification of cases of contract cheating. As proposed by Kakkonen and Mozgovoy et al. (2010), we demonstrate how a final exam for this programme may be used to help identify potential cases of contract cheating by providing 'fingerprints' of a writing style which may be checked for consistency against a piece of work submitted later.

### Literature review

Although there are multiple definitions and characterisations of plagiarism (see: Park 2004; Bennett et al. 2011; Mozgovoy et al. 2010), for the purpose of this paper, we refer to plagiarism as an act of submitting a document that belongs partially or completely to somebody else without due reference, and therefore misrepresents the effort that has been carried out by the submitting author. It is important to recognise that plagiarism can also occur unintentionally. We believe that the primary benefit of the initiative we present is that it has the potential to reduce instances of unintentional plagiarism by developing the academic skills of students, whilst also serving as a disincentive to the minority of students who seek to benefit by engaging in one or more deliberate forms of plagiarism discussed above. However, as the analysis presented in this paper uses institutional data on detected cases of plagiarism, we cannot differentiate between deliberate and accidental cases of plagiarism.

The reasons students engage in plagiarism has been well explored in numerous other papers, but as most students at BUV are Non-Native English Speakers (NNES), we wish to highlight the effect that low levels of English may have on incidences of plagiarism. This finding is supported by Bretag et al. (2018) who found that a factor influencing

contract cheating prevalence was the use of a language other than English in students' homes. Studies which have found a generally negative relationship between English language ability and plagiarism include Abasi and Graves (2008), Bretag (2007), Bretag et al. (2018), Chen and Ku (2007), Goh (2015), Jones (2011), Li (2015), Marshall and Garry (2006), Pennycook (1996), Perkins et al. (2018), and Walker and White (2014). However, many studies exploring this relationship are based on self-reported data from both students (Goh 2015; Jones 2011) and faculty (Abasi and Graves 2008; Bretag 2007; Li 2015; Walker and White 2014) which raise methodological concerns about the potential validity of this relationship.

In terms of interventions which may assist in combatting plagiarism, several options have been suggested in the relevant literature. These include an online academic integrity module (Belter and du Pré 2009; Curtis et al. 2013), a web-based module with a blended method on plagiarism (Stetter 2013), an online quiz through Blackboard (O'Donnell 2011), a plagiarism assignment (Davis 2011), an ethics-related module (Guo 2011), computer simulations and games as a preventative measure (Bradley 2015), marker training and the use of novel detection software, (Dawson et al. 2019; Dawson et al. 2019) and student plagiarism workshops (Chen and Van Ullen 2011; Hoanca 2019). Soto et al. (2004), and Levine and Pazdernik (2018) provide clear evidence of a reduction in plagiarism following a combination of initiatives, including structured educational modules, implementation of policies, increasing the difficulty of plagiarism by requiring students to submit drafts, and ensuring there are consequences of plagiarism. The fear of consequences arising from being caught committing plagiarism was also shown to be a strong deterrent to plagiarism by Bennett (2005). Amigud and Lancaster (2019) also identify that in some cases, familial involvement occurs in the process of purchasing contract cheating services, although it is not specified how this takes place. The authors suggest that ultimately, reducing contract cheating should focus on detection rather than attempting to stop it happening in the first place.

Proposals which have been suggested to specifically reduce contract cheating include: collecting writing samples from students (McLafferty and Foust 2004; Jones & Sheridan, 2014); setting assignments that specifically refer to lecture contents rather than generic essays (McLafferty and Foust 2004); improving the teaching and learning environment, including the relationship between staff and students and reducing the turnaround time of assessments (Wallace and Newton 2014); 'designing out' plagiarism (Fazel and Kowkabi 2014) by providing alternative forms of assessment such as exams, oral presentation (Lines 2016), internship experience and field trip-based reports, as part of a holistic assessment methodology (Goh 2015); and incorporating assessments that involve critical thinking and personal involvement with the course content (Carroll 2007; Heckler et al. 2012; McLafferty and Foust 2004; Probett 2011).

There is limited research in the field providing evidence of how contract cheating may be detected in the first place. Clarke and Lancaster (2007) present a 'Six-Stage Contract Cheating Detection Process' for identifying incidences of contract cheating in computer science assignments. However, this method relies on the availability of public information; in this case, 'bids' to an auction site. This ignores a common pathway of students obtaining papers from 'essay mills' or from advertisements on private social media groups. Morris (2018) on the other hand, suggests a more holistic model of five considerations for addressing contract cheating, including determining strategy,



reviewing institutional policy, developing an understanding of students, edited and revisiting practices for assessment and including areas for staff professional development.

Koppel and Winter (2014) demonstrate how computational linguistic methods can be used to determine whether the author of two documents is the same. Although the results of their study indicate that this method has a good degree of accuracy in determining whether two documents were written by one author, it relies on having access to digital copies of all text being examined. This method is therefore unable to determine whether contract cheating has taken place, as it is not possible to analyse work from authors who are not in the existing database.

Clare et al. (2017) present a method of determining whether contract cheating may have occurred by examining whether unusual patterns exist between the grades received by students for unsupervised work compared to those for supervised work. This approach may be helpful to identify where further investigation could take place, but given the wide range of factors which could also influence differences in grades between different types of assessment (student preferences, differences in grading practices between markers, quantitative vs qualitative assessments, etc.), it cannot be relied upon by itself as a tool to identify contract cheating.

Dawson and Sutherland-Smith (2018) show that experienced markers were able to detect contract cheating 62% of the time in one experiment. However, these papers were all obtained from dedicated contract cheating websites which may be of varying quality, and the study only examined twenty papers from one course.

Harper et al. (2020) demonstrate that staff are generally skilled at detecting contract cheating rates for text-rich assessments, but this reported detection rate was lower for exam-based assessments as opposed to take-home assignments.

Although it is very easy for software solutions to identify text that is already present in its database, the ability of current software is not yet advanced enough to detect the complexities of contract cheating (Kakkonen and Mozgovoy 2010; Mozgovoy et al. 2010). As advances in technologies such as deep learning, neural networks, and quantum computing develop and become available for use in higher education, these difficulties may be eased. It is worth noting that new products from Turnitin such as Authorship Investigate have shown potential in identifying contract cheating cases (Dawson et al. 2019) although are not yet widely available. As software cannot adequately assist with detecting incidences of contract cheating, this is therefore left to faculty. However, studies such as Lines (2016) and Malesky et al. (2016) have shown how these contract cheating services can both be undetected by faculty (despite knowledge of their use) whilst also providing acceptable grades for the students engaging in these practices.

As there have been few reports of studies which have been specifically designed to both reduce plagiarism and identify potential cases of contract cheating, we contribute to the literature by detailing the methods which BUW have taken in order to resolve this problem, whilst at the same time increasing the academic writing capabilities of our students.

#### **Language, plagiarism and context in British University Vietnam (BUV)**

BUV is a private educational institution which began operations in 2009. BUV holds a unique position in Vietnam's higher education system, as the only university to offer

entirely British undergraduate programmes which are accredited by and offered in partnership with two UK universities. As of February 2020, BUV has approximately 700 students primarily studying degrees in Business and Management subjects.

The majority of BUV students are NNES and study a programme comprising two semesters of study per academic year. All students who begin a course of study must have achieved an English language proficiency score: either an official IELTS Band score of 6.0 with no sub-skill below 5.5, or an alternative English language qualification equivalent to this level.

BUV is in the process of undertaking rapid expansion and has recently relocated to a suburban campus with a capacity for over 7000 students. This dramatic increase in scale has the potential to give rise to new and increased risks for academic quality and reputation, and so it is imperative that appropriate measures are employed to safeguard the quality and rigour of the programmes offered during this period of growth and in the future. Consequently, the faculty of BUV has been working towards the development of an intervention to detect, reduce, and deter students from voluntarily or involuntarily participating in behaviours which would constitute plagiarism, whilst at the same time improving the key language and study skills required by students studying in an international educational setting.

Prior to the introduction of the BUV intervention in April 2016, faculty had identified that many students in their classes may benefit from additional support in developing their academic study skills. BUV had, by chance, also discovered some challenging cases of contract cheating and were also anecdotally aware that this was more common in the student body than previously thought. Due to the historical reliance in the institution on Turnitin as the key tool to identify instances of plagiarism, a new approach to managing the academic integrity of the university needed to be taken which could further improve the English language ability of students.

As any potential threats to the academic integrity of the BUV programmes need to be taken extremely seriously, and the potential benefits to the English language ability of students were clear, the introduction of an initiative to tackle both issues was required. The highly competitive market of private, international higher education in Vietnam also means that any additional benefits provided to students may act as market differentiators. By developing an initiative which could tackle both issues at BUV, and therefore increase the likelihood of students attaining good degrees, this would likely act as a potential selling point to the fee payers and decision makers (most often the parents of students). In this market, as in many others, a strong reputation is a key decision-making factor in the choice of universities. If there was a suggestion that the academic integrity of BUV was anything other than impeccable, this could cause significant problems with student recruitment, as well as damage our relationships with local and international stakeholders.

This intervention had to address several key concerns. Firstly, students had to be provided with additional academic English classes in order to attempt to reduce feelings of low confidence and improve their overall ability to write in English. Secondly, students also had to receive additional support in terms of time management and fostering motivation. An intervention had to provide a tangible, stringent method of detecting instances of contract cheating. Finally, the intervention had to specify the rules and codes of conduct relating to academic integrity expected in an international university

environment, while being careful not to fall into the trap of assuming that Western academic values are a universal constant.

### **The intervention: Academic English Masterclass**

Based upon the analysis presented above, BUV approved the creation of a standalone compulsory module for all undergraduate students, entitled Academic English Masterclass (AEM) which ran for the first time in April 2016.

The module consists of 2 hrs of class-based tuition per week for 12 weeks for all undergraduate students and culminates in a novel final exam, which functions as both a control and benchmark for students' English writing ability as well as enabling fingerprinting of submitted work to be carried out.

The process of syllabus development was based on a needs analysis, as suggested by Nunan (1988), of a convenience sample of 30 students, targeting their 'needs, lacks, and wants' (Nation and Macalister 2010, p.25) and adapted for the East Asian context based on the research of Cai (2013). This was combined with informal one-to-one interviews with all 30 members of the sample group, and an initial diagnostic test in the form of a written essay. The needs analysis revealed that in terms of composition skills, students required the most assistance with essay planning, paraphrasing, referencing, and finding relevant sources of information. Many final year students admitted to plagiarising when they were unable to put ideas into their own words or were unable to identify the boundaries of utilising others' material versus academic misconduct. This suggests that although first year students may require more focussed training on academic misconduct policy and basic EAP training, the requirements for final year students may be different. This insight was incorporated into the design of the course.

A final consideration in the design of the programme was the international context of BUV. Academic integrity is far from a universal concept and ignores the Eastern academic tradition of duplicating material as homage (Stowers and Hummel 2011). This is an important consideration in terms of understanding students' interpretation of plagiarism, and it is possible that the view of reusing material in 'homage' is not seen by all students in this cultural context as a breach of academic integrity. However, research on this area is conflicted, and some authors suggest that plagiarism is more frequently linked to individual preference rather than cultural acceptability (Martin 2011). Regardless of this potential cultural paradigm clash, it remains important in this context that the AEM programme explicitly teaches and explains the underlying philosophical foundations of the British academic system, and the conventions that must be followed to avoid committing plagiarism.

The needs analysis led to the development of a multidimensional syllabus with the course goal of raising the awareness of acceptable practices surrounding plagiarism and academic misconduct, whilst at the same time, developing students' researching and writing skills. This is tested by a final written assessment under exam conditions. Students are provided with a set of multiple-choice questions to assess knowledge about acceptable academic practices, and are also set a writing task. In this task they are given extended extracts from a variety of sources, including academic and non-academic

sources of information with differing degrees of bias, and must tackle an essay question in which they utilise these sources. This procedure ensures that the essay written by the student (and subsequently used as a fingerprint) is entirely their own work,<sup>1</sup> and also provides them with the opportunity to demonstrate their ability in every facet of academic writing, including not only grammatical and lexical accuracy, but also the skills of paragraphing, paraphrasing, referencing, and critical thinking (as text extracts must be analysed for their impartiality). Alongside the original exam script is a companion piece, written by the marker, that contains several key points related to the writer's ability, along with a band score of 1–9, which is developed based on a rubric and band score system of English proficiency. The rubric and band system scores students on grammatical accuracy, coherence, academic skills (referencing, paragraphing, and synthesis of material), and vocabulary. The marked sample is available for checking by faculty by the time students submit their summative assignments for their academic modules.

Markers must carry out a check using the writing sample on all high scoring assessments (papers scoring 70% and above), as well as a random selection of 10% of papers from each set of assessments, with a minimum sample size of six papers. Although all grading is carried out anonymously, once a paper has been graded, markers are permitted to use the student number to match up with the student name to aid in initial authorship investigation. All markers are trained how to perform these checks, and this process is discussed later in the paper.

Following the introduction of this intervention, all students were reminded of the dangers of plagiarism and new warnings were introduced to all assignment guidelines highlighting the severity of consequences if students were caught plagiarising. All students were made aware that their writing samples obtained during the AEM exam would be made available online for faculty and misconduct panels to check if there were any suspicions regarding their writing. New writing samples are obtained every semester from students, approximately 3 weeks before the assignment submission period begins in order to reduce the likelihood of significant changes being seen in the writing styles of students over time.

## **Methods and analysis of results**

### **Data collection and screening**

If any student submission is flagged by a marker as a potential plagiarism or contract cheating case, a process is initiated by the faculty members which ends in the student being notified by the administration that they are required to attend an informal meeting to discuss their work. Most cases of plagiarism are resolved at this stage and any penalties recorded. If, after this stage, there are concerns regarding potential contract cheating students are requested to attend an academic misconduct panel and participate in a *viva voce* of their submission in the presence of both a subject matter

---

<sup>1</sup>Bretag et al. (2018) demonstrate the widespread nature of cheating in university exams and Harper, Bretag and Rundle (2020) demonstrate the lack of ability of markers to detect this, which raises a question regarding this statement. However, given the relatively low stakes of this particular assessment, and that it is the writing *style* of the student that we are most interested in as opposed to the *content*, we believe this to not be of major concern.

expert and a misconduct expert. Following the viva, if this panel has remaining suspicions of contract cheating, then the case is escalated to the most serious university panel for a meeting with the student. This panel will make the final decision as to whether contract cheating has occurred and will use a wide variety of sources of evidence in making its final decision. These include the writing samples obtained during the AEM exam, statements from relevant faculty, the previous marks obtained by the student, results from the initial *viva* and additional questions which the panel may put to the student. As the typical penalty for a student found to have utilised any contract cheating services is a failure of their award, it is the responsibility of the university to establish proof beyond reasonable doubt in these cases, and no decision is made solely on the basis of the comparison of the fingerprint with the submitted piece of work. The procedures used by BUUV are set by the awarding body, and there is an appeal process available to the student.

In February 2020, we conducted an analysis of the plagiarism and contract cheating cases recorded during this process from the semesters of April 2014 through October 2019 to answer three questions:

1. What is the overall prevalence of plagiarism committed by students at BUUV?
2. Has the AEM initiative been successful in reducing plagiarism cases?
3. Has the AEM initiative been successful in reducing detected incidences of contract cheating?

Before carrying out the analysis, the data was screened in the following way: Firstly, all recorded cases where a misconduct panel determined that no form of plagiarism had occurred in the flagged submission, and therefore gave a verdict of 'no case to answer', were removed. Any incidences where a verdict of 'poor academic practice' was given by the panel solely due to poor referencing practices were also excluded from the results. If one student had been punished for several plagiarism violations, each incident was counted separately.

The results of this analysis are shown in Table 1.

### **Overall prevalence of plagiarism and contract cheating**

From a total of 12,937 student submissions, analysis of the data revealed 448 plagiarism offences over the twelve-semester period between April 2014 and October 2019. The percentage of submissions found to have contained some element of plagiarism (excluding contract cheating cases) ranged between 2.35% and 7.08% each semester, with a mean percentage of 3.46% across the period of study. As the dataset covers multiple years, some incidences of plagiarism were from individual students who had committed plagiarism offences over multiple semesters.

With the caveat that it is possible that the study may underestimate plagiarism in the student body (as it would be unwise to believe that any higher education institution detects 100% of plagiarism cases), the first point to note is that the prevalence of detected plagiarised submissions is much lower than described in previous studies examining plagiarism data (as opposed to self-report studies). These studies have revealed mean rates of plagiarism of 26% ( $n = 182$ ) (Barret & Malcolm 2006), 26.2% ( $n = 290$ ) (Walker 2010), and 10.8% ( $n = 74$ ) (Warn 2007) respectively. Within a specifically Vietnamese

**Table 1** Descriptive Plagiarism Results at BUJ

	Semester start date	Number of assignment submissions	Number of detected cases of plagiarism	Plagiarism cases as percentage of assignment submission	Number of detected Contract Cheating cases	Contract Cheating cases as percentage of plagiarism cases	Contract Cheating cases as percentage of assignment submissions
Results prior to the introduction of the AEM intervention	April 2014	642	33	5.14%	1	3.03%	0.16%
	October 2014	715	21	2.94%	1	4.76%	0.14%
	April 2015	933	37	3.97%	1	2.70%	0.11%
	October 2015	847	60	7.08%	8	13.33%	0.94%
Results following the introduction of the AEM intervention	April 2016	872	31	3.56%	3	9.69%	0.34%
	October 2016	799	55	6.88%	0	0.00%	0.00%
	April 2017	994	39	3.92%	1	2.56%	0.10%
	October 2017	1064	43	4.04%	0	0.00%	0.00%
	April 2018	940	31	3.30%	1	3.23%	0.10%
	October 2018	1492	9	0.60%	1	11.11%	0.07%
	April 2019	1577	37	2.35%	2	5.41%	0.13%
	October 2019	2062	52	2.52%	0	0.00%	0.00%
<b>Total/Average before AEM:</b>		<b>3137</b>	<b>151</b>	<b>4.81%</b>	<b>11</b>	<b>7.28%</b>	<b>0.35%</b>
<b>Total/Average after AEM</b>		<b>9800</b>	<b>297</b>	<b>3.03%</b>	<b>8</b>	<b>2.69%</b>	<b>0.08%</b>
<b>Total/Average overall:</b>		<b>12,937</b>	<b>448</b>	<b>3.46%</b>	<b>19</b>	<b>4.24%</b>	<b>0.15%</b>

context, Ba et al. (2016) found that 73% ( $n = 681$ ) of the submissions tested in their study had Turnitin similarity indexes of over 20%, and Tran et al. (2017) found that in their studies of two Vietnamese universities, there were plagiarism levels (defined by similarity indexes over 24%) of 91.7% and 61.7%.<sup>2</sup> Our study differs from those cited above due to the longitudinal aspects of the data collection period, meaning that a much larger sample has been obtained for analysis.

The results may indicate that BUJ students demonstrate a lower predilection towards plagiarism than the norm, however, they are more likely explained by the large sample utilised in the study. Even though faculty (Andrews et al. 2007) and students (Scanlon and Neumann 2002) alike may consider plagiarism to be a significant problem

<sup>2</sup>The authors of these papers suggest that this equates to a high probability of plagiarism having occurred, however text matching software such as Turnitin does not identify plagiarism, it simply identifies similarities in documents which *may* indicate that plagiarism has occurred in some form. Just because there is a high degree of similarity identified, does not necessarily mean that an author has engaged in plagiarism. This may occur in cases where students have submitted improved versions of papers as part of a continuous assessment initiative.

in their institutions, our results demonstrate that a quantitative analysis of a larger data sample could reveal a lesser problem than initially imagined. Despite the professed increased propensity of non-native English speaking 'International' students to commit plagiarism (Walker 2010), the low levels of plagiarism indicated in the set of submissions (even though almost all submitting students are NNES) indicates that this suggestion is not universally accurate, a viewpoint echoed by Soto et al. (2004).

Identified levels of contract cheating were overall very low, with a total number of 19 cases over the period, ranging from 0% to 0.94% of submissions per semester, with a mean percentage of 0.15% of the total number of submissions in the time period. This prevalence rate is significantly lower than the figures reported by Curtis and Clare et al. (2017), of 3.5% of students (not submissions) having committed these offences, and by Harper et al. (2020) of 2.6%. However, as contract cheating cases are more difficult to detect than more 'traditional' plagiarism offences (whether intentional or unintentional), we recognise that the detected cases are unlikely to be fully representative of the actual levels of contract cheating in the student body.

#### **Effectiveness of the AEM in reducing plagiarism**

Prior to the introduction of the AEM intervention in the April 2016 semester, the mean percentage of submissions found to contain plagiarism was 4.81% ( $n = 3137$ ). Following the introduction of the intervention, the mean percentage of submissions found to contain plagiarism dropped to 3.03% ( $n = 9800$ ); a 37.01% decrease from the results prior to the intervention. Although the rates of plagiarism were already low prior to the introduction of the AEM, the further reduction in plagiarism demonstrates that the intervention has achieved one of its stated aims of educating students about appropriate academic standards and reducing levels of plagiarism. These findings are in line with those of Soto et al. (2004), and Levine and Pazdernik (2018), demonstrating that training programmes such as the AEM may help reduce plagiarism.

#### **Effectiveness of the AEM in reducing contract cheating**

With regards to the prevalence of contract cheating before and after the AEM intervention, the results do show a reduction in the percentage of contract cheating cases detected, from 0.35% of submissions, to 0.08% of submissions, a 77.14% decrease. With the assumption that the decrease in identified cases is not due to any decrease in the ability of markers to detect these (given the additional training that occurred), this apparent reduction in contract cheating may be due to several factors or a combination of these factors. Firstly, an improvement in student knowledge of appropriate academic standards may have increased the awareness of what is expected of them in a university setting. Secondly, knowing that there will be increased scrutiny of their submissions regarding contract cheating, and the knowledge that samples of their work are available for checking may have increased the perceived risk of contract cheating. Thirdly, any reduction may be due to real improvements in the EAP abilities of the students. As the English language ability of students has been shown to be linked to plagiarism, the increased EAP skills of the students may have reduced the perceived need to obtain contract cheating services.

However, the relative rarity of contract cheating as a percentage of submissions, and the very small total number of cases over the entire period of investigation do not allow us to make any firm conclusions as to the effectiveness of this intervention on the reduction of detected cases of contract cheating. The relatively large number of cases identified in the October 2015 semester compared to other semesters, and the limited periods of data collection prior to the introduction of the intervention have likely made a comparison of contract cheating data before and after the intervention untenable.

Despite this, we believe that continuing with this initiative is important. By continuing to educate students in academic writing skills and expected academic practice, as well as establishing a protocol of collecting and checking student writing samples, we can reduce plagiarism, provide a disincentive for students who may seek to engage in contract cheating, and obtain a valuable data source for the further investigation of any such detected cases.

## **Discussion**

Although the preliminary results of this intervention are promising, any benefits of an intervention such as the AEM must be considered alongside an understanding of the numerous challenges of any intervention involving the collection and comparison of student writing samples.

Firstly, faculty carrying out marking of assessments must know which submissions are suspicious, and therefore warrant checking against the student fingerprints. In order to do this on an ad-hoc basis, some prior expectations as to the quality of the submitted work must be held. Although some faculty may be aware of the general quality of work they are expecting from a set of assignment submissions, the use of anonymous marking means that as long as the quality of work is generally in line with the entire cohort, markers may not necessarily detect a clear difference between contracted and legitimate assignments. As the size of student cohorts increases, this leads to a wider spread of both marks and writing styles being expected, and the likelihood of faculty having initial suspicions is further reduced, therefore compounding this problem. For institutions which have a high concentration of NNES, an additional challenge which may be encountered is that of fellow NNES students being hired for contract cheating, as opposed to 'professional' native English speaking contract cheating services. This sub-type of contract cheating may be more appealing to some students, as fellow NNES students may have similar writing styles and have completed the same, or similar classes. This means that the differences between these submissions and fingerprinted work may not be as apparent when compared to the results obtained from professional contract cheating websites.

Secondly, faculty may not always accurately detect cases of contract cheatings, even if a submission is checked for consistency against the fingerprinted sample. Markers will likely have differing skill levels in their ability to accurately detect differences in writing styles between a submission and a fingerprint and some cases may be missed. Therefore, any institution considering the introduction of fingerprinting must be aware of the potential increase in false negatives occurring due to some submissions not being investigated appropriately and implement training programmes to address this. This method also does not address cases where a writing sample would not be helpful in determining authorship of an assessment, such as computer coding or artwork.



Conversely, the potential risk of false positives must also be considered. If faculty members flag a submission as a possible case of contract cheating due to a change in writing styles between a fingerprint and a submitted assignment, there must be a fair and consistent approach to investigating these cases fully. Markers must also be aware that improvements in English language abilities and writing styles are likely to be seen when comparing what can be produced under timed, exam conditions, compared to a take-home assignment, as students will have had time to proofread, plan, edit, and check their final submission.

Research by Dawson et al. (2019) has indicated that the training of markers can improve their ability to identify contract cheating, therefore to minimise the problems stated above, all faculty members receive training on how to assess work for potential cases of contract cheating, and assessments are only graded by faculty who have completed this training. When checking for potential evidence of contract cheating, markers are asked to investigate several things. The initial step is an overall comparison of the student's writing in the unsupervised, external assessment with the sample produced under exam conditions. If a student produced a flawless submission in adherence to all academic standards, but during the AEM written exam had received a low score in this area, or the overall standards of English were very different, this might indicate a second or alternate author.

Other techniques based on forensic linguistics are also used. These include comparing the submission with the sample to see if there are mismatches between the writer's unique choice of words and individual style of writing (idiolect), and their tendency to use certain constructions (coselection and lexical choice) (Coulthard, 2010).

Markers are also trained to identify other potential indicators of contract cheating, either of the whole document, or of partial sections. These indicators include changes in formatting or styles of writing in different sections of the text, as well as examining the document properties for any suspicious elements such as very short editing times (indicative of content being copied into a brand new document before submission), or whether there are inconsistencies in the named author of the document. Even the choice of sources used or not used in a submission could raise suspicions: for example, not citing key sources indicated during class sessions. By training all markers how to check for contract cheating, making comparisons between the sample and submissions part of the marking procedure, and carrying this procedure out on a regular basis, it is our hope that we can improve the capacity of markers to identify instances of contract cheating.

Although individually none of the above indicators would ever be considered conclusive evidence of contract cheating, and the fingerprinting method has significant limitations as discussed, all the above can be employed by a panel investigating whether academic misconduct may have occurred.

Reducing and detecting plagiarism and contract cheating requires a holistic approach to be taken (McCabe 2005; Morris 2018). We believe that initiatives such as the AEM programme which aim to improve the English capabilities of students, educate them on expected academic conduct practices, and discourage contract cheating fit this definition, and our results demonstrate how doing so may assist with this goal.

## Conclusion

This paper has discussed the introduction of an intervention designed to improve the academic writing skills of students, reduce levels of plagiarism, and provide a tool to assist in the detection of contract cheating by capturing a 'fingerprint' of a writing sample.

The data collected over the course of 12 semesters show a 37.01% decrease in the rate of detected plagiarism following the introduction of the AEM intervention, and suggest that the introduction of a programme like this could help institutions with reducing plagiarism.

The levels of detected contract cheating cases did decrease following the introduction of the intervention, however, the very small numbers of detected contract cheating cases both pre and post intervention mean that we cannot make a conclusion regarding the use of collecting writing samples as an effective tool to help detect these cases. We have recognised the limitations of this fingerprinting exercise and suggested potential mitigations to these through faculty training.

Despite using a large database of student submissions ( $n = 12,937$ ), the data shows surprisingly low levels (3.36%) of detected plagiarism overall, which do not match the high prevalence of plagiarism that has previously been recorded in the literature, however, by analysing detected cases of plagiarism data as opposed to student self-reported data, it is possible that this study may have underestimated plagiarism in the student body. Previous studies have used much smaller samples of student submissions in their analysis, which suggests that different results may be obtained when examining larger sets of data. We therefore recommend that further research should try to use longitudinal university or department wide databases for analysis purposes, as opposed to individual class submissions, as this may give a more accurate representation of the prevalence of plagiarism in an institution.

The issue of academic misconduct is becoming increasingly more visible to the general public. In the United Kingdom, 40 university leaders have written to the Minister of State for Universities, Science, Research and Innovation demanding a ban on companies offering contract cheating services (BBC News 2020), and the Advertising Standards Authority has already banned misleading advertisements from one of these companies (Advertising Standards Agency, 2019). We recognise that the costs required for an intervention strategy such as the AEM may pose a barrier to entry for many institutions, but given the increasing focus on academic integrity, this is not an issue that universities can afford to ignore. We therefore recommend the use of similar initiatives in other institutions as a potential method to educate students about expected academic practice, reduce plagiarism, and believe the potential benefits justify the challenges of introducing such an initiative.

#### **Abbreviations**

AEM: Academic English Masterclass; BUV: British University Vietnam; EAP: English for Academic Purposes; NNES: Non-Native English speaker

#### **Acknowledgements**

The authors would like to thank Louise Cotrel-Gibbons for her kind support in offering suggestions for improvement and proof reading of this article.

#### **Availability of data and data materials**

Data not available due to confidentiality of student information.

#### **Authors' contributions**

All authors contributed to this work. The percentage of contributions is indicated by the order of authorship provided. The author(s) read and approved the final manuscript.

#### **Funding**

The authors received no funding for this work.

### Competing interests

All authors were employed by the university in question during the time of authorship of the paper.

### Author details

<sup>1</sup>British University Vietnam, BUVCampus, Ecopark Township, Hung Yen, Vietnam. <sup>2</sup>Duy Tan University, 3 Quang Trung, Danang City, Vietnam.

Received: 23 September 2019 Accepted: 24 March 2020

Published online: 01 May 2020

### References

- Abasi A, Graves B (2008) Academic literacy and plagiarism: conversations with international graduate students and disciplinary professors. *J Engl Acad Purp* 7:221–233. <https://doi.org/10.1016/j.jeap.2008.10.010>
- Advertising Standards Authority (2019) ASA ruling on the Oxbridge research group Ltd t/a Oxbridge essays. In: *Asa.org.uk*. <https://www.asa.org.uk/rulings/the-oxbridge-research-group-ltd-a18-458914.html>. Accessed 17 Mar 2020
- Amigud A, Lancaster T (2019) I will pay someone to do my assignment: an analysis of market demand for contract cheating services on twitter. *Assess Eval High Educ*. <https://doi.org/10.1080/02602938.2019.1670780>
- Andrews G, Smith A, Henzi D, Demps E (2007) Faculty and student perceptions of academic integrity at US and Canadian dental schools. *J Dent Educ* 71:1027–1039
- Barrett R, Malcolm J (2006) Embedding plagiarism education in the assessment process. *Int J Educ Integr* 2:38–45
- BBC News (2018) Unis demand ban on essay-writing firms. In: *bbc.com/news*. <https://www.bbc.com/news/education-45640236>. Accessed 21 Mar 2020
- Belter R, du Pré A (2009) A strategy to reduce plagiarism in an undergraduate course. *Teach Psychol* 36:257–261. <https://doi.org/10.1080/00986280903173165>
- Bennett K, Behrendt L, Boothby J (2011) Instructor perceptions of plagiarism. *Teach Psychol* 38:29–35. <https://doi.org/10.1177/0098628310390851>
- Bennett R (2005) Factors associated with student plagiarism in a post-1992 university. *Assessment Evaluation Higher Educ* 30: 137–162. <https://doi.org/10.1080/0260293042000264244>
- Bradley E (2015) Using computer simulations and games to prevent student plagiarism. *J Educ Technol Syst* 44:240–252. <https://doi.org/10.1177/0047239515617653>
- Bretag T (2007) The emperor's new clothes: yes, there is a link between English language competence and academic standards. *People Place* 15:13–21
- Bretag T, Harper R, Burton M, Ellis C, Newton P, Rozenberg P, Saddiqui S, van Haeringen K (2019) Contract cheating: a survey of Australian university students. *Stud High Educ* 44:1837–1856. <https://doi.org/10.1080/03075079.2018.1462788>
- Cai L (2013) Students' perceptions of academic writing: a needs analysis of EAP in China. *Language Education in Asia* 4:5–22. <https://doi.org/10.5746/leia/13/v4/i1/a2/cai>
- Carroll J (2007) A handbook for deterring plagiarism in higher education. Oxford Centre for Staff Learning and Development, Oxford
- Chen T, Ku TNK (2007) EFL students: factors contributing to online plagiarism. *Student Plagiarism in an Online World: Problems and Solutions: Problems and Solutions*
- Chen Y, Van Ullen M (2011) Helping international students succeed academically through research process and plagiarism workshops. *Coll Res Libr* 72:209–235. <https://doi.org/10.5860/crl-1171>
- Clare J, Walker S, Hobson J (2017) Can we detect contract cheating using existing assessment data? Applying crime prevention theory to an academic integrity issue. *Int J Educ Integrity*. <https://doi.org/10.1007/s40979-017-0015-4>
- Clarke R, Lancaster T (2007) Establishing a systematic six-stage process for detecting contract cheating. *The Second International Conference on Pervasive Computing and Applications*
- Coulthard M (2010) Forensic Linguistics: the application of language description in legal contexts. *Langage et société* 132 (2):15.
- Curtis G, Clare J (2017) How prevalent is contract cheating and to what extent are students repeat offenders? *J Acad Ethics* 15:115–124. <https://doi.org/10.1007/s10805-017-9278-x>
- Curtis G, Gouldthorp B, Thomas E, O'Brien G, Correia H (2013) Online academic-integrity mastery training may improve Students' awareness of, and attitudes toward, plagiarism. *Psychology Learning Teaching* 12:282–289. <https://doi.org/10.2304/plat.2013.12.3.282>
- Davis L (2011) Arresting student plagiarism: are we investigators or educators? *Bus Commun Q* 74:160–163. <https://doi.org/10.1177/1080569911404053>
- Dawson, P, Sutherland-Smith, W Ricksen, M. (2019). Can software improve marker accuracy at detecting contract cheating? A pilot study of the Turnitin authorship investigate alpha. *Assessment & Evaluation in Higher Education*. Advance online publication DOI: <https://doi.org/10.1080/02602938.2019.1662884d>
- Dawson P, Sutherland-Smith W (2018) Can training improve marker accuracy at detecting contract cheating? A multi-disciplinary pre-post study. *Assess Eval High Educ* 44:715–725. <https://doi.org/10.1080/02602938.2018.1531109>
- Ba DK, Ba DK, Lam QD, Le DTBA, Nguyen P, Nguyen PL, Nguyen PQ, Pham QL (2016) Student plagiarism in higher education in Vietnam: an empirical study. *Higher Educ Res Dev* 36:934–946. <https://doi.org/10.1080/07294360.2016.1263829>
- Ellis C, Zucker I, Randall D (2018) The infernal business of contract cheating: understanding the business processes and models of academic custom writing sites. *Int J Educ Integr*. <https://doi.org/10.1007/s40979-017-0024-3>
- Fazel I, Kowkabi N (2014) Students' source misuse in language classrooms: sharing experiences. *TESL Can J* 31:86. <https://doi.org/10.18806/tesl.v31i1.1168>
- Goh E (2015) Exploring underlying motivations behind extreme cases of plagiarism in tourism and hospitality education. *J Hospitality Tourism Educ* 27:80–84. <https://doi.org/10.1080/10963758.2015.1033101>
- Guo X (2011) Understanding student plagiarism: an empirical study in accounting education. *Accounting Education* 20:17–37. <https://doi.org/10.1080/09639284.2010.534577>
- Harper R, Bretag T, Rundle K (2020) Detecting contract cheating: examining the role of assessment type. *Higher Education Research & Development* 1-16. <https://doi.org/10.1080/07294360.2020.1724899>

- Heckler N, Forde D, Bryan C (2012) Using writing assignment designs to mitigate plagiarism. *Teach Sociol* 41:94–105. <https://doi.org/10.1177/0092055x12461471>
- Hoanca B (2019) Combating plagiarism: a three-pronged approach to reducing prevalence in higher education. In: *Scholarly ethics and publishing: breakthroughs in research and practice* 532–548. IGI Global, Hershey
- Jones D (2011) Academic dishonesty: are more students cheating? *Bus Commun Q* 74:141–150. <https://doi.org/10.1177/1080569911404059>
- Jones M, Sheridan L (2014) Back translation: an emerging sophisticated cyber strategy to subvert advances in 'digital age' plagiarism detection and prevention. *Assess Eval High Educ* 40:712–724. <https://doi.org/10.1080/02602938.2014.950553>
- Kakkonen T, Mozgovoy M (2010) Hermetic and web plagiarism detection Systems for Student Essays—An Evaluation of the state-of-the-art. *J Educ Comput Res* 42:135–159. <https://doi.org/10.2190/ec.42.2.a>
- Koppel M, Winter Y (2014) Determining if two documents are written by the same author. *J Assoc Inf Sci Tech* 65:178–187.
- Lancaster T, Culwin F (2007) Preserving academic integrity? Fighting against nonoriginality agencies. *Br J Educ Technol* 38:153–157. <https://doi.org/10.1111/j.1467-8535.2006.00491.x>
- Levine J, Pazdernik V (2018) Evaluation of a four-prong anti-plagiarism program and the incidence of plagiarism: a five-year retrospective study. *Assess Eval High Educ* 43:1094–1105. <https://doi.org/10.1080/02602938.2018.1434127>
- Li Y (2015) Academic staff's perspectives upon student plagiarism: a case study at a university in Hong Kong. *Asia Pacific J Educ* 35:14–26. <https://doi.org/10.1080/02188791.2013.835710>
- Lines L (2016) Ghostwriters guaranteeing grades? The quality of online ghostwriting services available to tertiary students in Australia. *Teach High Educ* 21:889–914. <https://doi.org/10.1080/13562517.2016.1198759>
- Malesky L, Baley J, Crow R (2016) Academic dishonesty: assessing the threat of cheating companies to online education. *Coll Teach* 64:178–183. <https://doi.org/10.1080/87567555.2015.1133558>
- Marshall S, Garry M (2006). NESB and ESB students' attitudes and perceptions of plagiarism. *International Journal For Educational Integrity*, 2:26–37.
- Martin D (2011) Culture and unethical conduct: understanding the impact of individualism and collectivism on actual plagiarism. *Manag Learn* 43:261–273. <https://doi.org/10.1177/1350507611428119>
- McCabe D (2005) Cheating among college and university students: a north American perspective. *Int J Educ Integr* 1:1–11
- McKeever L (2006) Online plagiarism detection services—saviour or scourge? *Assess Eval High Educ* 31:155–165. <https://doi.org/10.1080/02602930500262460>
- McLafferty C, Foust K (2004) Electronic plagiarism as a college instructor's nightmare—prevention and detection. *J Educ Bus* 79:186–190. <https://doi.org/10.3200/joeb.79.3.186-190>
- Morris E (2018) Academic integrity matters: five considerations for addressing contract cheating. *International journal for educational integrity* 14. <https://doi.org/10.1007/s40979-018-0038-5>
- Mozgovoy M, Kakkonen T, Cosma G (2010) Automatic student plagiarism detection: future perspectives. *J Educ Comput Res* 43:511–531. <https://doi.org/10.2190/ec.43.4.e>
- Nation P, Macalister J (2010) *Language curriculum design*. Routledge, London
- Nunan D (1988) *Syllabus Design*. Oxford University Press, Oxford
- O'Donnell K (2011) Linking multimodal communication and feedback loops to reinforce plagiarism awareness. *Bus Commun Q* 74:216–220. <https://doi.org/10.1177/1080569911404404>
- Park C (2004) Rebels without a clause: towards an institutional framework for dealing with plagiarism by students. *J Furth High Educ* 28:291–306. <https://doi.org/10.1080/0309877042000241760>
- Pennycook A (1996) Borrowing Others' words: text, ownership, memory, and plagiarism. *TESOL Q* 30:201. <https://doi.org/10.2307/3588141>
- Perkins M, Gezgin U, Roe J (2018) Understanding the relationship between language ability and plagiarism in non-native English speaking business students. *J Acad Ethics* 16:317–328. <https://doi.org/10.1007/s10805-018-9311-8>
- Probett C (2011) Plagiarism prevention. *Bus Commun Q* 74:170–172. <https://doi.org/10.1177/1080569911404054>
- Rundle K, Curtis G, Clare J (2019) Why students do not engage in contract cheating. *Front Psychol*. <https://doi.org/10.3389/fpsyg.2019.02229>
- Scanlon P, Neumann D (2002) Internet plagiarism among college students. *J Coll Stud Dev* 43:374–385
- Scheg A (2012) The impact of Turnitin to the student-teacher relationship. *J Interdisciplinary Stud Educ* 2:29–38
- Soto J, Anand S, McGee E (2004) Plagiarism avoidance. *J Coll Sci Teach* 33:42
- Stetter ME (2013) Teaching students about plagiarism using a web-based module. *J Furth High Educ* 37:675–693
- Stowers R, Hummel J (2011) The use of technology to combat plagiarism in business communication classes. *Bus Commun Q* 74:164–169. <https://doi.org/10.1177/1080569911404406>
- Tran U, Huynh T, Nguyen H (2017) Academic integrity in higher education: the case of plagiarism of graduation reports by undergraduate seniors in Vietnam. *J Acad Ethics* 16:61–69. <https://doi.org/10.1007/s10805-017-9279-9>
- Walker C, White M (2014) Police, design, plan and manage: developing a framework for integrating staff roles and institutional policies into a plagiarism prevention strategy. *J High Educ Policy Manag* 36:674–687. <https://doi.org/10.1080/1360080x.2014.957895>
- Walker J (2010) Measuring plagiarism: researching what students do, not what they say they do. *Stud High Educ* 35:41–59. <https://doi.org/10.1080/03075070902912994>
- Wallace M, Newton P (2014) Turnaround time and market capacity in contract cheating. *Educ Stud* 40:233–236. <https://doi.org/10.1080/03055698.2014.889597>
- Warn J (2007) Plagiarism software: no magic bullet!. *Higher Education Research & Development* 25 (2):195–208. <https://doi.org/10.1080/07294360600610438>

## Publisher's Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

# Existence results for functional first-order coupled systems and applications

João Fialho<sup>1,3</sup>  | Feliz Minhós<sup>2,3</sup> 

<sup>1</sup>British University of Vietnam, Hanoi, Vietnam

<sup>2</sup>Departamento de Matemática, Escola de Ciências e Tecnologia, Universidade de Évora, Évora, Portugal

<sup>3</sup>Centro de Investigação em Matemática e Aplicações (CIMA), Instituto de Investigação e Formação Avançada, Universidade de Évora, Évora, Portugal

## Correspondence

João Fialho, British University of Vietnam, Hanoi, Vietnam.  
Email: joao.f@buv.edu.vn

Communicated by: I. Stratis

MSC Classification: 34B10; 34B15; 34B40

This paper is concerned with the existence of solutions of the first-order fully coupled system with coupled functional boundary conditions. These functional boundary conditions generalize the usual boundary assumptions and may be applied to most of the classical cases.

The arguments used are based on the Arzela-Ascoli theorem and Schauder's fixed-point theorem.

An application to a mathematical model of the thyroid-pituitary interaction and their homeostatic mechanism is included.

## KEYWORDS

coupled nonlinear systems, functional boundary conditions, mathematical modelling, Schauder fixed-point theory, thyroid-pituitary homeostatic mechanism

## 1 | INTRODUCTION

This paper is concerned with the study of a fully nonlinear coupled system of equations

$$u'_i(t) = f_i(t, u_1(t), \dots, u_n(t)), \quad (1)$$

with  $i = 1, 2, \dots, n, t \in [a, b]$  and  $f_i : [a, b] \times \mathbb{R}^n \rightarrow \mathbb{R}$  are  $L^1$ -Carathéodory functions, subject to the nonlinear functional boundary conditions

$$u_i(a) = L_i(u, u(b), u^*(a)), \quad (2)$$

where  $i = 1, 2, \dots, n, L_i : (C[a, b])^n \times \mathbb{R}^n \times \mathbb{R}^{n-1} \rightarrow \mathbb{R}$  are continuous functions with properties later to be defined, and

$$\begin{aligned} u &= (u_1, \dots, u_n) \\ u(b) &= (u_1(b), \dots, u_n(b)), \\ u^*(a) &= (u_1(a), \dots, u_j(a), \dots, u_n(a)), \quad j = 1, \dots, n, j \neq i. \end{aligned}$$

Systems of differential equations are very popular in mathematical modelling because of their high applicability in diverse areas like population dynamics, finance, medicine, biotechnology, physics, etc. Some examples of these applications can be seen in Nieto and Zhang and Fan.<sup>1,2</sup>

There are not many cases available in the literature dealing with coupled systems of equations one can point,<sup>3-6</sup> however, this paper generalizes some of the results presented there as it deals with both coupled equations. Moreover, to the best of our knowledge, it is the first time where coupled systems are considered with coupled functional boundary conditions. This feature allows to generalize the classical boundary data in the literature, such as two-point or multi-point, nonlinear, nonlocal, integro-differential conditions, among others. Indeed, the functional part can deal with global boundary

assumptions, such as with minimum or maximum arguments, infinite multipoint data, integral conditions, . . . , on the several unknown functions. More details on functional problems can be seen in the previous studies<sup>7-12</sup> and the references therein.

The technique used is based on the Arzèla-Ascoli theorem and Schauder's fixed-point theorem. An example and an application of (1)-(2) to the mathematical model describing the thyroid-pituitary homeostatic mechanism is shown to illustrate the applicability of the problem discussed. This example is presented to emphasize the huge potential of applications from functional boundary conditions used and consequently the main existence result.

## 2 | DEFINITIONS AND ASSUMPTIONS

Along this work, we consider the space of continuous functions in  $[a, b]$ ,  $(C[a, b])$ , equipped with the norm  $\|u\| = \max \{\|u_i\|, i = 1, \dots, n\}$  where  $\|u_i\| = \max_{t \in [a, b]} |u_i(t)|$ .

As it is well known, in this way,  $C[a, b]$  is a Banach space.

The functional boundary functions verify the assumption:

**(H1)**  $L_i : (C[a, b])^n \times \mathbb{R}^n \times \mathbb{R}^{n-1} \rightarrow \mathbb{R}$  are continuous functions. Moreover,  $L_i(\eta, x, y)$  are uniformly continuous when  $(\eta, x, y)$  are bounded and decreasing on  $\eta$ , for  $i = 1, \dots, n$ .

**(H2)** The functions  $L_i : (C[a, b])^n \times \mathbb{R}^n \times \mathbb{R}^{n-1} \rightarrow \mathbb{R}$  are decreasing in the  $i$ th component of first and second arguments.

*Remark 1.* Condition (H2) is critical to guarantee that the problem (1)-(2) is well-defined and solvable. In fact, (H2) avoid the periodic case, for which the the problem (1)-(2) may have no solution. For example, for  $n = 1$ , the problem

$$\begin{cases} u'(t) = 1 \\ u(a) = u(b), \end{cases}$$

with  $a < b$  has no solution.

The admissible functions for our work will be the  $L^1$ -Carathéodory functions, according the following definition:

**Definition 2.** The functions  $f_i : [a, b] \times \mathbb{R}^n \rightarrow \mathbb{R}, i = 1, \dots, n$ , are  $L^1$ -Carathéodory if they verify

- (i) for each  $(y_1, \dots, y_n) \in \mathbb{R}^n, t \mapsto f_i(t, y_1, \dots, y_n)$  are measurable on  $[a, b]$ , for  $i = 1, \dots, n$ ;
- (ii) for almost every  $t \in [a, b], (y_1, \dots, y_n) \mapsto f_i(t, y_1, \dots, y_n)$  is continuous in  $\mathbb{R}^n$ , for  $i = 1, \dots, n$ ;
- (iii) for each  $L > 0$ , there exists a positive function  $\psi_{iL} \in L^1[a, b], i = 1, \dots, n$ , such that, for  $\max \{\|y_i\|, i = 1, \dots, n\} < L$ ,

$$|f_i(t, y_1(t), \dots, y_n(t))| \leq \psi_{iL}(t), \text{ a.e. } t \in [a, b], i = 1, \dots, n.$$

Schauder's fixed-point theorem will be an important tool to guarantee the existence of fixed points for our operator:

**Theorem 3.** (Zeidler<sup>13</sup>). *Let  $Y$  be a nonempty, closed, bounded, and convex subset of a Banach space  $X$ , and suppose that  $P : Y \rightarrow Y$  is a compact operator. Then  $P$  has at least one fixed point in  $Y$ .*

## 3 | MAIN RESULT

In this section, we present and prove the main existence result for (1)-(2), given by the following theorem:

**Theorem 4.** *If  $f_i$  are  $L^1$ -Carathéodory functions, for  $i = 1, \dots, n$ , and (H1), (H2) hold, then the problem (1)-(2) has at least one solution  $u \in (C[a, b])^n$ .*

*Proof.* Let us consider the integral system given by

$$u_i(t) = L_i(u, u(b), u^*(a)) + \int_a^t f_i(s, u_1(s), \dots, u_n(s)) ds, \tag{3}$$

and the operator

$$T : (C[a, b])^n \rightarrow (C[a, b])^n$$

defined by

$$T(u_1, \dots, u_n) = (T_1(u_1, \dots, u_n), \dots, T_n(u_1, \dots, u_n)), \quad (4)$$

where  $T_i : (C[a, b])^n \rightarrow C[a, b]$ ,  $i = 1, \dots, n$ , given by

$$T_1(u_1, \dots, u_n) = L_i(u, u(b), u^*(a)) + \int_a^t f_i(s, u_1(s), \dots, u_n(s)) ds. \quad (5)$$

If  $u$  is a fixed point of  $T$  then  $T_i$  maps  $u$  to  $u_i$ ,  $i = 1, \dots, n$ , and vice-versa, we will use the Arzèla-Ascoli theorem and Schauder's fixed-point theorem to prove that the problem (1)-(2) has at least one solution.

For clarity, we consider several claims:

*Claim 1.*  $TD \subset D$ , for some  $D \subset (C[a, b])^n$  a bounded, closed, and convex subset.

Consider

$$D = \left\{ (u_1, \dots, u_n) \in (C[a, b])^n : \|(u_1, \dots, u_n)\| \leq k \right\},$$

where

$$k := \max \left\{ k_i + \int_a^t \psi_{iL}(s) ds, i = 1, \dots, n \right\} < \infty,$$

and, by (H1),

$$k_i := \max \{ L_i(u, u(b), u^*(a)), i = 1, \dots, n \}.$$

Then,

$$\begin{aligned} \|T(u_1, \dots, u_n)\| &= \max \{ \|T_1(u_1, \dots, u_n)\|, \dots, \|T_n(u_1, \dots, u_n)\| \} \\ &= \max \left\{ \max \left| \begin{array}{c} L_i(u, u(b), u^*(a)) \\ + \int_a^t f_i(s, u_1(s), \dots, u_n(s)) ds \end{array} \right|, i = 1, \dots, n \right\} \\ &\leq \max \left\{ k_i + \int_a^t \psi_{iL}(s) ds, i = 1, \dots, n \right\} = k, \end{aligned}$$

proving Claim 1.

*Claim 2.* The operator  $T$  is completely continuous.

To prove that the operator  $T$  is completely continuous, it is sufficient to show that  $T$  is uniformly bounded and  $T$  is equicontinuous.

Applying the above arguments, it can be proved that  $T_i$  are uniformly bounded, for  $i = 1, \dots, n$ , and therefore,  $T$  is uniformly bounded.

In order to show that the operator  $T$  is equicontinuous, let us consider  $t_1, t_2 \in [a, b]$ , such that, without any loss of generality,  $t_1 < t_2$ .

Then for  $T_i$ ,  $i = 1, \dots, n$ , we have

$$\begin{aligned} &|T_i(u_1(t_2), \dots, u_n(t_2)) - T_i(u_1(t_1), \dots, u_n(t_1))| \\ &\leq \int_{t_1}^{t_2} |f_i(s, u_1(s), \dots, u_n(s))| ds \leq \int_{t_1}^{t_2} \psi_{iL}(s) ds \rightarrow 0, \end{aligned}$$

as  $t_1 \rightarrow t_2$ . So, each operator  $T_i$  is equicontinuous and, hence, the operator  $T$  is equicontinuous.

Therefore, by Arzèla-Ascoli's theorem, the operator  $T$  is compact, and using Schauder's fixed-point theorem, we obtain that  $T$  has a fixed point, that is, the problem (1)-(2) has at least a solution  $u \in (C[a, b])^n$ .  $\square$

### 4 | EXAMPLE

Consider the problem composed by the coupled system of differential equations

$$\begin{cases} u_1'(t) = (u_2(t))^2 + 2(u_3(t))^3 \\ u_2'(t) = (u_1(t))^3 - e^{u_3(t)} + (u_2(t))^2 \\ u_3'(t) = u_2(t) - \ln(|u_1(t)| + 1), \end{cases} \tag{6}$$

together with the functional boundary conditions

$$\begin{aligned} u_1(a) &= - \max_{t \in [a,b]} u_1(t) - u_1(b), \\ u_2(a) &= - \int_a^b u_2(t) dt - (u_2(b))^3, \\ u_3(a) &= - \min_{t \in [a,b]} u_3(t) - \sqrt[3]{u_3(b)}. \end{aligned} \tag{7}$$

Clearly, the above problem is a particular case of (1)-(2), where

$$\begin{aligned} f_1(t, x, y, z) &= y^2 + 2z^3, \\ f_2(t, x, y, z) &= x^3 - e^z + y^2, \\ f_3(t, x, y, z) &= y - \ln(|x| + 1) \end{aligned}$$

are  $L^1$ -Carathéodory functions with, for  $L > 0$  such that  $\max\{|x|, |y|, |z|\} < L$ ,

$$\begin{aligned} |f_1(t, x, y, z)| &= L^2 + 2L^3, \\ |f_2(t, x, y, z)| &= L^3 + e^L + L^2, \\ |f_3(t, x, y, z)| &= L + \ln(L + 1), \end{aligned}$$

and the functional boundary conditions, verifying (H2),

$$\begin{aligned} L_1((x_1, x_2, x_3), (y_1, y_2, y_3), (z_1, z_2)) &= - \max_{t \in [a,b]} x_1(t) - y_1, \\ L_2((x_1, x_2, x_3), (y_1, y_2, y_3), (z_1, z_2)) &= - \int_a^b x_2(t) dt - (y_2)^3, \\ L_3((x_1, x_2, x_3), (y_1, y_2, y_3), (z_1, z_2)) &= - \min_{t \in [a,b]} x_3(t) - \sqrt[3]{y_3}. \end{aligned}$$

As all the assumptions of Theorem 4 are satisfied, then problem (6) and (7) has at least a solution  $(u_1, u_2, u_3) \in (C[a, b])^3$ .

### 5 | THE THYROID-PITUITARY HOMEOSTATIC MECHANISM

In Danziger and Elmergreen,<sup>14</sup> the authors develop a mathematical model of the thyroid-pituitary interaction. This model is based on the fact that the anterior lobe of the pituitary gland produces the hormone thyrotropin, under the influence of a thyroid releasing factor (TRF), a releasing hormone secreted by the hypothalamus. The hormone thyrotropin causes the thyroid gland to produce an enzyme, which when activated, produces the hormone thyroxine. This hormone has a negative feedback effect on the secretion of thyrotropin from the pituitary gland. This mechanism can be seen in more detail in Mukhopadhyay and Bhattacharyya,<sup>15</sup> and the following mathematical model is suggested

$$\begin{aligned} \frac{dP}{dt} &= \begin{cases} c - h\theta - gP, & \theta \leq \frac{c}{h} \\ -gP, & \theta > \frac{c}{h} \end{cases}, \\ \frac{dE}{dt} &= mP - kE, \\ \frac{d\theta}{dt} &= aE - b\theta, \end{aligned} \tag{8}$$



where  $P$ ,  $E$ , and  $\theta$  represent the concentrations of thyrotropin, activated enzyme, and thyroxine, respectively;  $b$ ,  $g$ , and  $k$  represent the loss constants of thyroxine, thyrotropin, and activated enzyme, respectively;  $a$ ,  $h$ ,  $m$  are constants expressing the sensitivities of the glands to stimulation or inhibition;  $c$  is the rate of production of thyrotropin in the absence of thyroid inhibition. All constants are assumed to be positive.

We consider, for  $t \in [0, T]$  with  $T > 0$ , the differential equations 8 coupled with the boundary conditions

$$\begin{aligned} P(0) &= \min_{t \in [0, T]} \theta(t), \\ E(0) &= \int_0^T E(T)E(s)ds, \\ \theta(0) &= \max_{t \in [0, T]} P(t). \end{aligned} \quad (9)$$

These functional boundary conditions fully reflect the considerations and conclusions presented in Mukhopadhyay and Bhattacharyya,<sup>15</sup> As the concentrations of thyrotropin and thyroxine are based on a negative feedback effect, when one is at its maximum, the other will be at its minimum, and vice-versa. The concentration of the activated enzyme,  $E$ , is considered to be, at its initial moment, a weighted average of the amount present on the system, weighted by the final value of the activated enzyme,  $E$ , at  $T$ . Functional boundary conditions allow these assumption to be considered in full, as they allow for operators to be considered as boundary conditions. The minimum concentration of thyrotropin at start is illustrated by the first condition, the average concentration of the activated enzyme by the second and the maximum concentration of thyroxine is described by the last condition.

This model can now be presented in the form of (1)-(2), where  $u_1 = P$ ,  $u_2 = E$ , and  $u_3 = \theta$ ,

$$f_1(t, u_1, u_2, u_3) = \begin{cases} c - hu_3 - gu_1, & u_3 \leq \frac{c}{h} \\ -gu_1, & u_3 > \frac{c}{h} \end{cases},$$

$$f_2(t, u_1, u_2, u_3) = mu_1 - ku_2,$$

$$f_3(t, u_1, u_2, u_3) = au_2 - bu_3,$$

$$L_1(u_1, u_2, u_3, u_1(T), u_2(T), u_3(T), u_2(0), u_3(0)) = \min_{t \in [0, T]} u_3,$$

$$L_2(u_1, u_2, u_3, u_1(T), u_2(T), u_3(T), u_1(0), u_3(0)) = \int_0^T u_2(T)u_2(s)ds,$$

$$L_3(u_1, u_2, u_3, u_1(T), u_2(T), u_3(T), u_1(0), u_2(0)) = \max_{t \in [0, T]} u_1.$$

It is clear to see that  $f_1, f_2$ , and  $f_3$  are  $L^1$ -Carathéodory functions such that, for  $\max \{ \|u_1\|, \|u_2\|, \|u_3\| \} < L$ ,

$$|f_1(t, u_1, u_2, u_3)| \leq c + hL + gL := \psi_{1L}(t),$$

$$|f_2(t, u_1, u_2, u_3)| \leq mL + kL := \psi_{2L}(t),$$

$$|f_3(t, u_1, u_2, u_3)| \leq aL + bL := \psi_{3L}(t),$$

and that the boundary conditions  $L_1, L_2$ , and  $L_3$  satisfy (H1). Therefore, by Theorem 4, the system (8)-(9) has at least one solution  $(u_1, u_2, u_3) \in (C[0, T])^3$ .

A similar approach can be taken in several other models, allowing global conditions to be considered as boundary conditions, highly increasing the level of applicability of these models.

## ACKNOWLEDGEMENTS

This project was supported by Fundação para a Ciência e a Tecnologia (FCT) via project UID/MAT/04674/2019.

## ORCID

João Fialho  <https://orcid.org/0000-0001-9048-6793>

Feliz Minhós  <https://orcid.org/0000-0002-7485-2500>

## REFERENCES

1. Nieto JJ. Periodic boundary value problems for first-order impulsive ordinary differential equations. *Nonlinear Anal.* 2002;51:1223-1232.
2. Zhang W, Fan M. Periodicity in a generalized ecological competition system governed by impulsive differential equations with delays. *Math Comput Model.* 2004;39:479-493.
3. Agarwal RP, O'Reagan D. A coupled system of boundary value problems. *Appl Anal.* 1998;69:381-385.

4. Asif NA, Talib I, Tunc C. Existence of solutions for first-order coupled system with nonlinear coupled boundary conditions. *Bound Val Prob.* 2015;2015:134.
5. Asif NA, Khan RA. Positive solutions to singular system with four-point coupled boundary conditions. *J Math Anal Appl.* 2012;386:848-861.
6. Asif NA, Talib I, Tunc C. Existence of solutions to second-order nonlinear coupled systems with nonlinear coupled boundary conditions. *Electron J Differ Equ.* 2015;313:11.
7. Cabada A, Fialho J. Extremal solutions to fourth order discontinuous functional boundary value problems. *Math Nachr.* 2013;286(17-18):1744-1751.
8. Cabada A, Pouso R, Minhós F. Extremal solutions to fourth-order functional boundary value problems including multipoint condition. *Nonlinear Anal: Real World Appl.* 2009;10:2157-2170.
9. Fialho J, Minhós F. Higher order functional boundary value problems without monotone assumptions. *Bound Val Prob.* 2013;2013:81.
10. Fialho J, Minhós F. Multiplicity and location results for second order functional boundary value problems. *Dyn Syst Appl.* 2014;23:453-464.
11. Graef J, Kong L, Minhós F, Fialho J. On the lower and upper solution method for higher order functional boundary value problems. *Appl Anal Discrete Math.* 2011;5(1):133-146.
12. Graef J, Kong L, Minhós F. Higher order boundary value problems with  $\phi$ -Laplacian and functional boundary conditions. *Comput Math Appl.* 2011;61:236-249.
13. Zeidler E. *Nonlinear Functional Analysis and Its Applications, I: Fixed-Point Theorems.* New York: Springer; 1986.
14. Danziger L, Elmergreen GL. The thyroid-pituitary homeostatic mechanism. *Bull Math Biophys.* 1956;18:1-13.
15. Mukhopadhyay B, Bhattacharyya R. A mathematical model describing the thyroid-pituitary axis with time delays in hormone transportation. *Appl Math.* 2006;51:549-564.

**How to cite this article:** Fialho J, Minhós F. Existence results for functional first-order coupled systems and applications. *Math Meth Appl Sci.* 2019;42:2398–2403. <https://doi.org/10.1002/mma.5517>



Contents lists available at ScienceDirect

European Management Journal

journal homepage: [www.elsevier.com/locate/emj](http://www.elsevier.com/locate/emj)

# Open innovation and organizational features: An experimental investigation

Benjamin Chiao <sup>a, b, \*</sup>, Jason MacVaugh <sup>c</sup>

<sup>a</sup> China Center for Behavior Economics and Finance, Southwestern University of Finance and Economics, Chengdu, Sichuan, 610074, China

<sup>b</sup> Paris School of Business, 59 Rue Nationale, 75013, Paris, France

<sup>c</sup> University of Liverpool, Liverpool, L69 3BX, United Kingdom

## ARTICLE INFO

### Article history:

Received 26 January 2020

Received in revised form

18 December 2020

Accepted 22 December 2020

Available online xxx

### Keywords:

Open innovation

Modularity

Minimum effort games

Value capture

Value creation

## ABSTRACT

This paper reports experimental results on open innovation in which free-riding, efficiency and spillover depend on the ability to affect the number of innovation contributors, and the modularity of the innovation task. This paper provides a tractable laboratory setting that relaxes the restrictive assumption of the theoretical literature that costs of development are independent across individuals. We have induced more distributed problem solving and spillover of knowledge when the process is more non-modular. When efficiency is measured as the percentage of profits made over maximum profits, small groups were more efficient than large groups in the non-modular production environment and efficiency was higher in the modular production environment irrespective of group size. Significantly, there was a higher percentage of spillover in the non-modular production environment, especially for large groups.

Crown Copyright © 2020 Published by Elsevier Ltd. All rights reserved.

## 1. Introduction

Following the theme of this special issue, Technology 4.0 is considered here as the interlocking set of technologies that enable Industry 4.0. This includes a number of disruptive innovations derived and implemented across supply chains, incorporating digitalization, autonomy, transparency, mobility, modularization, networking, and socialization of products and their production processes (Pfohel et al., 2015). Technology 4.0 is typified by linkages between organisations (and, in fact, consumers), that share data in a more integrated fashion and essentially become actors in an ongoing process of Open Innovation (OI).

OI (Chesbrough, 2003) is now widely recognised as a powerful tool for new knowledge creation, complex problem solving, and product and process improvement (Bogers et al., 2017). Yet we have conflicting reports as to the benefits of OI across innovation networks (Cheng & Huizingh, 2014). The primary focus of this paper is to extend our understanding of value creation and capture, as

mediated by organizational design, in OI contexts.

The question of value capture is highly topical in current OI research (Chesbrough et al., 2018), and forms a useful extension of distributed problem solving research: i.e. the addition of payoff-sharing to task-sharing and result-sharing. Distributed problem solving underpins our understanding of OI, however, without close monitoring, innovation networks can suffer from a 'free-riding' problem - an interplay between private cost and social benefits. To better understand the consequences, we join with recent efforts by management scholars to add to this rich and interdisciplinary literature by broadening the notion of modularity to take into account the incentives associated with OI.

Among the many aspects that Industry 4.0 addresses, the concept of modularity is often mentioned as it is closely tied to organizational features (Ghobakhloo, 2018). Modularity improves value creation (and thus economic efficiency measured as total surplus created) in distributed problem solving because innovators use less time in communication and more time in computation (Smith & Davis, 1981). In contexts of increased modularity and low communication costs, open innovation will complement, if not substitute, closed innovation modes (Lakhani et al., 2013).

In this paper, we are going to show that: 1. Value creation (through an increase in efficiency) of non-modularity can be improved when the group size is decreased and 2. non-modularity

\* Corresponding author. China Center for Behavior Economics and Finance, Southwestern University of Finance and Economics, Chengdu, Sichuan, 610074, China.

E-mail addresses: [b.chiao@psbedu.paris](mailto:b.chiao@psbedu.paris) (B. Chiao), [J.MacVaugh@liverpool.ac.uk](mailto:J.MacVaugh@liverpool.ac.uk) (J. MacVaugh).

<https://doi.org/10.1016/j.emj.2020.12.004>

0263-2373/Crown Copyright © 2020 Published by Elsevier Ltd. All rights reserved.

is itself valuable as a driver for the adoption of open innovation. In particular, we designed an experimental environment, into which we have induced more distributed problem solving and spillover of knowledge when the process is more non-modular.

The sections that follow begin with a review of the literature that highlights the importance of OI in Industry 4.0, and in turn the importance of value creation and value capture to OI. Then we review how organisation features such as modularity and group size can affect value creation and value capture. This is followed by the method section, which details our experimental design. We propose seven hypotheses on the likely relationship between these variables. Our findings indicate that large groups were associated with a higher free-riding level than small groups, however in non-modular production environments large groups also resulted in greater spillover. Our discussion section explores the extent to which these findings can explain how actors share inputs and payoffs in innovation development, thus extending current theoretical work on firm value capture and organizational design in an OI context. We delimit several important considerations for OI strategy, which has value for individuals and organisations involved in the pursuit of Technology 4.0. We conclude with a critical look at the value of this study and the directions it opens for further research. [Appendix 1](#) reports the instructions to subjects.

## 2. Literature

[Kohnová \(2018\)](#) suggests that OI is an important way to achieve sustainable development in the turbulent environment of Industry 4.0, given calls for accelerated time to market and the need to manage disruptive innovations. Similarly, [Lee et al. \(2018\)](#) argue that OI provides dynamic new combinations between technology, market, and society to better respond to Industry 4.0.

In OI networks actors share knowledge in order to create value, but they also need to protect knowledge in order to extract profit from it ([Alexy et al., 2013](#)). Individuals and smaller organisations are shown to be willing to trade off effort to be able to accrue a variety of non-pecuniary benefits ([Harhoff et al., 2003](#)). However, large organisations have traditionally been wary, as they may not be able to achieve the pecuniary benefits needed to justify investing in (and then sharing) innovative research ([Teece, 1993](#)). [Bogers et al. \(2018\)](#) highlight the implicit tension: “Open innovation must harness the value-added of openness in science, and yet also promote the investment needed to transform open initiatives into new technologies and new business models” (p. 6). Thus, value creation and value capture are explicit concerns of actors in OI networks. [Chesbrough et al. \(2018\)](#) argues that “Open innovation requires collaboration among distributed but interdependent actors who rely on each other’s capabilities for value creation and capture. Value in open innovation is driven not only by actors’ value creation but also by their ability to capture value” (p. 930).

The function of an OI network is in essence predicated on cooperation in the solving of OI problems. Distributed problem solving is the cooperative solution of problems by a decentralized and coupled collection of knowledge sources (procedures, sets of rules, etc.), located in a number of distinct processor nodes ([Smith & Davis, 1981](#)). [Smith and Davis \(1981\)](#) argue that two forms of cooperation are crucial in distributed problem solving: task-sharing and result-sharing. In the former, nodes assist each other by sharing the computational load for the execution of subtasks. In the latter, nodes assist each other by sharing partial results which are based on somewhat different perspectives on the overall problem.

To create an efficient network of problem solvers, individual actors need to spend the greater percentage of their time in computation rather than communication. Thus the traditional management of a distributed system relies on high modularity so as to offer

conceptual clarity and simplicity of design, and the same applies to problem solving in modern OI contexts ([Lakhani et al., 2013](#)).

Modularity is deeply rooted in the computer science literature. According to [Parnas \(1972\)](#): “[A] ‘module’ is considered to be a responsibility assignment rather than a sub-program” (p. 1054) Why is modularity important? The Conway’s Law ([Conway, 1968](#)) says: “Organisations which design systems are constrained to produce designs which are copies of the communication structure of these organisations” (p. 31). Conway asserts that communication structure ties closely with the partitioning of an organisation. [Parnas \(1972\)](#) states that non-modularity is not optimal if the inner workings of a module overlap with the responsibility of another module. For instance, non-modularity implies that errors are serially correlated across modules copies of the communication structure of these organisations.

When non-modularity takes the form of minimum effort games, various experimental studies (see [Camerer, 2003](#), p. 383 for a review) show that it is easier to achieve a socially inefficient outcome as group size increases. In an open source context, [Baldwin and Clark \(2006\)](#) point to free-riding as the source of inefficient value creation and that [Johnson \(2002\)](#) adds the nuance that such inefficiency varies with group size.

## 3. Theoretical framework

We review here the theoretical concerns of why modularity and group size affect value creation and capture (measured as economic efficiency) through changes in free-riding and knowledge spillover.

[Kagel et al. \(2016\)](#) state that most economists expect group size to be positively related to free-riding, and with more free-riding, total economic value decreases. [Isaac and Walker \(1988\)](#) and [Issac et al. \(1994\)](#) find that group size does not matter when the cost of a contribution is low, but that group size increases a contribution at a decreasing rate when the cost of a contribution is high. In an open source context, [Baldwin and Clark \(2006\)](#) show theoretically that social efficiency decreases because non-modularity leads to a higher free-riding level among open source developers. By varying group size and modularity, [Johnson \(2002\)](#) shows theoretically that non-modularity is socially inefficient (due to free-riding) for large groups of developers. In [Johnson \(2002\)](#), when the number of developers exceeds a threshold, modular software is more likely to be completed; otherwise, non-modular software is more likely to be completed. This is because “non-modularity will sometimes affect free-riding” ([Johnson, 2002](#), p. 660).

However, in the OI field there is increasing evidence that knowledge spillover is desirable, accepted as the basis for new network and/or alliance creation ([Han et al., 2012](#)), that it underpins the involvement of user communities ([Harhoff et al., 2003](#)), and is being proactively managed ([Lakhani et al., 2013](#); [Henkel et al., 2014](#)). In previous research, both [Baldwin and Clark \(2006\)](#) and [Johnson \(2002\)](#) assume that the costs of development are independent across individuals, implying that the spillover of know-how does not matter to cost saving. But, this restrictive assumption is a deviation from the essential features of distributed problems solving and what is already embedded in OI contexts. We know in practice that individuals share with each other the codes or methods they use, implying that spillover of know-how matters to value creation. This paper relaxes this assumption, and we are going to explain how one can observe different levels of spillover in the laboratory.

## 4. Methodology

The aim of this paper is to understand the context dependency of ‘value’ for participants in open innovation networks. Our

theoretical frame suggests that free-riding, efficiency, and spillover in innovation networks should depend on the number of innovation contributors, and the modularity of the innovation task. However, innovation systems are notoriously difficult to measure (Carlsson et al., 2002) as a multitude of other variables are also known to affect participation and outcomes. In the sections that follow we outline our choice of an experimental design. Experiments are useful in general in the Social Sciences as they enable more rigorous control of factors to establish causality (Falk & Heckman, 2009). Further, in an OI context, an experimental design provides a methodological benefit in its abstraction of underlying variables; with the potential to create new and otherwise hardly retrievable scientific knowledge about innovation processes (Sorensen et al., 2010).

## 5. Method

The experiment was based on a factorial design with modularity and number of contributors as factors. An open innovation production process was simulated on the basis of a popular board game called MASTERMIND.<sup>1</sup> The next subsection explains the rules of MASTERMIND and provides justifications for using it for open innovation experiments. Appendix 1 reviews the strategies that solve the traditional (standalone) MASTERMIND. The second subsection presents the experimental design.

### 5.1. Open innovation and MASTERMIND

The rules of MASTERMIND are simple. In a popular version of MASTERMIND, there are pegs in 6 colors used by the combination breaker and pegs in black and white used by the combination setter. For each game the combination setter secretly sets a combination of 4 coloured pegs. The combination breaker's task is to guess the secret combination. For each guess, the combination setter uses black and/or white pegs to give hints to the combination breaker. A black peg means that the color and position of a guessed peg are correct; a white peg means that the color of a guessed peg is correct but not the position.

A player 'guesses' in MASTERMIND is a reasonable proxy for open innovation in the sense that many examples of open innovation contain an algorithm. Even for open innovations that do not have an algorithm, a guess could be a good proxy in the sense that both are free to use, reuse, and distribute.

### 5.2. Experimental design

This experiment retained the rules of MASTERMIND, except that at any time subjects could post unfinished games to a public pool where everyone could see the complete history of moves in the posted games. Each game posted had to be accompanied by a non-negative commission price chosen by the one who posted this particular game. The one who solved it first had the commission price transferred from the reward of the poster to themselves. Anyone who solved a posted game had to clone the posted game first, so a copy of the history of work already done would be displayed on the screen for them to continue their work. The exact number of clones could not be observed by the participants. Everyone was allotted three games, each with a random secret combination, in each period. There was a \$1 potential reward for either solving a game by oneself or having other people solve it through the public pool.

The experiment followed a two-by-two factorial design with

production  $i$  and number of contributors  $j$  as factors, where  $i$  = modularity (M) or non-modularity (NM) and  $j$  = large (L) or small (S). In the modular production, the potential reward was immediately credited to the subjects' earnings. In the non-modular production, the potential reward was credited only if all allotted games for every subject were solved—this is also called the O-ring requirement. In other words, the total production (or payoff) of a number of contributors was zero if any one of its members failed in the NM production.

In each session, there were 10 periods of 7 min each. Each period ended when the time limit was reached.

### 5.3. Experimental procedures

The experiment was conducted on networked computers with human subjects in the laboratory of a university in North America. The author developed a software application that is a collaborative version of MASTERMIND. There were 16 subjects for the 'large' number of contributors and 4 subjects for the 'small' number of contributors. A total of 88 students were recruited, most of whom were undergraduate students in the host university. See Table 1 for the experimental design. Students who had already subscribed to the mailing lists of the labs received notice of the experiment. The interested students then signed up for the experiment through an online recruitment system on a first-come-first-served basis. Each session lasted for 2 h. No subject participated in more than one session. Over 95% of the students finished reading the instructions in half an hour. A quiz was administered before the experiment began. The experimenter went to the carrels to check the answers. If there was a mistake, the experimenter explained the mistake to them individually. Individual anonymity was maintained throughout the experiment; subjects did not know the real-world identities of the players in the game. There was a 2-min trial period before Period 1. The average payoff without the show-up fee was \$15.50.

### 5.4. Hypotheses

Three dependent variables were examined: free-riding, efficiency, and spillover.

Free-riding was measured using three methods. Throughout the following analysis, the first method is applicable and the discrepancies are listed whenever it applies. The first method measures the number of posted games set at zero commission divided by all allotted games. The second method measures the number of posted games set at zero commission divided by all posted games. The third method measures free-riding in the same way as the first method except that only posted games set at a zero commission that have been solved by a person other than the poster are counted. The last method was used to capture the supply of and the demand for free-riding.

Efficiency was measured as the percentage of profits made over maximum profits. A second measure, the percentage of completed games over all allotted games was also used. These two measures coincided in the modular production environment but differed in the non-modular production environment. If only one game were not solved in the non-modular production, the first measure gave zero efficiency but the second gave positive efficiency.

Spillover was measured as the percentage of posted games over total allotted games. One can argue that for knowledge to be spread, it is necessary that a game be posted first. In this sense, unless a game spreads negative know-how, spillover should be positively related to the number of posted games. The general null hypothesis was no difference. The following hypotheses were the alternative hypotheses. In the studies of both Baldwin and Clark (2006) and

<sup>1</sup> MASTERMIND is a registered trademark of Hasbro International Inc.

**Table 1**  
Experimental design.

Group Size	Production	Number of Subjects per Session	Number of Sessions
Large	Non-Modularity	16	2
Large	Modularity	16	2
Small	Non-Modularity	4	2
Small	Modularity	4	2

Johnson (2002), an individual is said to be free-riding if he or she does not complete a task while some other individuals do. The following hypothesis was formulated to test the above prediction:

**Hypothesis 1.** Free-riding is less prevalent in modular production than in non-modular production.

From the discussion in the theoretic framework section, it is important to test the effects of group size against such “common sense” of economists.

**Hypothesis 2.** Free-riding is less prevalent for small numbers of contributors than for large numbers of contributors.

The next two hypotheses test the interplay between modularity and free-riding in Johnson (2002).

**Hypothesis 3.** Free-riding is less (more) prevalent in non-modular production than in modular production for small (large) numbers of contributors.

**Hypothesis 4.** Efficiency is higher (lower) in non-modular production than in modular production for small (large) numbers of contributors.

Consistent with Parnas (1972), the following prediction seems to be consistent with computer scientists' expectations:

**Hypothesis 5.** Efficiency is higher in modular production than in non-modular production.

If one believes that this experiment captured some salient features of minimum effort games, the following hypothesis seems reasonable because it is hard to coordinate with a larger number of contributors to reach a more efficient equilibrium in such games (see Camerer, 2003, p. 383).

**Hypothesis 6.** In the non-modular production environment, efficiency is higher for small numbers of contributors.

In contrast to Baldwin and Clark (2006) and Johnson (2002), the experiment reported in this paper allowed for some spillover of know-how. A question is whether subjects would behave such that the behaviour usually seen in minimum effort games no longer holds. That is, some people choose to exert a rather high effort level in the current period such that their knowledge can be learned by others to solve games in future periods. Consistent with this suspicion, the final hypothesis was formulated as:

**Hypothesis 7.** Spillover is higher in the non-modular production environment.

## 6. Findings

Fig. 1 groups all data into four cells that vary in modularity and group size. The plots use only the first measures; the statistical analyses test other measures as well.

Some casual visual inspection results are as follows. It seems somewhat true that free-riding is less prevalent for small groups than for large groups, especially for large groups in later periods. Small groups seem to free-ride more in the non-modular production environment than in the modular production environment.

Efficiency seems to be higher in the modular production environment. In the non-modular production environment, small groups seem more efficient, especially for later periods. It seems that spillover is significantly higher for large groups.

In the statistical analyses, an ANOVA was first used. Standard ANOVA assumes the normality of error terms, an assumption the data did not satisfy. ANOVA was still performed on the data because Conover & Iman (1981) suggest that ANOVA can still be performed the usual way after rank transforming the dependent variables.

The  $k$ th observation in cell  $(i, j)$  was specified as follows:

$$\text{DependentVariable}_{ijk} = \mu + \text{GroupSize}_i + \text{Modularity}_j + \text{Groupsize}_i \times \text{Modularity}_j + \varepsilon_{ijk} \quad (1)$$

The main results using the Tukey-Kramer test for pairwise comparisons are as follows. The critical value at the 5% significance level for a one-tailed test was 2.35. An asterisk indicates that the corresponding difference in means was significant at this level. See Table 2 for more details.

**Result 1** *There was significantly less free-riding in small groups than in large groups.*

Conditional on whether the environment was modular or not, the means of free-riding for small groups were smaller than those for large groups for each of the free-riding measures. The smallest difference was 25.25% (test statistic = 4.07); the largest difference was 91.05% (test statistic = 14.28). All differences were significant at the 5% level.

**Result 2** *In the non-modular production environment, small groups were significantly more efficient.*

In the non-modular production environment, the mean of efficiency for small groups was 61.43% (test statistic = 10.47) higher than those for large groups, significant at the 5% level.

**Result 3** *There was significantly more spillover in the non-modular production environment.*

For large groups, the mean of spillover in the non-modular production environment was 38.55% (test statistic = 5.47) higher than those in the modular production environment. For small groups, the mean of spillover in the non-modular production environment was 64.63% (test statistic = 11.24) higher than those in the modular production environment. All were significant at the 5% level.

**Result 4** *There was significantly less free-riding in the modular production environment than in the non-modular production environment only for large groups.*

For large groups, the means of free-riding in the non-modular production environment were 42.45% (test statistic = 6.05, first measure), 34.60% (test statistic = 4.74, second measure), and 60.30% (test statistic = 8.87, third measure) higher than those in the

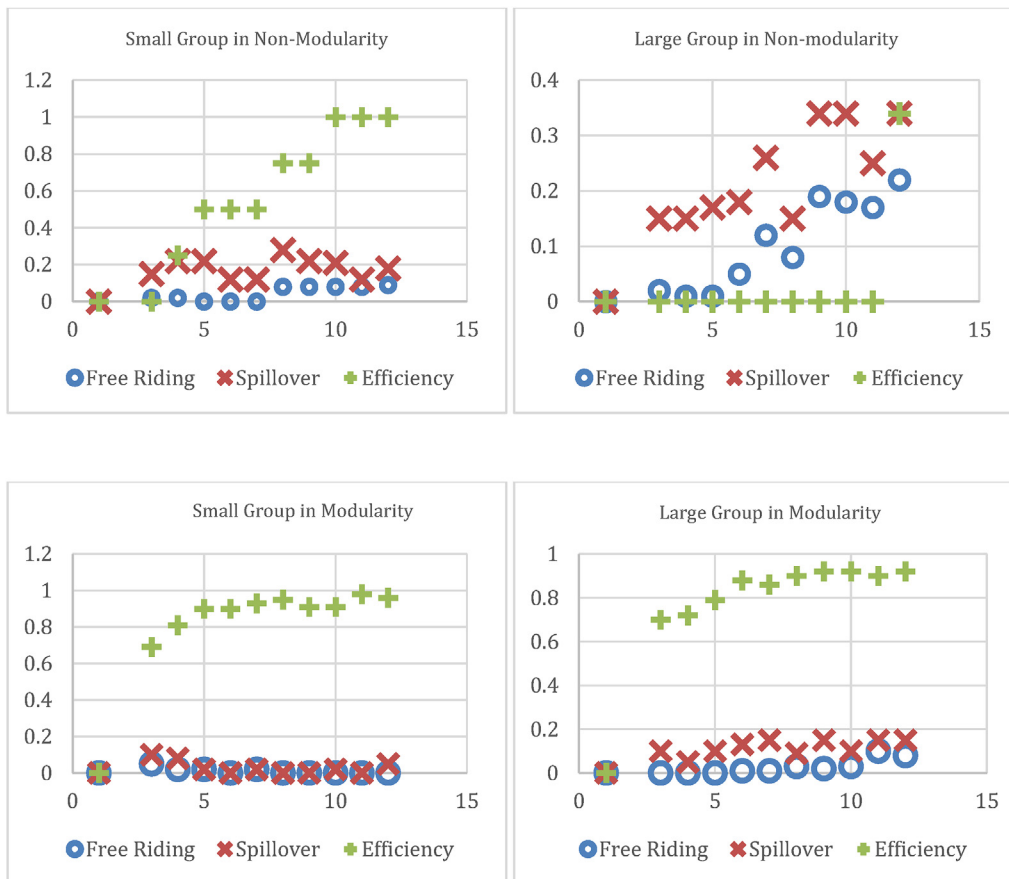


Fig. 1. Percentages of free-riding, spillover, and efficiency varying modularity and group size.

Table 2

Tukey-kramer tests of difference in means.

Dependent Variable	Measure	Held Constant	Means Comparison Between	Means Difference	Test Statistics
Free-riding	First	S	NM&M	0.00	0.00
		L	NM&M	42.45	6.05*
		NM	S&L	-91.05	14.28*
	Second	M	S&L	-48.80	7.65*
		S	NM&M	0.00	0.00
		L	NM&M	34.60	4.74*
	Third	NM	S&L	-88.50	13.30*
		M	S&L	-53.90	8.10*
		S	NM&M	0.00	0.00
Efficiency	First	L	NM&M	60.30	8.87*
		NM	S&L	-85.55	13.79*
		M	S&L	-25.25	4.07*
	Second	S	NM&M	-21.33	4.07*
		L	NM&M	-70.20	10.93*
		NM	S&L	61.43	10.47*
	Third	M	S&L	12.57	2.14
		S	NM&M	5.10	0.90
		L	NM&M	21.95	3.16*
Spillover	First	NM	S&L	10.03	1.58
		M	S&L	26.88	4.24*
		S	NM&M	64.63	11.24*
	Second	L	NM&M	38.55	5.47*
		NM	S&L	-32.82	5.11*
		M	S&L	-58.90	9.16*

Notes.  
 1. S, L, NM, and M stand for small groups, large groups, non-modularity, and modularity.  
 2. The critical value at the 5% significance level for a one-tailed test is 2.35. An asterisk indicates that the corresponding difference in means is significant at this level.  
 3. The means difference is obtained by subtracting the second group mean from the first group mean in the **Means Comparison Between** column.

modular production environment. All were significant at the 5% level.

*Result 5 Efficiency in the modular production environment was significantly higher than in the non-modular production environment for large and small groups.*

For large groups, the mean of efficiency in the modular production environment was 70.20% (test statistic = 10.93) higher than those in the non-modular production environment. For small groups, the mean of efficiency in the modular production environment was 21.33% (test statistic = 4.07) higher than those in the non-modular production environment. All were significant at the 5% level.

*Result 6 There was significantly more spillover for large groups.*

In the non-modular production environment, the mean of spillover for large groups was 32.82% (test statistic = 5.11) higher than those for small groups. In the modular production environment, the mean of spillover for large groups was 58.90% (test statistic = 9.16) higher than those for small groups. All were significant at the 5% level.

The overall results were as follows. Hypotheses 1, 3, and 4 were partly rejected, and hypotheses 2, 5, 6, and 7 were not rejected. The test did not reject a result not referred to in all hypotheses: there was a higher percentage of spillover for large groups. To summarize, large groups were associated with a higher free-riding level than small groups. Free-riding was more severe when large groups worked in the non-modular production environment. There was a higher percentage of spillover in the non-modular production environment, especially for large groups. When efficiency was measured as the percentage of profits made over maximum profits, small groups were more efficient than large groups in the non-modular production environment and efficiency was higher in the modular production environment irrespective of group size.

## 7. Discussion

The primary focus of this paper was to extend our understanding of value capture and creation, as mediated by organizational design, in OI contexts. In this section we review the significance of our findings, and other elements of the paper, to the areas of firm value capture and firm strategic choice in OI contexts.

Our findings extend current work on firm value capture (following Chesbrough et al., 2018) in several important ways. In OI settings it can be difficult to measure the attractiveness of engagement with a problem (Belenzon & Schankerman, 2015; Carlsson et al., 2002). If pecuniary reward allocation is used as a measure, it can only be a rather imperfect signal. Our findings document an experimental case in which pecuniary price was not, at times, used to coordinate resources, in a context where innovation problem solving was decentralized. Free-riding, measured as a zero price to helpers, was prevalent in the experiment. In line with Kagel et al. (2016), large groups were associated with a higher free-riding level than small groups, and free-riding was more severe when large groups worked in a non-modular production environment. Confirming Issac et al. (1994), free-riding resulted in the removal of the signalling function of price for the difficulty level of tasks but did not result in uncompleted problem sets. However, value in our experiment is construed as either efficiency (for the nominal problem setter) or financial reward and knowledge spillover (for the nominal actors in the open innovation network). When efficiency is measured as the percentage of profits made over maximum profits, small groups were more efficient than large

groups in the non-modular production environment and efficiency was higher in the modular production environment irrespective of group size (as suggested by Johnson, 2002). Significantly, there was a higher percentage of spillover in the non-modular production environment, especially for large groups. This can be important for many actors in an OI network (Han et al., 2012; Harhoff et al., 2003), assuming they have the ability to partake in knowledge spillover (Chesbrough et al., 2018).

The extent to which the study has significance as to strategic choices for firms in OI contexts has much to do with the actor's locus (Lakhani et al., 2013) relative to the product being produced, and their ability to influence features of the innovation network (Chesbrough et al., 2018). If the two group sizes used here are a reasonable proxy for the network sizes in a given innovation problem, the following implications arise for organisations nearest to the locus of innovation concerning efficiency: if the production function is restricted to non-modular, reduce the number of contributors; with no such restriction, always choose to distribute tasks in a modular fashion. For actors less close to the locus of innovation, contributor numbers should influence the choice of which OI networks to be involved in, with fewer likely to lead to greater ability to capture pecuniary rewards. Actors in smaller networks may take greater ownership where they are involved in reward allocation (Duhaimé et al., 2019), as here price signalling remains a way to attract help in problem solving. However, efficiency and pecuniary reward capture is not the only goal of actors in OI networks (Han et al., 2012; Harhoff et al., 2003; Henkel et al., 2014). Our findings show that knowledge spillover was significantly higher in the non-modular production environment. The issue of spillover is particularly important for actors further from the locus of innovation; such as user communities (Harhoff, 2003; Lakhani & Wolf, 2005), start ups, and actors originating in developing countries (Rocha et al., 2019). And while spillover has historically been referred to as a cost for firms close to the locus of innovation, it is also a route to increase the market/community for a product (Chesbrough, 2003). It may be desirable to have a broad innovation network where knowledge about an innovation is widely distributed, such as in the case of new technological standards (Chesbrough, 2003; Lakhani et al., 2013).

## 8. Conclusions

Following calls for increased attention to OI strategy formulation and implementation (Randhawa et al., 2016) this paper reports experimental results when organizational features such as group size and modularity vary. Our research gives a unique insight into the 'paradox of openness' (Laursen & Salter, 2014), demonstrating the willingness of OI network actors to contribute to OI projects even where pecuniary rewards are diminishing. In turn, we were able to measure the effect of OI design to outcomes of free-riding, efficiency, and spillover.

This paper makes two important theoretical contributions, occurring at the intersection Economics and Management, in the domain of open innovation networks. In the first instance, our research suggests that efficiency (or financial reward) can be less important than knowledge spillover for understanding value captured from open innovation networks (Chesbrough, 2018). In the second instance, our research suggest that in open innovation networks *strategic choice* is at least partially determined by the information available on task modularity and group size.

Our research has three important implications for management practice. First, the demonstrated instances of value capture indicate some of the conditions under which firms may be able to acquire pecuniary Vs non-pecuniary rewards. Second, we delimit some of the OI network design factors (network size, modularity of



problems shared) which, taking into account preferences for the type (or types) of 'value' being sought, may allow firms to make strategic choices about their involvement in OI projects. Finally, there are indications that in smaller open innovation projects; the organisation at the central locus may garner greater participation (and thus value creation) where they allow involvement in decisions about who captures value from successful solutions.

This study is not without limits, however these may lead to fruitful avenues for further research. A key limit of our design is the experimental setting, which is a particularly simple rendering of an OI network and its actors, with only a single innovation problem setter in each instance. This being said, unanswered issues arising from this paper offer some promising directions for future research. This study did not directly investigate *why* groups of any size were able to complete their problem solving, and whether each member used open artefacts such as code, contents, or algorithms freely observable to the rest of the group instead of prices to (at least implicitly) signal the attractiveness of tasks. Nor did it directly investigate whether and how open artefacts facilitate learning applicable to other OI projects. However, the data showed that spillover was significantly higher in the non-modular production environment. Thus the exact mechanisms enabling production costs to be lowered, and further innovations to be developed, due to spillover offers a promising path for future research.

### Acknowledgements

This research is made possible by the financial support from the Paris School of Business, Center for Experimental Social Science at New York University, the School of Information Lab at the University of Michigan. We sincerely thank Yan Chen, Michael Cohen, Jessica Litman, Jeffrey MacKie-Mason, and Andrew Schotter for very valuable input and support. We also benefited from the comments by Charlie Holt, Dan Houser, Josh Lerner, Ivy Li, Theo Offerman, Judith Olson, Charlie Plott, Francesco Schiavone, Neslihan Uler, and the anonymous referees. Sam Matti provided excellent programming. We also thank the participants of the following meetings: the Economic Science Association Regional Meetings, the Socio-Technical Infrastructure for Electronic Transactions, the Incentive-Centered Design workshops at the University of Michigan, and seminars at the National Taiwan University, Peking University, and Tsinghua University. Many thanks to the editors and reviewers for helpful comments.

### Appendix 1. Instructions to Subjects

The next pages reproduce the instructions to subjects for the non-modular production only. The instructions for the modular production are largely the same except that there is no longer a group requirement. Whenever person A solved a game (or someone solves a game A has posted), the points A received would automatically be shown as Period Earnings. The period earnings would be added to the total earnings. In the information panel, the Potential Period Earnings and Group Requirement Achieved cells were no longer there.

#### Experiment Instructions

Welcome. You are about to participate in an experiment that is approximately 2 h long. You will be paid in cash at the end of the experiment. The payment will depend on the decisions you make. At various points of the instructions you will be instructed to work on short quizzes. When you have finished reading your instructions, raise your hand and the experimenter will come to check your answers before we start the actual experiment. If at

anytime you have any questions, raise your hand and the experimenter will assist you. The experimenter will also entertain questions publicly when everyone has finished the instructions.

The instructions are divided into five parts.

- I. Standalone Games
- II. Working with Games
- III. Acquiring Games
- IV. Structure of the Experiment
- V. How to Use the Software

### II. Standalone Games

In a standalone game, there is a combinationmaker and a combinationbreaker. In each game, the computer will be the combination-maker and you will be the combinationbreaker.

For each game, the combinationmaker will randomly generate a hidden combination of four pegs using six colors (blue, red, green, yellow, cyan, pink). Colors can be used more than once. For example a combination can be (blue, blue, blue, blue), (red, cyan, blue, blue), (red, blue, green, pink), (green, pink, cyan, yellow), etc. If you have trouble seeing the colors, you can click on **Display Color Numbers** (see Fig. 1 on P. 12; Area A).

You have an unlimited number of chances to guess the hidden combination. For each guess, the combinationmaker will give you a hint as to how close to the hidden combination you are. **If you have a peg in the correct slot and of the correct color, a black peg will be shown. If you have a peg of the correct color but in an incorrect slot, a white peg will be shown.**

The black and white pegs for each hint refer to any of the four pegs you have chosen, not to any one specific peg. For instance, if the combination is (blue, green, red, yellow), and you guess (yellow, green, blue, cyan), then you will see one black peg and two white pegs (see Fig. 2; Area A).

#### I.1 Reward

For each game solved, the experimenter will give out 10 points. For every 10 points you earn, you will be paid US\$1.

There is a group requirement: everyone has to make sure that all three of his allotted games in a period are solved either by himself or by other people in this experiment. You will only receive your earnings in a period if everyone solves all his games allotted in that period. In other words, if there is one game that is not solved in a period, none of you will receive your earnings in that period.

The points you earn from solving a game will be shown in the field **Potential Period Earnings**. If Group Requirement Achieved becomes "True", your **Potential Period Earnings** will be transferred to your **Period Earnings**.

Please work on Quiz 1 on P.8–9 now. Continue with the instructions when you are done.

### III. Working with Games

When you are working on a game, there are three courses of action you may take:

- II. 1 Completing a game You complete a game by guessing the hidden combination correctly.
- II. 2 Storing a game to your Private Games Collection You may click on Work Later (see Fig. 2; Area B). Doing so will transfer your game, with all of the guesses you have made, into your Private Games Collection. You may resume any of the games from your Private Games Collection at any time during the same period (see Fig. 4; Area A).

II. 3 Posting a game You may decide to post a game by clicking Post (see Fig. 2; Area C). Doing so will transfer your game and all of the guesses you have made into the Public Pool (see Fig. 3; Area A).

The Public Pool:

The Public Pool is a collection of games that are visible to all people in this experiment.

Games in the Public Pool can be viewed and cloned by any people in this experiment. When a person clones a game, an exact copy of the game with the history of moves and the same hidden combination is transferred to the person. This person can work on this clone and take any of the three courses of actions listed above. Games in the Public Pool can be cloned multiple times by multiple people.

When the original game or any clones of it is completed, all clones and the original become void and are no longer able to be worked on.

If a person clones and solves your game, you will be awarded the number of points the game was worth, just as if you finished it yourself. However, when you post a game you can choose the amount of commission you wish to pay another person for solving your game. This number of points will be transferred from your account to his upon his completion of the game. For instance, if you post a game worth 10 points and offer a commission of 4 points you will receive 10 points when this game is solved by another person. Four of these points will be given to the person who solves the game as commission. Thus, you earn 6 points and the other person earns 4 points.

Once your game has been posted, there is no way to control the circulation of it. People may clone many copies of your game. You can, however, grab it back from the Public Pool. Doing so removes the game from the Public Pool so that other people can no longer clone it, but it does not affect the games people have already cloned.

Since everybody is seeing the same instructions you do, everybody in your group is able to clone and post games as you are.

### III. Acquiring Games

There are three ways to acquire games to work on:

#### III.1 Request a game from the experimenter

Each period, the experimenter allots three games for you to work on. To request one of these games, you must click New Game (see Fig. 1; Area B). Each one of these games you complete will earn you 10 points.

#### III.2 Clone a game from the Public Pool

You may clone a game from the Public Pool to work on. Each one of these games you complete will earn you the commission amount for that game. The commission is chosen by the person who posts the game (see Fig. 3; Area B).

#### III.3 Clone or Retrieve a Private Game

At any time you may clone or retrieve games you have stored to your Private Games Collection (see Fig. 4; Area C).

Please work on Quiz 2 on P. 10 now. Continue with the instructions when you are done.

### IV. Structure of the Experiment

The experiment is divided into periods. At the beginning of each period, everything except Total Earnings will be reset. Note that your Period Earnings will be added to your Total Earnings. Any games in the Public Pool or your Private Games Collection will be discarded.

A period ends when everyone has solved all three of his allotted games (i.e. Group Requirement Achieved becomes “true”), or in 7 min, whichever occurs first. The experimenter will make an announcement to remind you the remaining time when there are 2 min left in the period.

In this experiment, there will be 10 periods and 1 trial period.

### V. How to Use the Software

#### V.1 Your active game

Your “Active Game” is the game in the left panel that you are working on. To make a guess, you must select a color for each of the four slots by clicking the slot and choosing the color from the dropdown menu. Once you have selected four colors, click Check to submit your guess and see the hint for it (see Fig. 2; Area A). Note that once you have clicked Check you cannot change your guess.

#### V.2 Work later

You may store your active game to your Private Games Collection at any time by clicking Work Later (see Fig. 2; Area B). This sends your active game to your Private Games Collection. Your Private Games Collection is the list of games under the panel titled “Your Games” on the right side of the screen (see Fig. 4; Area A).

#### V.3 Posting

To post your active game to the public pool, click Post. A window titled “Post Options” will appear (see Fig. 5). Here you can set the commission for this game. To the right of the window is a preview of your game as it will appear in the public pool. To cancel posting, exit the window by clicking the “X” in the upper right corner. To post the game, click Post (see Fig. 2; Area C).

#### V.4 Acquiring games

There are three ways to acquire a game:

##### 1) New game

You can request one of your three allotted games from the experimenter by clicking New Game (see Fig. 1; Area B).

##### 2) Retrieving a private game

You can retrieve a game from your Private Games Collection by looking at the list of games under the panel titled “Your Games.” Here you can see the basic information of the game: Name, Guesses, and Time Added (see Fig. 4; Area A).

Name.

This is the name of the game (in number). Note that a clone will have the same name as its parent game but with an extra level number. For example, a clone of Game 1 will have the name 1.1, and a clone of Game 1.1 will have the name 1.1.1 (see Fig. 4; Area B).

Guesses.

This is the number of guesses already made in the game.

Time Added.

This is the time you added the game into your Private Games Collection.

Clicking on one of the games in the list will load a preview of the game on the right hand side of the screen. You may then choose Clone or Retrieve (see Fig. 4; Area C). Cloning simply creates a copy of the game and leaves the original in your Private Games Collection, while retrieving it takes it out of your Private Games Collection.

### 3) Retrieving a public game

You can browse games in the Public Pool list just as you can for those in the “Your Games” list. Here you also have all the basic information of the game. In addition to Name, Guesses, and Time Added, you also have Commission and Posted By (see Fig. 3; Area A). Click on the column headers on the list to sort the games.

#### Commission.

This is the number of points you earn by solving the cloned game. Posted By This is the User Name of the person who posts the game. No participants will know which User Name corresponds to which participant.

Click on a game to load a preview of the game on the right hand side of the screen. To clone and work on this game, click Clone (see Fig. 3; Area B). If this game is yours, you will be able to Grab it out of the Public Pool. Grabbing removes the game from the Public Pool so other people will no longer be able to view and/or clone it. But this does not affect the games people already cloned.

Note: You can only acquire games when you do not have an active game. If you have an active game, you must complete it or store it to your Private Games Collection in order to work on a new game.

### V.5 Information panel

You can keep track of various statistics by looking at the Information Panel on the bottom righthand part of the screen (see Fig. 1; Area C). Here is the available information:

#### User Name.

Every person in this experiment is identified by a User Name (e.g. User 1, User 2, and so on). Your real name will be anonymous.

#### Potential Period Earnings.

You will see an increase in your potential period earnings whenever you solve a game (or someone solves a game you post). The points you see here will be transferred to the field Period Earnings if Group Requirement Achieved becomes “True”.

#### Period Earnings.

This will be zero until everyone has solved all three of his allotted games.

#### Total Earnings.

This is the amount of US\$ you have accrued in ALL periods throughout the experiment. Your total earnings are simply the sum of your Period Earnings in dollars.

#### Games Left for You.

This is the number of games left from the three the experimenter has allotted for you in the current period. If it reaches 0, you will not be able to request more games from the experimenter, but you will be allowed to work on public games.

#### Your Allotted Games Solved.

This is the number of allotted games you have solved and/or the clones of your allotted games solved by others.

Group Requirement Achieved is “False” until everyone has solved three of his or her allotted games. It will become “True” when this requirement is fulfilled.

#### Time.

This is the current time.

At the end of the experiment, the experimenter will come to each of you to record your total earnings. After that, we will shut down your screens so other students will not be able to see your earnings.

This is the end of the instructions. Please work on Quiz 3 on P.11. Quiz 1.

Please provide the hints (the black pegs and/or white pegs you expect to see) by writing B (black peg) or W (white peg) in the boxes provided.

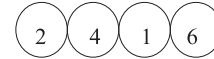
The numbers (1–6) in the circles represent the six different colors (blue, red, green, yellow, cyan, pink) that you will see in the actual experiment. However, in the experiment, you will see both the colors and the numbers (if you click on **Display Color Numbers**).

Note: keep in mind that the position of the black and white pegs does not necessarily correspond to the positions of the guesses. Black pegs are always shown first (i.e. to the left of white pegs).

Please turn to the next page.

Example:

The hidden combination is.



Your guess is:



Hint



1. The hidden combination is



Your guess is:



Hint:



Quiz 2.

Person 1 posts a game with the name, Game 2, which is worth 10 points and sets the commission to 5.

1. Person 2 clones this game. Therefore, the cloned game, Game 2.1 is created. How many points will Persons 1 and 2 each receive, if Person 2 solves Game 2.1?

Person 1:  points.

Person 2:  points.

2. After Person 2 has worked on Game 2.1, he however decides to repost it to the public pool and sets the commission to 3. Person 3 clones it, thereby creating Game 2.1.1. If Person 3 solves Game 2.1.1, how many points will Person 1, 2, and 3 each receive?

Person 1:  points.  
 Person 2:  points.  
 Person 3:  points.

3. Now if Person 3 has not solved Game 2.1.1, and Person 2 is still working on Game 2.1 after he has posted it. This means that Person 2 and Person 3 are working concurrently on Game 2. If Person 2 solves Game 2.1 first, how many points will Persons 1, 2, and 3 each receive?

Person 1:  points.  
 Person 2:  points.  
 Person 3:  points.  
 Quiz 3.

1. Each person is allotted three games. You have solved two of your own games that are worth 10 points each, and your third game is solved by another person whom you have agreed to pay 4

points to. However, not every person in this experiment has solved all three of his games yet. What will you see in the following fields?

Potential Period Earnings: .  
 Period Earnings: .  
 Games Left for you: .  
 Your Allotted Games Solved: .  
 Group Requirement Achieved: .

2. Now every person has solved three games, what do you see in the following fields?

Potential Period Earnings: .  
 Period Earnings: .  
 Games Left for you: .  
 Your Allotted Games Solved: .  
 Group Requirement Achieved: .

Please Raise your hand when you are done so the experimenter can come to check your answers.

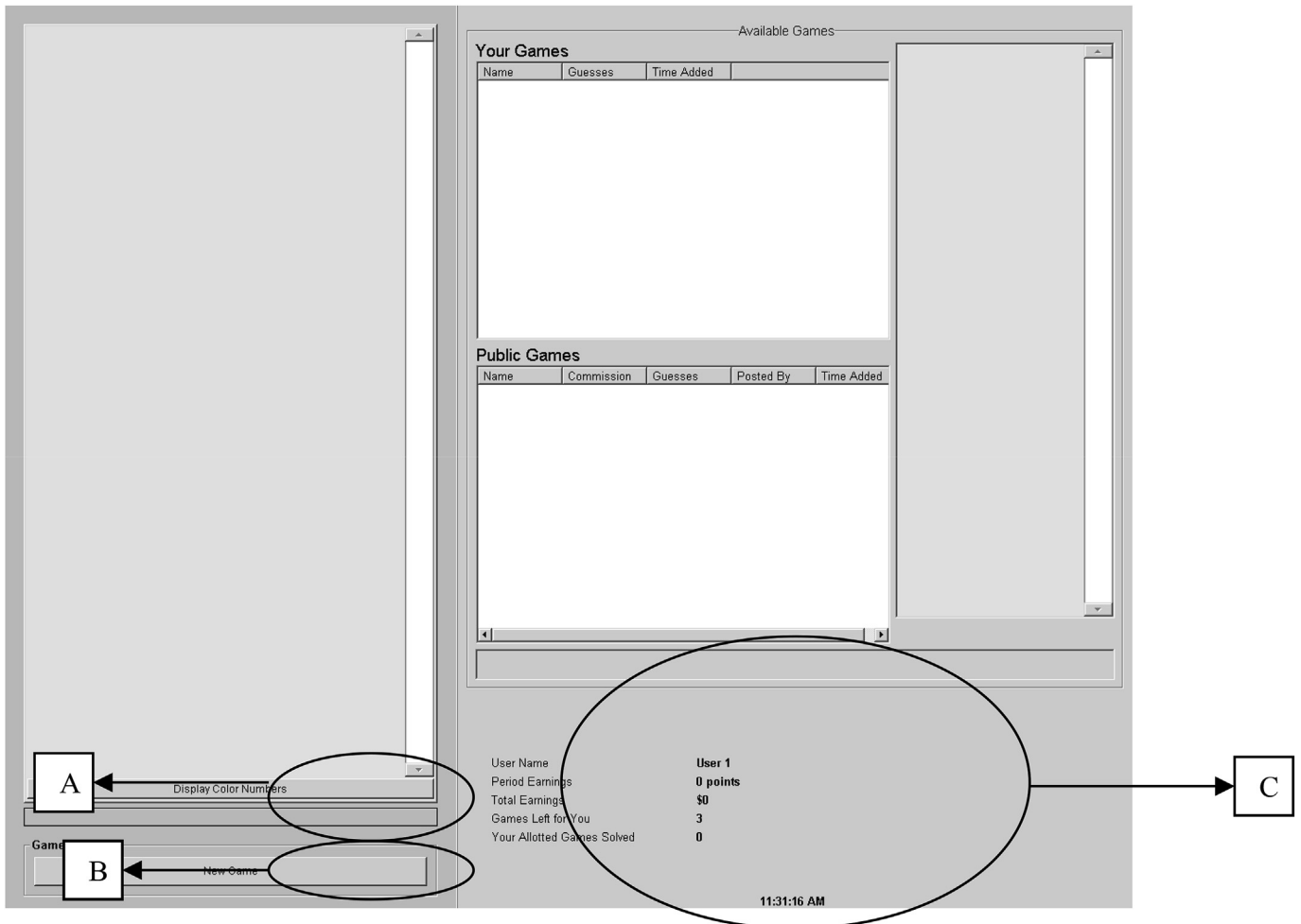


Fig. 1.

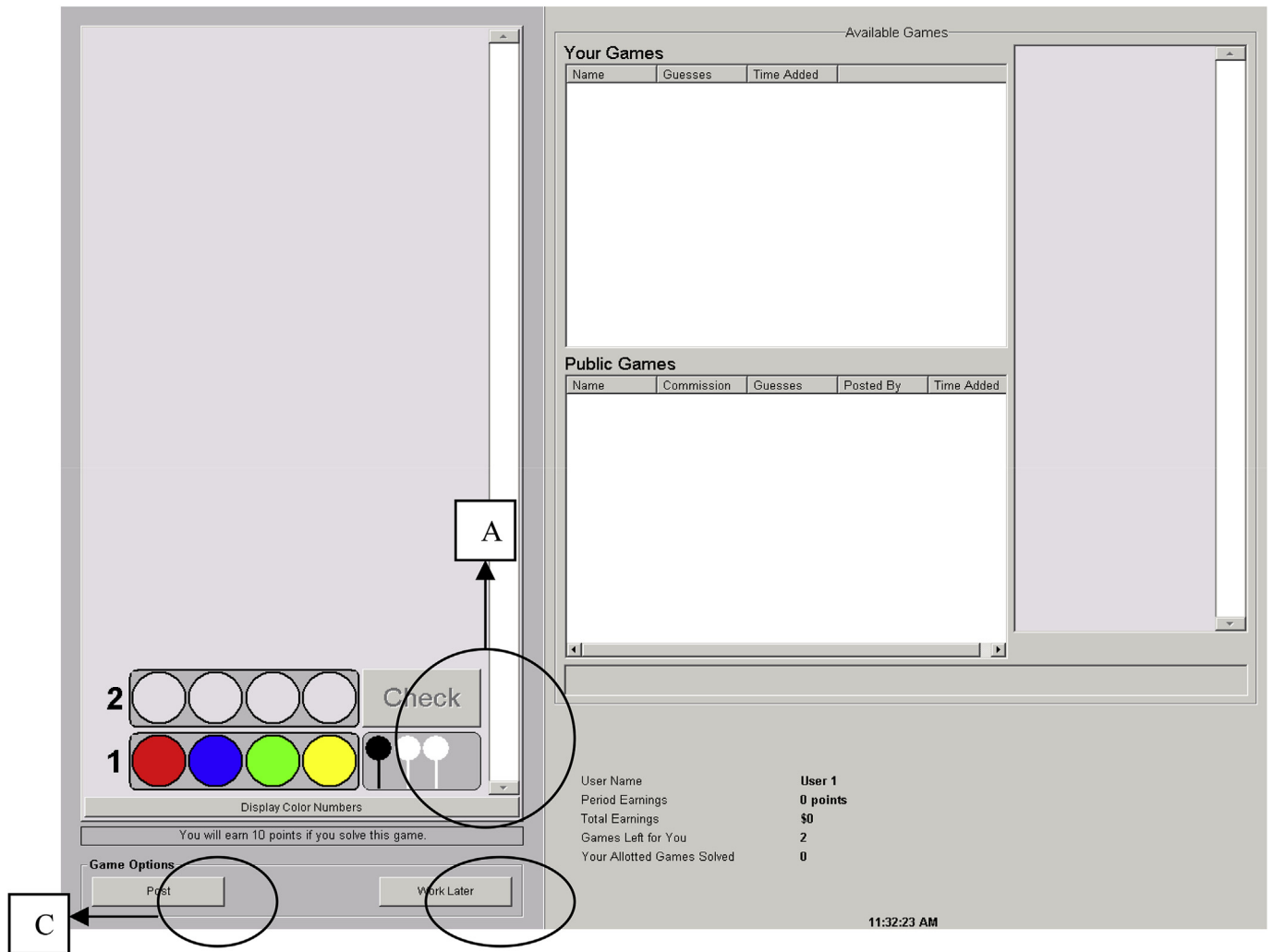


Fig. 2.

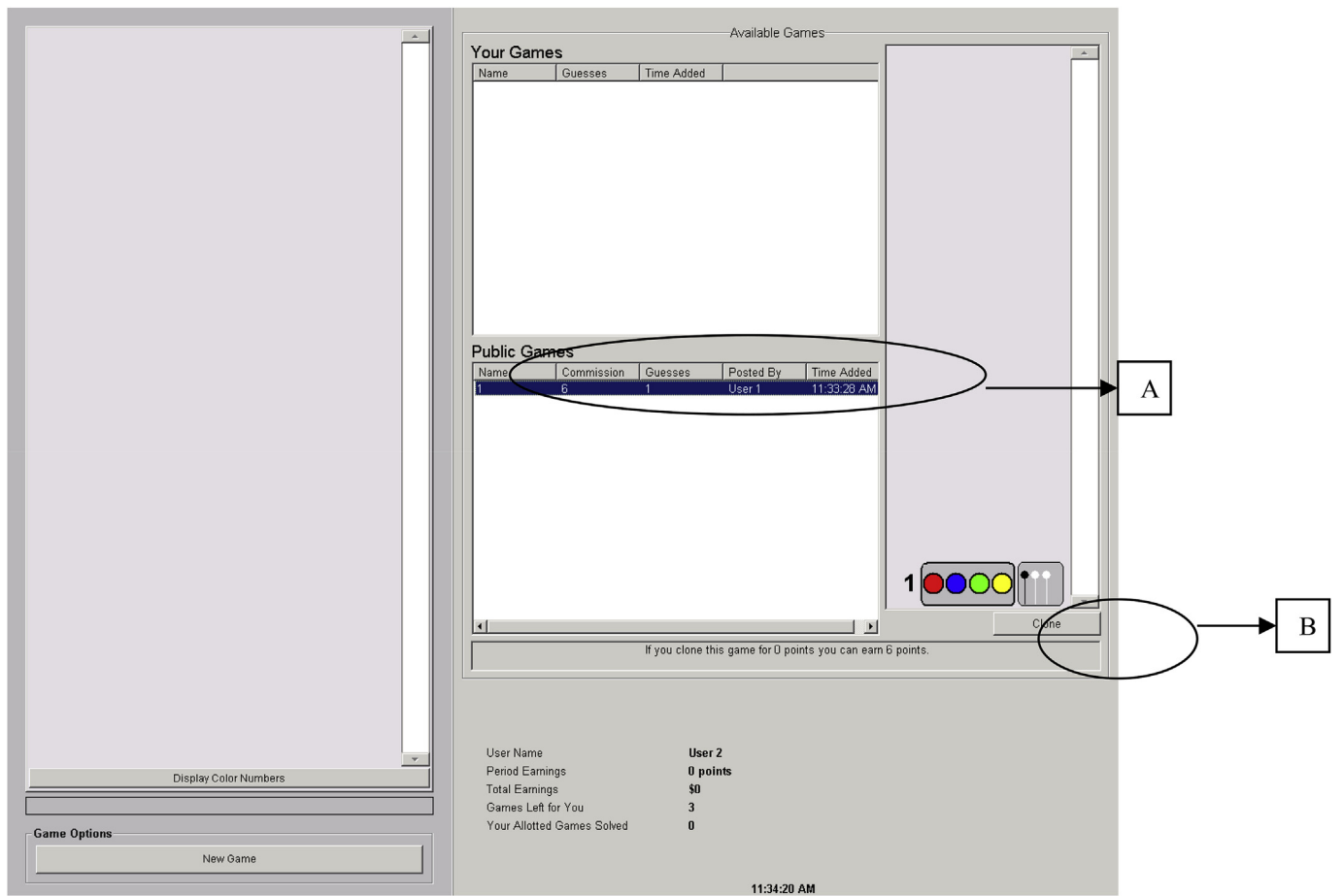


Fig. 3.

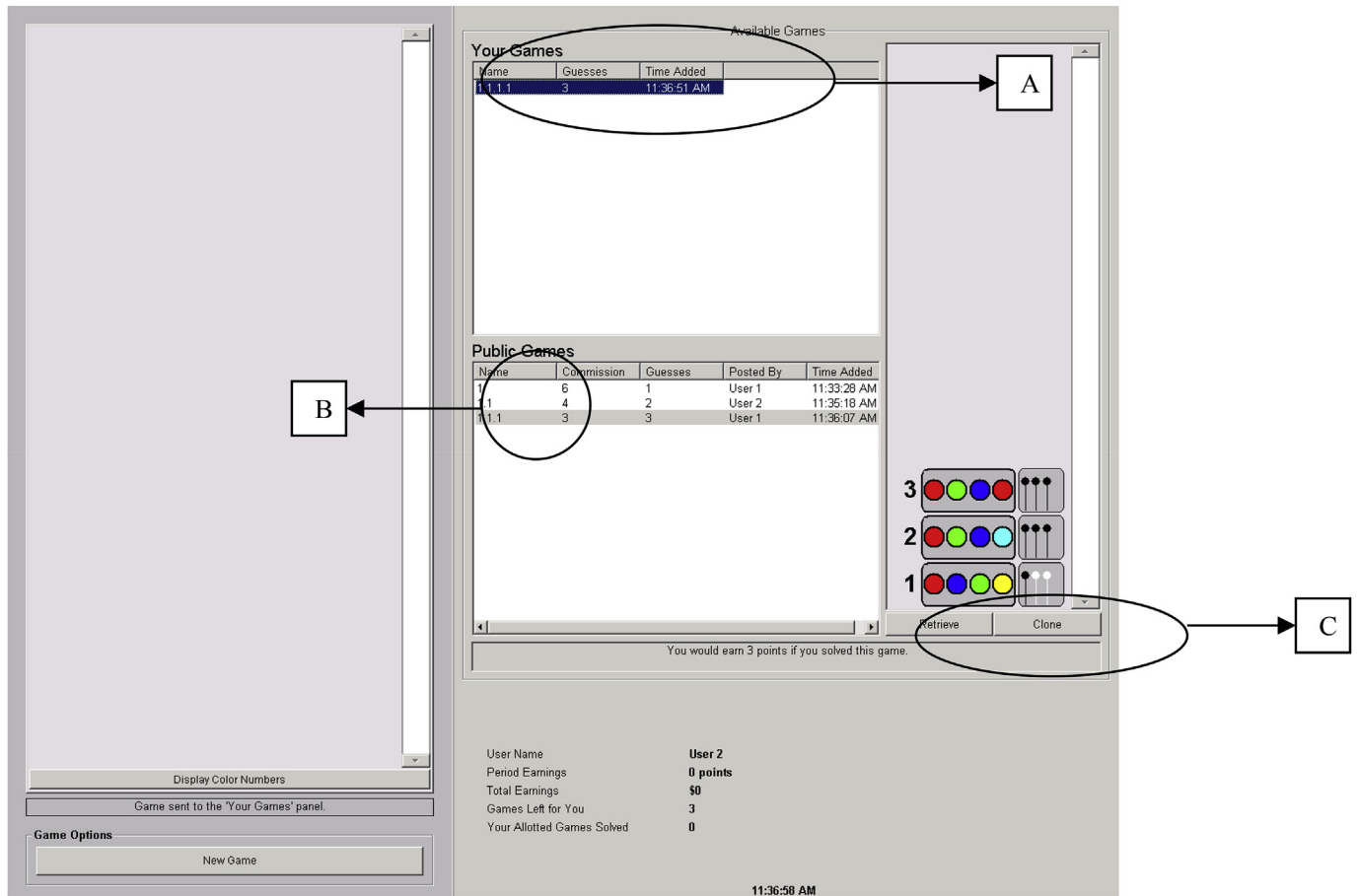


Fig. 4.

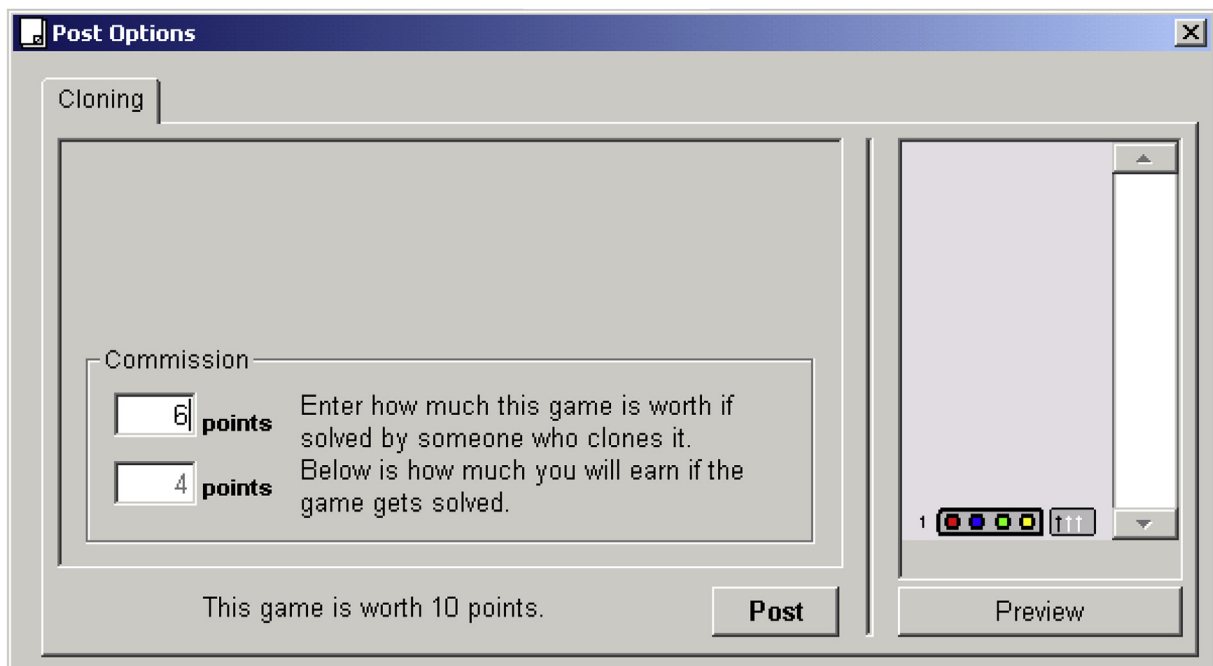


Fig. 5.

## References

- Alexy, O., George, G., & Salter, A. J. (2013). Cui bono? The selective revealing of knowledge and its implications for innovative activity. *Academy of Management Review*, 38(2), 270–291.
- Baldwin, C. Y., & Clark, K. B. (2006). The architecture of participation: Does code architecture mitigate free riding in the open source development model? *Management Science*, 52(7), 1116–1127.
- Belenzon, S., & Schankerman, M. (2015). Motivation and sorting of human capital in open innovation. *Strategic Management Journal*, 36(6), 795–820.
- Bogers, M., Chesbrough, H., & Moedas, C. (2018). Open innovation: Research, practices, and policies. *California Management Review*, 60(2), 5–16.
- Bogers, M., Zobel, A. K., Afuah, A., Almirall, E., Brunswicker, S., Dahlander, L., Frederiksen, L., Gawer, A., Gruber, M., Haefliger, S., & Hagedoorn, J. (2017). The open innovation research landscape: Established perspectives and emerging themes across different levels of analysis. *Industry & Innovation*, 24(1), 8–40.
- Camerer, C. F. (2003). Behavioral game theory: Experiments in strategic interaction. In *Behavioral game theory: Experiments in strategic interaction*.
- Carlsson, B., Jacobsson, S., Holmén, M., & Rickne, A. (2002). Innovation systems: Analytical and methodological issues. *Research Policy*, 31(2), 233–245.
- Cheng, C. C., & Huizingh, E. K. (2014). When is open innovation beneficial? The role of strategic orientation. *Journal of Product Innovation Management*, 31(6), 1235–1253.
- Chesbrough, H. W. (2003). *Open innovation: The new imperative for creating and profiting from technology*. Harvard Business Press.
- Chesbrough, H., Lettl, C., & Ritter, T. (2018). Value creation and value capture in open innovation. *Journal of Product Innovation Management*, 35(6), 930–938.
- Conover, W. J., & Iman, R. L. (1981). Rank transformations as a bridge between parametric and nonparametric statistics. *Am. Statistician*, 35(3), 124–129.
- Conway, M. E. (1968). How do committees invent. *Datamation*, 14(4), 28–31.
- Duhaime, E., Bond, B., Yang, Q., De Boer, P., & Malone, T. W. (2019). Recruiting hay to find needles: Recursive incentives and innovation in social networks. Available at SSRN, 3545311.
- Falk, A., & Heckman, J. J. (2009). Lab experiments are a major source of knowledge in the social sciences. *Science*, 326(5952), 535–538.
- Ghobakhloo, M. (2018). The future of manufacturing industry: A strategic roadmap toward Industry 4.0. *Journal of Manufacturing Technology Management*, 29(6), 910–936.
- Han, K., Oh, W., Im, K. S., Chang, R. M., Oh, H., & Pinsonneault, A. (2012). Value cocreation and wealth spillover in open innovation alliances. *MIS Quarterly*, 291–315.
- Harhoff, D., Henkel, J., & Von Hippel, E. (2003). Profiting from voluntary information spillovers: How users benefit by freely revealing their innovations. *Research Policy*, 32(10), 1753–1769.
- Henkel, J., Schöberl, S., & Alexy, O. (2014). The emergence of openness: How and why firms adopt selective revealing in open innovation. *Research Policy*, 43(5), 879–890.
- Isaac, R. M., & Walker, J. M. (1988). Group size effects in public goods provision: The voluntary contributions mechanism. *Quarterly Journal of Economics*, 103(1), 179–199.
- Isaac, R. M., Walker, J. M., & Williams, A. W. (1994). Group size and the voluntary provision of public goods: Experimental evidence utilizing large groups. *Journal of Public Economics*, 54(1), 1–36.
- Johnson, J. P. (2002). Open source software: Private provision of a public good. *Journal of Economics and Management Strategy*, 11(4), 637–662.
- Kagel, J. H., & Roth, A. E. (Eds.). (2016). *The handbook of experimental economics* (Vol. 2). Princeton university press.
- Kohnová, L. (2018). Overcoming Industry 4.0 challenges through open innovation: Literature review. *Business Environment Horizons IV*, 64–75.
- Lakhani, K. R., Lifshitz-Assaf, H., & Tushman, M. L. (2013). Open innovation and organizational boundaries: Task decomposition, knowledge distribution and the locus of innovation. In *Handbook of economic organization*. Edward Elgar Publishing.
- Lakhani, K. R., & Wolf, R. G. (2005). Why hackers do what they do: Understanding motivation and effort in free/open source software projects. In J. Feller, B. Fitzgerald, S. Hissam, & K. R. Lakhani (Eds.), *Perspectives on free and open source software* (pp. 3–22). MIT Press.
- Laursen, K., & Salter, A. J. (2014). The paradox of openness: Appropriability, external search and collaboration. *Research Policy*, 43(5), 867–878.
- Lee, M., Yun, J. J., Pyka, A., Won, D., Kodama, F., Schiuma, G., Park, H., Jeon, J., Park, K., Jung, K., & Yan, M.-R. (2018). How to respond to the fourth industrial revolution, or the second information technology revolution? Dynamic new combinations between technology, market, and society through open innovation. *Journal of Open Innovation: Technology, Market, and Complexity*, 4(3), 21.
- Parnas, D. L. (1972). On the criteria to be used in decomposing systems into modules. *Communications of the ACM*.
- Pfohl, H. C., Yahi, B., & Kurnaz, T. (2015). The impact of industry 4.0 on the supply chain. In innovations and strategies for logistics and supply chains: Technologies, business models and risk management. In *Proceedings of the hamburg international conference of logistics (HICL)* (Vol. 20, pp. 31–58) (epubli GmbH).
- Randhawa, K., Wilden, R., & Hohberger, J. (2016). A bibliometric review of open innovation: Setting a research agenda. *Journal of Product Innovation Management*, 33(6), 750–772.
- Rocha, C. F., Mamédio, D. F., & Quandt, C. O. (2019). Startups and the innovation ecosystem in Industry 4.0. *Technology Analysis & Strategic Management*, 31(12), 1474–1487.
- Smith, R. G., & Davis, R. (1981). Frameworks for cooperation in distributed problem solving. *IEEE Transactions on systems, man, and cybernetics*, 11(1), 61–70.
- Sørensen, F., Mattsson, J., & Sundbo, J. (2010). Experimental methods in innovation research. *Research Policy*, 39(3), 313–322.
- Teece, D. J. (1993). Profiting from technological innovation: Implications for integration, collaboration, licensing and public policy. *Research Policy*, 22(2), 112–113.



## Assessing Participation and Position of Vietnam in Global Value Chains

Shashi Kant Chaudhary, PhD\*

DOI: <https://doi.org/10.3126/jnbs.v14i1.41486>

*Received on 19 May 2021*

*Accepted on 16 November 2021*

### ABSTRACT

*Vietnam's policy of openness to trade and investment has made it integrated very quickly with the global production networks, also known as global value chains, which has brought many visible fortunes to it in terms of socio-economic achievements. To have a deeper insight into the prospects and constraints of its integration into global value chains, and also to assess its degree of integration, this paper has employed Koopman et al. (2010) approach to measure the participation index, and position index. The analysis shows that the participation of Vietnam in global value chains has increased significantly in the last two decades based on strengthening FDI-led exports of Vietnam. It also shows that most of the exporting industries are located in the middle-stream in the value curve and are net buyers of intermediate products for exports, which infers the presence of predominant I2E practices in Vietnam. The paper also identifies and assesses the risk I2E practices are prone to. Scenario analysis suggests that Vietnam shall focus on upskilling of its labour force and developing indigenous industrial base. In the meantime, domestic firms shall be encouraged to collaborate with foreign firms and densify into global value chains.*

**Keywords:** Backward participation, forward participation, global value chains, position index, Vietnam

### 1. INTRODUCTION

Global value chains<sup>1</sup> have become a dominant feature of international trade and investment (OECD, 2015). Progress in information and communication technology reforms in trade policies, and reduction in the regulatory barriers, especially after the mid-1980s led the manufacturing firms in exploring the most efficient locations for production process which has resulted in fragmented production process across several locations in the world (Jones & Kierzkowski, 2001). Because of this new trend in the global production network, integrations of developing

---

\* Dr. Chaudhary is a Senior Teaching Fellow in British University Vietnam.  
Email: saw\_sea@outlook.com

<sup>1</sup> Global value chain is a phenomenon in which a production process is fragmented into multi-stage tasks and is completed by different companies located over different countries (UNCTAD, 2015; WDR, 2020). The production process of mobile phones, automotive, textile and footwear, etc. are some common examples of global value chains.

countries like China, Mexico, Bangladesh, Vietnam, etc. have increased significantly in global value chains in comparison to what they used to have a couple of decades ago. Participation in global value chains has brought several fortunes to these developing countries, viz. (i) they did not need to build a whole course of production capacity; instead, they just needed to use their comparative advantages to concentrate on a specific production process (Kowalski et al., 2015); (ii) increased participation in global value chains generated new job opportunities (OECD, 2014); and (iii) also provided an opportunity for transfers and (or) spill-overs of the technology and management skills through local learnings (Taglioni & Winkler, 2016). However, the amounts of benefits and their distributions are not automatic and can vary considerably depending upon two things- firstly, the way a country predominantly participates in global value chains, that is, whether as a supplier of the intermediate products, also known as forwarding participation, or as a buyer of the intermediate products, also known as backward participation and secondly, the positions of exporting industries in the value curve<sup>2</sup>. Empirical studies on mapping of global value chains, viz. Backer and Miroudot (2013), Kummritz (2014), Cheng et al. (2015), Herr et al. (2016), etc. infer that a country that predominantly supplies domestically produced intermediate products to assemblers will have strong forward participation and reaps higher domestic value addition in its exports, while a country that predominantly assembles the intermediate products into final goods and subsequently exports them, will have strong backward participation and reaps smaller domestic value addition in its exports. On the other side, by 'position of an industry in the value curve' means where exactly the reference industry is functioning in the production process, that is either on the left segment (upstream) or right segment (downstream) or middle segment (middle-stream) of the value curve. An industry's position in the value curve entirely depends on the specialized nature of the products or services it offers for trade. For example, mining industries offer unique input for other industries and thus position in the upstream. Likewise, R&D, designing, branding, etc. also position in the upstream. On the other hand, specialized services such as distribution, marketing, after-sales customer services, etc. position the downstream. The assembly activities position in the middle-stream of the value curve. In terms of value creation, both upstream and downstream activities add larger value to the products and services than the middle-stream activities.

Vietnam started its journey as one of the poorest countries back in 1990s, but quickly achieved the status of a 'middle-income country' by 2010 and enjoyed a GDP per capita of USD 2,786 in 2020 (World Bank, 2021) leveraging on its integration into global value chains. Vietnam has moved away from the exports of primary products to the exports of manufactures and services with the support of FDI firms, which still contribute over 72 percent of the country's gross exports (GSO, 2020). Chaudhary and Nguyen (2019) have found that intra-industry trade, which is simultaneous imports and exports of goods in the same industry, has increased in Vietnam. This practice is also reflected in the increasing gaps between the values of gross exports and domestic value-added exports<sup>3</sup> of Vietnam. However, limited numbers of studies<sup>4</sup> are available in the context of Vietnam in terms of examining the underlying characteristics of domestic value-added contents in gross exports of it and its participation in global value chains. Only Thanh et al. (2015)

---

<sup>2</sup>Also known as 'smile curve,' the industries located in the either extreme of the U shaped value curve generate higher value, and the industries located in the middle generate lower value to the economy.

<sup>3</sup> Domestic value added export is the proportion of domestic value addition in the gross export of goods and services.

<sup>4</sup> These include Nadvi and Thoburn (2003), Bui et al. (2008), World Bank (2011), Tran et al. (2011), Ha (2012), Trang (2012), Dao and Nguyen (2013), Thanh et al. (2015), and Hoang and Pham (2016). Moreover, most of these studies have focused on a particular sector, for example, textile and garment, footwear, agriculture, etc. rather than the overall economy of Vietnam.

and Tran et al. (2011, cited in Thanh et al., 2015) have attempted to analyze the overall picture of Vietnam by breaking down the gross exports into imported and domestic values. However, since both works have used domestic input-output table in their approaches, they have not been able to capture the flow of ‘export to re-import values for Vietnam, hence making their estimates differ significantly from that of the OECD-TiVA estimates. In addition, their approaches have had some assumptive limitations such as product homogeneity, consumption of imported inputs within the same year, etc. Moreover, none of these papers have had insight and discussion about the integration of Vietnam into global value chains, which is an important feature of the Vietnamese economy in recent time though. Therefore, the researcher got motivated to undertake this research to explore the recent status and prospects of Vietnam into global value chains. This paper is expected to contribute to developing an insight into the prospects and constraints of Vietnam’s integration into global value chains.

The rest of this paper has been organized as: Section 2 discusses the methodological framework adopted in this work followed by a description of data sources and the coverage of the study period in section 3. Section 4 presents the findings of the analysis and discussion, and section 5 presents the concluding remarks.

## 2. METHODOLOGICAL FRAMEWORK

This paper has employed three steps in assessing the participation and position of Vietnam in global value chains. Firstly, estimation of global value chains participation indices of exporting industries, and Vietnam itself; secondly, estimation of global value chains position indices of exporting industries; and thirdly, the position of the exporting industries in the value curve.

### 2.1 Estimation of Global Value Chains Participation Indices

In this framework, the work of Koopman et al. (2010) can be considered as the milestone that proposes measurement of ‘global value chains participation index’ for a reference industry ‘k’ in-country ‘i’ as below:

$$\text{Global value chains participation index} = \frac{IDC_{ik}^*}{GE} + \frac{FVA_{ik}}{GE} \quad (\text{Eq. 1})$$

The symbols used in the above relation can easily be generalized for Vietnam for a specific fiscal year as follow.  $IDC_{ik}^*$  is the value of domestic value-added exports of Vietnamese industry ‘k’ in the exports of importing countries.  $FVA_{ik}$  is the foreign value added embodied in the exports of the industry ‘k’. GE is the gross export of Vietnam. Thus, the first term on the right hand side also measures the industry k’s forward participation in global value chains, while the second term measures its backward participation in global value chains. The average value of the participation indices of all industries into consideration represents the participation index of Vietnam in global value chains.

### 2.2 Estimation of Global Value Chains Position Indices

Equation (1) does not shed light on the position of a reference industry in the value curve. Nonetheless, two approaches are available in the literature to estimate the position of an industry in the value curve- firstly, the ‘global value chains position index’ recommended by Koopman et al. (2010), and secondly, the ‘distance to final demand index’ recommended by Fally (2012). The ‘global value chains position index’ is a log ratio of an industry’s forward participation index to its backward participation index, while the ‘distance to final demand index’ is an index that measures how many production stages a product still requires to undergo before it reaches the final consumers. This means that a longer ‘distance to final demand’ suggests that industry is positioned upstream in the value curve, while a shorter ‘distance to final demand’ suggests that

the industry is positioned downstream in the value curve. Nonetheless, in this paper, the researcher has adopted the ‘global value chains position index’ for the specified purpose because this approach also sheds light on the way a reference industry participates in global value chains. Mathematically, the ‘global value chains position index’ can be expressed as below:

$$\text{Global value chains position index} = \text{LN}\left(1 + \frac{\text{IDC}_{ik}^*}{\text{GE}}\right) - \text{LN}\left(1 + \frac{\text{FVA}_{ik}}{\text{GE}}\right) \quad (\text{Eq. 2})$$

In equation (2),  $\text{IDC}_{ik}^*$ ,  $\text{FVA}_{ik}$  and  $\text{GE}$  has the same interpretations as stated in equation (1), and  $\text{LN}$  stands for the natural logarithmic function of the terms inside parentheses. It is important to note that equation (2) has been formulated in such a way that when a reference industry predominantly participates in global value chains by exporting intermediate products to the importing partners for their exports, the first term on the right-hand side tends to be larger and the index tends to take a positive value. On the other hand, if the reference industry predominantly participates in global value chains by purchasing intermediate products for its exports, then the second term on the right-hand side tends to be larger and the index tends to take a negative value. Therefore, if the position index takes a positive value, it means the reference industry is more likely to position in the upstream of the value curve, while if the position index takes a negative value, it is more likely to position the downstream of the value curve.

However, there is a practical limitation in this way to position industries in the value curve, and that is, it does not differentiate between the industries that position in the higher-upstream (left upper end of the U shaped value curve) from the ones that lie in the lower-upstream industries (in the falling apart of the U shape near the minimum point). The same argument is applicable in the case of industries that position in the higher-downstream (right upper end of the U-shaped value curve) and the lower-downstream industries (in the rising part of the U shape near the minimum point) in the value curve. The researcher has used the term ‘middle stream for the segment in the value curve extending from the lower-upstream to the lower-downstream in the discussion onward, thus the middle-stream extends a bit in both sides of the minimum point of the value curve.

To overcome this state of confusion, the researcher has used a combination of the mean position index and the standard deviation of the position indices of all the 34 industries<sup>5</sup> under consideration to estimate a range of ‘one standard deviation on the left side (mean plus one standard deviation) to one standard deviation on the right side (mean minus one standard deviation) of the mean position index’ for the base year<sup>6</sup>. This range represents the position for the ‘middle stream industries in the value curve. That means any industry with the position index falling within this range shall be considered to be positioned in the middle-stream segment. On the other hand, any industry falling on the left side of this range shall be considered to be positioned in the upstream, and that on the right side of this range shall be considered to be positioned in the downstream segment of the value curve. Nonetheless, this arrangement is based on two important underlying assumptions- firstly, that the shape of the value curve is symmetric around the mean position index; and secondly, that the position index series is normally distributed. These assumptions have been tested using the measure of skewness and the Shapiro-Wilk statistic in the series. The estimates of equations (1) and (2), and the above-mentioned measures have been presented in section 4.

---

<sup>5</sup> There are 36 industries in total in the data series, however, two industries do not have any exports value, hence they have been excluded from analysis.

<sup>6</sup>2005 is the starting year of the new data series of OECD stat (2018). Since the mean position index is a negative value, an addition of standard deviation ( $\text{sd} > 0$ ) will shift the position index towards left.

### 3. SOURCES OF DATA AND STUDY PERIOD

A bulk of data used in the analysis have been extracted from OECD-TiVA database 2018 edition<sup>7</sup> (spanning over 2005 to 2015), and only a couple of aggregate values from its 2016 edition (spanning over 1995 to 2011) to extend the study period from 1995 to 2015 to have a better understanding of the historical pattern in participation index. However, in the analysis of industries' level position indices, the study uses data from OECD-TiVA 2018 edition only since the industries level classification of the 2016 edition is not directly comparable with that of the 2018 edition. They have adopted different versions of ISIC (International Standard Industrial Classification of All Economic Activities).

### 4. FINDINGS AND DISCUSSION

#### 4.1 Participation of Vietnam in Global Value Chains

The participation of Vietnam in global value chains has significantly increased from 34 percent in 1995 to 56 percent in 2015 riding on its backward participation. During this period, the proportions of backward participation have increased substantially to over 44 percentage points while that of the forward participation has fallen to 11 percentage points, causing a large gap between them (Table 1). This also affirms the 'imports for exports (I2E)' practices that have been taken place in Vietnam, which, in the words of Nakamura (2016), has helped it to emerge as the Asian manufacturing powerhouse. With its recent level of participation in global value chains, Vietnam stands 9<sup>th</sup> in the world, while 3<sup>rd</sup> in the ASEAN region, and is expected to surpass Malaysia soon (Figure 1). However, in terms of forwarding participation, its rank is 61<sup>st</sup> in the world<sup>8</sup> and stands at the end in the ASEAN region. Nonetheless, the imported items and services have supported Vietnam in maintaining its competitiveness in the world market. Despite having skills constraints, it is a leading exporter of computer and electronic products, and electrical equipment in the world.

**Table 1**

*Global Value Chains Participation Indices of Vietnam by Years*

Year	Forward participation index	Backward participation index	Total participation index
1995	12.6	21.6	34.2
2000	19.5	27.2	46.7
2005	14.5	36.1	50.6
2010	12.5	40.5	53.0
2015	11.1	44.5	55.6

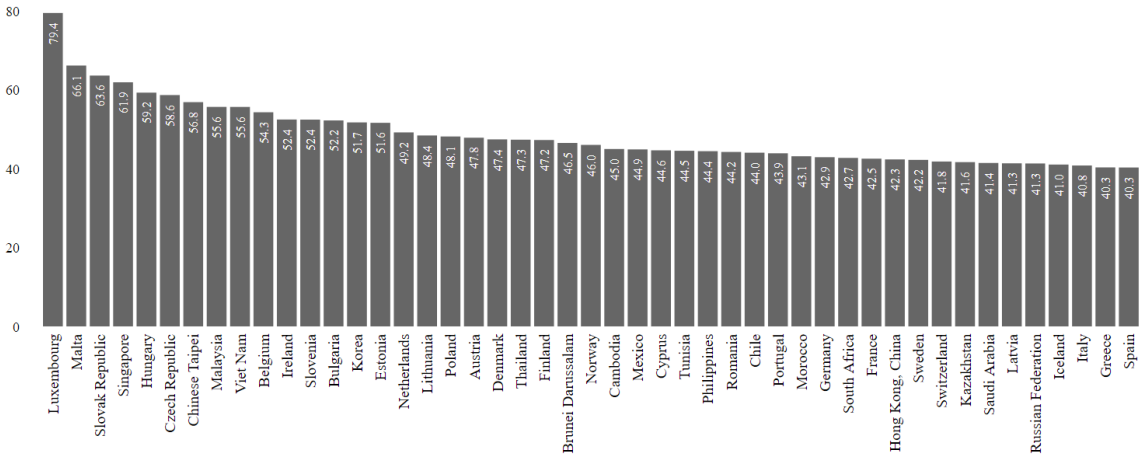
*Source: Researcher's estimate. Data source: OECD.stat (2016 & 2018)*

<sup>7</sup> This is the most recent database published by OECD on Trade in Value Added (TiVA) indicators.

<sup>8</sup> In the rank by forward participation index, Brunei, Saudi Arabia, and Kazakhstan which are rich in exporting crude oil and natural gases occupy the top three positions with shares 41.1, 36.8, and 35.1 percentage points respectively.

**Figure 1**

*Global Value Chains Participation Index of the Top 47 Countries in the World in 2015.*



*Source: Researcher’s contribution. Data source: OECD.stat (2018)*

A breakdown of the global value chains participation indices to the industry level shows that Vietnam has been highly active in computer and electronics, electrical equipment, machinery equipment, transport equipment, textile and footwear, and the processing industries, mainly through backward participation. Among the business-related services, the indices are higher for information and communication, and transport and storage (Appendix A). Notably, the participation of computer and electronics, and electrical equipment has grown remarkably in comparison to 2005, by 31 percent and 24 percent respectively. The global value chains participation of textile and footwear, foods and beverages, machinery equipment and transport equipment have also grown, albeit slowly. On the other hand, the global value chains participation of agriculture and mining industries has remained low since the beginning and has remained almost unchanged. Since the global value chains participation depends on the technical characteristics of industries’ products, for example, the electronics, computers and their parts, machinery and equipment are easy to separate into discrete components, easy to produce separately, and also easy to transport to the low-cost locations for assembly process; the observed pattern of global value chains participation of Vietnam is not surprising. These industries normally rank higher in terms of the global value chains of the host countries like Vietnam via increasing backward participation rate.

**4.2 Position of Vietnamese Industries in Global Value Chains**

The estimated values of global value chains indices for all 34 industries into consideration for years 2005, 2010, and 2015 have been provided in Appendix B. The position indices of all 34 industries are negative, which means that they are net buyers of intermediates for their exports. This is a clear indication that assembly activities have been taking place in those industries. Nonetheless, prior to going into the discussion of the positioning of these industries in the value curve, a confirmatory test has been undertaken by employing skewness, and Shapiro-Wilk test, to confirm that distribution of the series of the global value chains position indices are symmetric and normal. The results are presented in Table 2. Since the absolute values of skewness are less than 0.5, the distribution is confirmed to be symmetric. Likewise, the Shapiro-

Wilk statistics for none of the three series are found significant at 5 percent level, which means the null hypothesis that ‘data series is normally distributed’ cannot be rejected. This confirms the normality assumption of the global value chains indices.

**Table 2**

*Normality Test for the Data Series of Global Value Chains Position Indices*

Index series	Skewness	Shapiro-Wilk		
		Statistic	df	Sig.
Position indices (2005)	0.259	0.943	34	0.074
Position indices (2010)	0.180	0.945	34	0.088
Position indices (2015)	0.007	0.960	34	0.242

*Source: Researcher's estimate*

Next, as proposed in the methodological framework, the range for the middle-stream industries in the base year 2005, extends from negative 0.18 to negative 0.40, i.e. [-0.18 to -0.40]. This also infers that an industry with a position index greater than negative 0.18 is positioned upstream and that smaller than negative 0.40 is positioned downstream (Appendix B). Based on these criteria, it is seen that most of the manufacturing industries including textile and footwear, and foods and beverages are positioned in the middle-stream. They together have contributed over 62 percent to the domestic value-added exports of Vietnam in 2015. Other six manufacturing industries including fabricated metal, computer and electronics, electrical, machinery and other transport equipment are located downstream, and they together have contributed 14 percent in the domestic value added exports of Vietnam in 2015. Three industries are positioned upstream, which are related to the support services, and their contribution is less than one percent in the domestic value added exports of Vietnam. In terms of total contribution by categories, the middle-stream industries together contribute over 85 percent in the domestic value added exports of Vietnam and show their dominance in the export sector of Vietnam. Nonetheless, except for coke and refined petroleum products, and basic metals which are moving towards upstream, others are moving towards downstream in the value curve. Since, the major activities that take place in the downstream segment of the value curve are distributions, sales, and after-sales services, therefore, this trend indicates a gradual improvement in the connectivity of Vietnamese domestic firms in the international market.

## 5. CONCLUDING REMARKS

Vietnam's economy has grown rapidly in the past 25 years, and it has been able to maintain a stable GDP growth rate of over 5 percent, mainly relying on its strengthening exports<sup>9</sup>. With that its participation in global value chains has also increased significantly. The analysis has shown that most of the contributing industries are located in the middle-stream in the value curve and are net buyers of intermediate products for exports. That is why the gross exports value of Vietnam has risen significantly in comparison to its domestic value-added exports. With this I2E model of growth, Vietnam has made notable improvements in its socio-economic indicators since the start of its journey back in 1990s. However, this model, to work smoothly requires low-cost labour forces. Till now, Vietnam has had maintained its comparative advantage in a cheap labour force and has been able to attract baskets of foreign direct investment projects into the country. However, now it is time to assess how long more this strategy may work. With the rise in the

<sup>9</sup>According to Nguyen and Chaudhary (2018), both short-run and long-run relationship exists between value added exports and GDP of Vietnam. Moreover, one percent rise in domestic value added exports contributes in 0.73 percent rise in the real GDP value of Vietnam.

living standards of Vietnamese people, the wage rate is certain to rise sweeping away this comparative advantage in the future, which means a wave of assembly jobs is more likely to flow out of Vietnam. In addition, this model is also prone to the consequences of automation of assembly activities in the light of Industry 4.0<sup>10</sup> buzz across the globe. Hence, Vietnam has two options ahead – either continue with the existing model as an export platform in global value chains, specializing in assembly activities, or move up (or down) along the value curve towards upstream (or downstream) to capture higher value addition for its activities by upskilling its labor force and developing own indigenous industrial base. The failure of the Mexican growth model has shown that wage suppression is not a sustainable strategy to reap the benefits of global value chains. Instead, some lessons from Germany, Japan, Asian Tigers<sup>11</sup> and China might be worthwhile in envisaging the future policies and ways ahead for Vietnam. German and Japanese export-led growth booms were based on their indigenous industrial-based exports. The Asian Tigers also followed a similar strategy, but they also added the acquisition of foreign technology in their strategies. On the other side, the Chinese model is an extension of the Mexican model with two adjustments in particular- firstly, aggressive investment in upskilling its workers, in domestic R&D, and ICT infrastructures, and secondly a policy in place for technology adoption by domestic firms. The Chinese economy has been doing well so far in comparison with the performances of other economies as mentioned above. Currently, it is not only an important player in global value chains but also has enhanced the domestic value-added exports significantly. Therefore, Vietnam shall focus on developing its indigenous industrial base and acquiring foreign technology in prioritized industries. This will require Vietnam to encourage collaboration of domestic firms with foreign firms so that local learnings can take place and the domestic firms can also densify into global value chains. These will help Vietnamese industries to upgrade their products, processes, and functions so that Vietnam overall can switch from assembling agent to the indigenous producer.

## 6. ACKNOWLEDGEMENTS

The author would like to thank and appreciate the contributions of the Editorial Board and anonymous referees in terms of providing valuable comments which helped in enhancing the quality of this paper. The author is solely responsible for any flaws and errors.

## REFERENCES

- Backer, K. D., & Miroudot, S. (2013). Mapping Global Value Chains. *OECD Trade Policy Paper No. 159*. Organization for Economic Co-operation and Development.
- Bui, T., Pham, L. H., & Bui, C. G. (2008). Import Multiplier in Input-Output Analysis. *Depocen Working Paper No. 2008/23*. Development and Policy Research Centre.
- Chaudhary, S. K., & Nguyen, K. V. (2019). Reassessing the Export Competitiveness of Vietnam. *VNU Journal of Social Sciences and Humanities*, 5(5), 539-549.
- Cheng, K., Rehman, S., Seneviratne, D., & Zhang, S. (2015). Reaping the Benefits from Global

---

<sup>10</sup> Germany Trade and Invest defines Industry 4.0 as: ‘A paradigm shift . . . made possible by technological advances which constitute a reversal of conventional production process logic. Simply put, this means that industrial production machinery no longer simply “processes” the product, but that the product communicates with the machinery to tell it exactly what to do.’ (Sniderman et al., 2016: p. 4-5).

<sup>11</sup>Hong Kong, Singapore, South Korea, and Taiwan.



- Value Chains. *IMF Working Paper WP/15/204*. International Monetary Fund.
- Dao, T. A., & Nguyen, V. S. (2013). Vietnam Agricultural Value Chain in the FTA of Asian Region. *FFTC Agricultural Policy Articles*. Food and Fertilizer Technology Center for the Asian and Pacific Region.
- Fally, T. (2012). *On the Fragmentation of Production in the US*. University of Colorado-Boulder. download.cgi (editorialexpress.com)
- GSO (2020). *Statistical Yearbook of Vietnam 2020*. General Statistics Office.
- Ha, V. H. (2012). Analysis of Value Chain of Textiles and Garment Export in Vietnam (Vietnamese). *Journal of Economics and Business* 28, 49–59.
- Herr, H., Schweisshelm, E., & Vu T. M. (2016). The integration of Vietnam in the global economy and its effects for Vietnamese economic development. *Working Paper No. 44*. Global Labour University.
- Hoang, T. P. L., & Pham, T. T. H. (2016). An Analysis of Vietnamese Footwear Manufacturers' Participation in the Global Value Chain: Where They Are and Where They Should Proceed? *VNU Journal of Science: Education Research* 32(5), 55-65.
- Jones, R. W., & Kierzkowski, H. (2001). A framework for fragmentation. In S. Arndt, & H. Kierzkowski (Eds.), *Fragmentation: New Production Patterns in the World Economy* (pp. 17–34). Oxford University Press.
- Koopman, R., Powers, W., Wang, Z., & Wei, S. J. (2010). Give Credit Where Credit is Due: Tracing Value Added in Global Production Chains. *NBER Working Paper No. 16426*. National Bureau of Economic Research.
- Kowalski, P., Gonzalez, J. L., Ragoussis, A., & Ugarte, C. (2015). Participation of Developing Countries in Global value chain: Implications for Trade and Trade Related Policies. *OECD Trade Policy Papers, No. 179*. Organization for Economic Co-operation and Development.
- Kummritz, V. (2014). Global Value Chains: Benefiting the Domestic Economy? *CTEI Working Paper CTEI-2014-05*. Centre for Trade and Economic Integration.
- Nadvi, K., & Thoburn, J. (2003). *Vietnam in the Global Garment and Textile Value Chain: Implications for Firms and Workers*. Department for International Development (DFID). nadvi\_thoburn.doc (psu.edu)
- Nakamura, D. (2016, May 21). Buoyed by U.S. firms, Vietnam emerges as an Asian Manufacturing Powerhouse. *The Washington Post*. Buoyed by U.S. firms, Vietnam emerges as an Asian manufacturing powerhouse - The Washington Post
- Nguyen, K. V., & Chaudhary, S. K. (2018). An Empirical Analysis of Export-led Growth of Vietnam: Trade in Value Added (TiVA) Approach. *The Journal of Business and Management*, 5(1), 1-15.
- OECD (2014). *Global value chain: Challenges, Opportunities and Implications for Policy*. Organization for Economic Co-operation and Development.
- OECD (2015). Participation of Developing Countries in Global Value Chains. *Summary Paper*. Organization for Economic Co-operation and Development.
- OECD.stat (2016 & 2018). *OECD Statistics*. Organization for Economic Co-operation and Development. OECD Statistics
- Sniderman, B., Mahto, M., & Cotteleer, M. (2016). *Industry 4.0 and manufacturing ecosystems: Exploring the world of connected enterprises*. Deloitte Consulting.
- Taglioni, D., & Winkler, D. (2016). *Making Global Value Chain Work for Development*. The

World Bank.

Thanh, V. T., Duong, N. A., & Trinh, B. (2015). Trade-in Value Added: The Case of Viet Nam. In L.Y. Ing, & F. Kimura, (Eds.), *Production Networks in Southeast Asia* (pp. 183-201). Economic Research Institute for ASEAN and East Asia (ERIA).

Trang, A. N. (2012). Vietnamese Textile and Garment Industry in the Global Supply Chain: State Strategies and Workers' Responses. *Institutions and Economies* 4(3), 123-150.

UNCTAD (2015). *Tracing the Value Added in Global Value Chains: Product-Level Case Studies in China*. United Nations Conference on Trade and Development.

WDR (2020). *World Development Report 2020, Trading for development in the age of global value chains*. The World Bank.

World Bank (2011). Vietnam Food Security and Rice Value Chain. *Policy Note 2*. The World Bank.

World Bank (2021). *World Bank Open Data*. The World Bank. World Bank Open Data | Data.

### Appendix A

#### *Global Value Chains Participation Indices of Vietnam by Selected Industries*

Industries	Forward Participation			Backward Participation			Participation index		
	2005	2010	2015	2005	2010	2015	2005	2010	2015
Agriculture, forestry, & fishing	0.3	0.2	0.2	29.8	30.9	31.7	30.1	31.1	31.9
Mining & quarrying	0.7	0.6	0.3	28.0	27.6	30.3	28.7	28.2	30.6
Food, beverages, & tobacco	0.8	0.8	0.7	34.2	36.6	37.6	35.0	37.4	38.3
Textiles, apparel, & leather products	1.1	1.0	1.2	41.5	44.4	46.2	42.6	45.3	47.4
Wood & paper products; printing	0.2	0.2	0.2	46.2	46.8	48.9	46.4	47.0	49.0
Coke & refined petroleum products	2.1	0.9	0.6	49.3	36.5	32.4	51.4	37.4	33.0
Chemicals & pharma. products	1.1	0.9	0.7	49.1	50.2	48.1	50.2	51.1	48.8
Rubber & plastic products	0.3	0.3	0.3	50.0	52.8	53.2	50.3	53.1	53.5
Other non-metallic mineral products	0.1	0.1	0.1	34.1	35.5	35.6	34.2	35.6	35.7
Basic metals	0.7	0.6	0.4	50.7	50.9	46.1	51.4	51.5	46.5
Fabricated metal products	0.2	0.2	0.2	54.9	58.3	58.9	55.2	58.5	59.1
Computer & electronics products	1.7	1.9	1.7	47.0	52.2	62.3	48.8	54.1	64.0
Electrical equipment	0.5	0.5	0.5	47.4	55.0	59.0	47.9	55.5	59.5
Machinery & equipment, n.e.c.	0.6	0.6	0.6	56.2	60.0	63.5	56.8	60.6	64.1
Transport equipment	1.0	1.1	1.3	48.2	52.4	54.6	49.1	53.5	56.0
Wholesale & retail trade	0.7	0.6	0.5	19.1	22.0	24.8	19.8	22.6	25.3
Transportation & storage	1.0	0.8	0.6	35.3	33.2	33.4	36.4	34.0	33.9
Accommodation & food services	0.3	0.3	0.2	23.7	25.9	28.3	23.9	26.2	28.5
Information & communication	0.1	0.1	0.1	29.4	31.1	35.7	29.5	31.3	35.8
Financial & insurance activities	0.2	0.2	0.1	14.5	15.1	20.4	14.7	15.2	20.5
Manufacturing (aggregate)	10.9	9.4	8.9	41.8	45.5	48.2	52.7	54.9	57.1
Total business sector services (agg.)	2.6	2.1	1.7	26.2	26.5	28.5	28.7	28.6	30.2
<b>Vietnam</b>	<b>14.5</b>	<b>12.5</b>	<b>11.1</b>	<b>36.1</b>	<b>40.5</b>	<b>44.5</b>	<b>50.6</b>	<b>53.0</b>	<b>55.6</b>

Source: Researcher's estimate. Data source: OECD.stat (2018)

**Appendix B***Global Value Chains Position Indices of 34 Industries in Vietnam*

Industry	Position indices			Positions in the value curve		
	2005	2010	2015	2005	2010	2015
Agriculture, forestry & fishing	(0.26)	(0.27)	(0.27)	M	M	M
Mining & extraction of energy producing products	(0.24)	(0.24)	(0.26)	M	M	M
Mining & quarrying of non-energy producing products	(0.24)	(0.25)	(0.26)	M	M	M
Mining support service activities	(0.17)	(0.16)	(0.17)	U	U	U
Food products, beverages & tobacco	(0.29)	(0.30)	(0.31)	M	M	M
Textiles, wearing apparel, leather & related products	(0.34)	(0.36)	(0.37)	M	M	M
Wood & products of wood & cork	(0.38)	(0.39)	(0.40)	M	M	M
Paper products & printing	(0.36)	(0.37)	(0.37)	M	M	M
Coke & refined petroleum products	(0.38)	(0.30)	(0.28)	M	M	M
Chemicals & pharmaceutical products	0.39	(0.40)	(0.39)	M	M	M
Rubber & plastic products	(0.40)	(0.42)	(0.42)	M	M	M
Other non-metallic mineral products	(0.29)	(0.30)	(0.30)	M	M	M
Basic metals	(0.40)	(0.40)	(0.37)	M	M	M
Fabricated metal products	(0.44)	(0.46)	(0.46)	D	D	D
Computer, electronic & optical products	(0.37)	(0.40)	(0.47)	M	M	D
Electrical equipment	(0.38)	(0.43)	(0.46)	M	D	D
Machinery & equipment, n.e.c.	(0.44)	(0.46)	(0.49)	D	D	D
Motor vehicles, trailers & semi-trailers	(0.38)	(0.41)	(0.42)	M	D	D
Other transport equipment	(0.40)	(0.43)	(0.45)	M	D	D
Other manufacturing	(0.37)	(0.39)	(0.40)	M	M	M
Electricity, gas, water supply	(0.21)	(0.20)	(0.21)	M	M	M
Construction	(0.33)	(0.36)	(0.37)	M	M	M
Wholesale & retail trade; repair of motor vehicles	(0.17)	(0.19)	(0.22)	U	M	M
Transportation & storage	(0.29)	(0.28)	(0.28)	M	M	M
Accommodation & food services	(0.21)	(0.23)	(0.25)	M	M	M
Publishing, audio-visual & broadcasting activities	(0.23)	(0.24)	(0.28)	M	M	M
Telecommunications	(0.26)	(0.28)	(0.38)	M	M	M
IT & other information services	(0.15)	(0.15)	(0.23)	U	U	M
Financial and insurance activities	(0.13)	(0.14)	(0.19)	U	U	M
Real estate activities	(0.08)	(0.10)	(0.13)	U	U	U
Other business sector services	(0.17)	(0.18)	(0.22)	M	M	M
Education	(0.11)	(0.10)	(0.14)	U	U	U
Human health and social work	(0.25)	(0.28)	(0.30)	M	M	M
Arts, entertainment, recreation & other	(0.18)	(0.17)	(0.21)	M	U	M
Manufacturing (aggregate)	(0.25)	(0.28)	(0.31)	M	M	M
Total business sector services (aggregate)	(0.21)	(0.21)	(0.23)	M	M	M

Note. U = Upstream; M = Middle-stream; D = Downstream.

Source: Researcher's estimate. Data source: OECD.stat (2018)

# On Coupled Systems of Lidstone-Type Boundary Value Problems

Robert de Sousa<sup>a,c</sup>, Feliz Minhós<sup>b,c</sup> and João Fialho<sup>c,d</sup>

<sup>a</sup>*Faculdade de Ciências e Tecnologia, Núcleo de Matemática e Aplicações (NUMAT), Centro de Investigação em Ciências Exatas (CiCE), Universidade de Cabo Verde*

Campus de Palmarejo, 279 Praia, Cabo Verde

<sup>b</sup>*Departamento de Matemática, Escola de Ciências e Tecnologia*

<sup>c</sup>*Centro de Investigação em Matemática e Aplicações (CIMA), Instituto de Investigação e Formação Avançada, Universidade de Évora*

Rua Romão Ramalho, 59, 7000-671 Évora, Portugal

<sup>d</sup>*Department of Mathematics, British University of Vietnam*

Ecopark Campus, 160000 Hung Yen, Hanoi, Vietnam

E-mail(*corresp.*): [robert.sousa@docente.unicv.edu.cv](mailto:robert.sousa@docente.unicv.edu.cv)

E-mail: [fminhos@uevora.pt](mailto:fminhos@uevora.pt)

E-mail: [joao.f@buv.edu.vn](mailto:joao.f@buv.edu.vn)

Received June 17, 2020; revised April 12, 2021; accepted April 13, 2021

**Abstract.** This research concerns the existence and location of solutions for coupled system of differential equations with Lidstone-type boundary conditions. Methodology used utilizes three fundamental aspects: upper and lower solutions method, degree theory and nonlinearities with monotone conditions. In the last section an application to a coupled system composed by two fourth order equations, which models the bending of coupled suspension bridges or simply supported coupled beams, is presented.

**Keywords:** coupled nonlinear systems, coupled lower and upper solutions, Lidstone-type boundary value problems, operator theory, suspension bridges.

**AMS Subject Classification:** 34A34; 34B10; 34B15; 47N20.

## 1 Introduction

Between 1938 and 1941, the English mathematician George James Lidstone (1870–1952) published notes on interpolation, where it was shown that poly-

nomial interpolation is the solution of boundary value problem given by

$$\begin{cases} u^{(2m)}(t) = 0, & t \in [a, b], \\ u^{(j)}(a) = A_j, & u^{(j)}(b) = B_j, \quad j = 0, 2, \dots, 2m - 2. \end{cases} \tag{1.1}$$

The BVP (1.1) can be generalized and coupled into the following problem

$$\begin{aligned} u^{(2m)}(t) &= f(t, u(t), u'(t), \dots, u^{(2m-1)}(t)) \quad t \in [0, 1], \\ u^{(j)}(0) &= A_j, \quad u^{(j)}(1) = B_j, \quad j = 0, 2, \dots, 2m - 2, \end{aligned}$$

which appears in the literature as Lidstone boundary value problems (see [17], and the references therein). It is also common to find in the literature the so called complementary Lidstone boundary value problems (see [22]),

$$\begin{aligned} u^{(2m-1)}(t) &= f(t, u(t), u'(t), \dots, u^{(2m-2)}(t)) \quad t \in [a, b], \\ u(a) &= A_0, \quad u^{(2j-1)}(a) = A_j, \quad u^{(2j-1)}(b) = B_j, \quad j = 0, 1, \dots, m - 1. \end{aligned}$$

Lidstone-type boundary value problems have applications in real phenomena such as the study of bending of simply-supported beams or suspended bridges (see [13, 14]). In [8], de Sousa and Minhós used Lidstone boundary conditions in a coupled system composed by two and fourth order differential equations, to model the bending of the main beam in suspension bridges. Likewise, Li and Gao [15], discuss models of a static bending elastic beam whose two ends are simply supported, given by Lidstone-type boundary conditions.

Over the course of several years, one can find several different approaches and techniques on problems or the family of problems with boundary value problems as Lidstone. For example, in [1], Agarwal and Wong deal with the existence of a positive solution of the complementary Lidstone boundary value problem

$$\begin{aligned} (-1)^m \gamma^{(2m+1)}(t) &= \lambda F(t, \gamma(t), \gamma'(t)) \quad t \in (0, 1), \\ y(0) = 0, \gamma^{(2\kappa-1)}(0) &= \gamma^{(2\kappa-1)}(1) = 0, \quad 1 \leq \kappa \leq m, \end{aligned}$$

where  $m \geq 1$ ,  $\lambda > 0$ , and  $F$  is continuous at least in the interior of the domain of interest; in [11] the authors apply a different methodology to a similar Lidstone problem, analyzing the existence of solution via bifurcation techniques; in [3] it is studied the existence, multiplicity and nonexistence results for nontrivial solutions to a nonlinear discrete fourth-order Lidstone boundary value problem; in [6] Cid et al. consider Lidstone boundary value problem, applying the monotone iterative technique with fixed point theorems of cone expansion or compression type; in [21] the authors deal with the existence and uniqueness of solution for a class of elliptic Lidstone boundary value problems; on [2, 20], the authors study, respectively, Lidstone polynomials and boundary value problems and boundary layer phenomenon,...among others.

More recently on [5], Cabada and Somoza extensively study a family of problems involving Lidstone boundary conditions type. The existence of solution is proved through the usage of lower and upper solutions.

In addition, Lidstone boundary value problems can also be found on [18], where Minhós et al. prove an existence and location result for the fourth order fully nonlinear equation

$$u^{(iv)} = f(t, u, u', u'', u'''), \quad 0 < t < 1$$

with the Lidstone boundary conditions

$$u(0) = u(1) = u''(0) = u''(1) = 0,$$

where  $f : [0, 1] \times \mathbb{R}^4 \rightarrow \mathbb{R}$  is a continuous function satisfying a Nagumo type condition.

Consequently, Fialho and Minhós in [9], study the nonlinear fully equation

$$u^{(iv)}(x) + f(x, u(x), u'(x), u''(x), u'''(x)) = 0,$$

for  $x \in [0, 1]$ , where  $f : [0, 1] \times \mathbb{R}^4 \rightarrow \mathbb{R}$  is a continuous functions, coupled with the Lidstone boundary conditions,

$$u(0) = u(1) = u''(0) = u''(1) = 0.$$

The authors elaborate on how different definitions of lower and upper solutions can generalize existence and location results for boundary value problems with Lidstone boundary data.

An approach with Lidstone boundary conditions using system of differential equations can be found in [23]. The authors considered the existence of positive solutions for fourth-order nonlinear singular semipositone system

$$\begin{aligned} u^{(4)}(t) &= f(t, u(t), v(t), u''(t), v''(t)), \quad t \in (0, 1), \\ v^{(4)}(t) &= g(t, u(t), v(t), u''(t), v''(t)), \quad t \in (0, 1), \\ u(0) &= u(1) = u''(0) = u''(1) = 0, \\ v(0) &= v(1) = v''(0) = v''(1) = 0, \end{aligned}$$

with  $f, g \in C((0, 1) \times [0, +\infty) \times [0, +\infty) \times (-\infty, 0] \times (-\infty, 0], \mathbb{R})$ . The existence results were obtained by approximating the fourth-order system to a second-order singular one and using a fixed point index theorem on cones.

Motivated by the works mentioned above, this paper concerns the study of the fourth order coupled system

$$\begin{cases} u^{(4)}(t) = f(t, u(t), v(t), u'(t), v'(t), u''(t), v''(t)), & t \in [0, 1], \\ v^{(4)}(t) = h(t, u(t), v(t), u'(t), v'(t), u''(t), v''(t)), & t \in [0, 1], \end{cases} \tag{1.2}$$

with Lidstone boundary conditions

$$\begin{cases} u(0) = u(1) = A_1, \quad u''(0) = A_2, \quad u''(1) = A_3, \\ v(0) = v(1) = B_1, \quad v''(0) = B_2, \quad v''(1) = B_3, \end{cases} \tag{1.3}$$

where  $f, h : [0, 1] \times \mathbb{R}^6 \rightarrow \mathbb{R}$  are continuous functions and  $A_i, B_i \in \mathbb{R}$ , for  $i = 1, 2, 3$ .

The method applies lower and upper solutions and degree theory. The authors would like to point out, that to the best of their knowledge, it is the first time where fourth order coupled systems of differential equations with dependence of the first and second derivatives is considered subject to Lidstone boundary conditions (1.3).

This paper is outlined as follows. In Section 2, the key definitions and considerations are stated. The main theorem is presented in Section 3. Finally, in Section 4, an application to a system of coupled suspension bridges is proposed, as an example of (1.2)–(1.3), based on [16].

## 2 Preliminaries

For system (1.2)–(1.3) we consider coupled lower and upper solutions given by next definition:

DEFINITION 1. A pair of functions  $(\alpha_1, \alpha_2) \in (C^4([0, 1]))^2$  is a coupled lower solution of problem (1.2)–(1.3) if

(i)

$$\begin{aligned} \alpha_1^{(4)}(t) &\leq f(t, \alpha_1(t), \alpha_2(t), \alpha_1'(t), \alpha_2'(t), \alpha_1''(t), \alpha_2''(t)), \\ \alpha_2^{(4)}(t) &\leq h(t, \alpha_1(t), \alpha_2(t), \alpha_1'(t), \alpha_2'(t), \alpha_1''(t), \alpha_2''(t)); \end{aligned}$$

(ii)

$$\begin{aligned} \alpha_1(0) &\leq A_1, \quad \alpha_1(1) \leq A_1, \quad \alpha_2(0) \leq B_1, \quad \alpha_2(1) \leq B_1, \\ \alpha_1''(0) &< A_2, \quad \alpha_1''(1) \leq A_3, \quad \alpha_2''(0) < B_2, \quad \alpha_2''(1) \leq B_3; \end{aligned}$$

(iii)

$$\begin{aligned} \alpha_1'(0) - \beta_1'(0) &\leq \min \{ \beta_1(0) - \beta_1(1), \alpha_1(1) - \alpha_1(0), 0 \}, \\ \alpha_2'(0) - \beta_2'(0) &\leq \min \{ \beta_2(0) - \beta_2(1), \alpha_2(1) - \alpha_2(0), 0 \}. \end{aligned}$$

A pair of functions  $(\beta_1, \beta_2) \in (C^4[0, 1])^2$  is a coupled upper solution of problem (1.2)–(1.3) if it verifies the reverse inequalities.

*Remark 1.* Forward, we denote  $(a, b) \leq (c, d)$  meaning that  $a \leq c$  and  $b \leq d$ , for  $a, b, c, d \in \mathbb{R}$ .

*Remark 2.* Note that if

$$(\alpha_1''(t), \alpha_2''(t)) \leq (\beta_1''(t), \beta_2''(t)), \quad \forall t \in [0, 1],$$

then from Definition 1, (iii),

$$(\alpha_1'(t), \alpha_2'(t)) \leq (\beta_1'(t), \beta_2'(t)), \quad \forall t \in [0, 1]$$

and from Definition 1, (ii),

$$(\alpha_1(t), \alpha_2(t)) \leq (\beta_1(t), \beta_2(t)), \quad \forall t \in [0, 1].$$

Below, a proposition of the degree theory that will be used to guarantee the existence of a solution for problem (1.2)–(1.3):

**Proposition 1.** (*[7, 10]*) *Let  $X$  be a Banach space,  $\Omega \subset X$  be a bounded open set such that  $0 \in \Omega$  and  $T : \overline{\Omega} \rightarrow X$  be completely continuous linear operator such that  $I - T$  is an homeomorphism. Then*

$$|d(I - T, \Omega)| = 1.$$

### 3 Main result

This section is dedicated to the main theorem which is an existence and location of solution for problem (1.2)–(1.3).

**Theorem 1.** *Let  $f, h : [0, 1] \times \mathbb{R}^6 \rightarrow \mathbb{R}$  be a continuous functions. If there are coupled lower and upper solutions of (1.2)–(1.3),  $(\alpha_1, \alpha_2)$  and  $(\beta_1, \beta_2)$ , respectively, according Definition 1, such that*

$$(\alpha_1''(t), \alpha_2''(t)) \leq (\beta_1''(t), \beta_2''(t)),$$

and moreover, if  $f$  and  $h$  satisfy

$$\begin{aligned} f(t, \alpha_1(t), \alpha_2(t), \alpha_1'(t), \alpha_2'(t), x_2, \alpha_2''(t)) &\geq f(t, x_0, y_0, x_1, y_1, x_2, y_2) \\ &\geq f(t, \beta_1(t), \beta_2(t), \beta_1'(t), \beta_2'(t), x_2, \beta_2''(t)) \end{aligned} \tag{3.1}$$

for  $t \in [0, 1], \alpha_1^{(i)}(t) \leq x_i \leq \beta_1^{(i)}(t), i = 0, 1, 2, \alpha_2^{(j)}(t) \leq y_j \leq \beta_2^{(j)}(t), j = 0, 1, 2,$  and

$$\begin{aligned} h(t, \alpha_1(t), \alpha_2(t), \alpha_1'(t), \alpha_2'(t), \alpha_1''(t), y_2) &\geq h(t, x_0, y_0, x_1, y_1, x_2, y_2) \\ &\geq h(t, \beta_1(t), \beta_2(t), \beta_1'(t), \beta_2'(t), \beta_1''(t), y_2), \end{aligned} \tag{3.2}$$

for  $t \in [0, 1], \alpha_1^{(i)}(t) \leq x_i \leq \beta_1^{(i)}(t), i = 0, 1, 2, \alpha_2^{(j)}(t) \leq y_j \leq \beta_2^{(j)}(t), j = 0, 1, 2.$  Then there exists at least one nontrivial solution of (1.2)–(1.3), a pair  $(u(t), v(t)) \in (C^4[0, 1], \mathbb{R})^2$  such that,

$$\alpha_1^{(i)}(t) \leq u^{(i)}(t) \leq \beta_1^{(i)}(t), \alpha_2^{(i)}(t) \leq v^{(i)}(t) \leq \beta_2^{(i)}(t), \tag{3.3}$$

for  $t \in [0, 1]$  and  $i = 0, 1, 2.$

*Proof.* Consider the truncated, perturbed and coupled homotopic system

$$\begin{cases} u^{(4)}(t) = \lambda f \left( \begin{array}{l} t, \delta_{10}(t, u(t)), \delta_{20}(t, v(t)), \delta_{11}(t, u'(t)), \delta_{21}(t, v'(t)), \\ \delta_{12}(t, u''(t)), \delta_{22}(t, v''(t)) \\ + u''(t) - \lambda \delta_{12}(t, u''(t)) \end{array} \right) \\ v^{(4)}(t) = \lambda h \left( \begin{array}{l} t, \delta_{10}(t, u(t)), \delta_{20}(t, v(t)), \delta_{11}(t, u'(t)), \delta_{21}(t, v'(t)), \\ \delta_{12}(t, u''(t)), \delta_{22}(t, v''(t)) \\ + v''(t) - \lambda \delta_{22}(t, v''(t)) \end{array} \right), \end{cases} \tag{3.4}$$



where, for each  $i = 1, 2, j = 0, 1, 2, \delta_{ij}$  are the truncature functions defined by

$$\delta_{ij}(t, w) = \begin{cases} \beta_i^{(j)}(t), & w > \beta_i^{(j)}(t), \\ w, & \alpha_i^{(j)}(t) \leq w \leq \beta_i^{(j)}(t), \\ \alpha_i^{(j)}(t), & w < \alpha_i^{(j)}(t), \end{cases} \tag{3.5}$$

together with the boundary conditions

$$\begin{cases} u(0) = u(1) = \lambda A_1, & (1 - \lambda)u'''(0) = \lambda|u''(0) - A_2|, \\ (1 - \lambda)u'''(1) = \lambda|u''(1) - A_3|, \\ v(0) = v(1) = \lambda B_1, & (1 - \lambda)v'''(0) = \lambda|v''(0) - B_2|, \\ (1 - \lambda)v'''(1) = \lambda|v''(1) - B_3|, \end{cases} \tag{3.6}$$

for  $\lambda \in [0, 1]$ .

**Step 1:** *There are  $r_1, r_1^*, r_2, r_2^* > 0$ , such that every solution  $(u(t), v(t))$  of problem (3.4),(3.6) satisfies*

$$|u^{(i)}(t)| < r_1, \quad |u(t)| < r_1^*, \quad |v^{(i)}(t)| < r_2, \quad |v(t)| < r_2^*, \quad \forall t \in [0, 1], \tag{3.7}$$

for  $i = 1, 2$ , independently of  $\lambda \in [0, 1]$ . For  $j = 1, 2$ , take  $r_j > 0$  large enough such that for every  $t \in [0, 1]$ ,

$$-r_j \leq \alpha_j''(t) \leq \beta_j''(t) < r_j \tag{3.8}$$

$$r_1 > \max\{|A_2|, |A_3|\} := A, \quad r_1^* := r_1 + |A_1|, \tag{3.9}$$

$$r_2 > \max\{|B_2|, |B_3|\} := B, \quad r_2^* := r_2 + |B_1|,$$

$$\begin{aligned} f(t, \beta_1(t), \beta_2(t), \beta_1'(t), \beta_2'(t), \beta_1''(t), \beta_2''(t)) + r_1 - \beta_1''(t) &> 0, \\ f(t, \alpha_1(t), \alpha_2(t), \alpha_1'(t), \alpha_2'(t), \alpha_1''(t), \alpha_2''(t)) - r_1 - \alpha_1''(t) &< 0, \\ f(t, \beta_1(t), \beta_2(t), \beta_1'(t), \beta_2'(t), \beta_1''(t), \beta_2''(t)) + r_2 - \beta_2''(t) &> 0, \\ h(t, \alpha_1(t), \alpha_2(t), \alpha_1'(t), \alpha_2'(t), \alpha_1''(t), \alpha_2''(t)) - r_2 - \alpha_2''(t) &< 0. \end{aligned} \tag{3.10}$$

Assume that, by contradiction, for  $i = 2$  there exists  $t_0 \in [0, 1]$ , such that

$$|u''(t_0)| \geq r_1.$$

In the case  $u''(t_0) \geq r_1$  define

$$\max_{t \in [0,1]} u''(t) := u''(t_0) \geq r_1.$$

**(I)** If  $t_0 \in (0, 1)$ , we have  $u'''(t_0) = 0$  and  $u^{(4)}(t_0) \leq 0$ . Therefore, for  $\lambda = 0$  and by (3.4), (3.5), the following contradiction holds

$$0 \geq u^{(4)}(t_0) = u''(t_0) \geq r_1 > 0.$$

**(II)** On the other hand, if  $\lambda \in (0, 1]$  and by (3.1), (3.4), (3.5), (3.8), and (3.10),

we have the following contradiction

$$\begin{aligned} 0 &\geq u^{(4)}(t_0) = \lambda f \left( \begin{array}{c} t_0, \delta_{10}(t_0, u(t_0)), \delta_{20}(t_0, v(t_0)), \delta_{11}(t_0, u'(t_0)), \\ \delta_{21}(t_0, v'(t_0)), \beta_1''(t_0), \delta_{22}(t_0, v''(t_0)) \end{array} \right) \\ &\quad + u''(t_0) - \lambda\beta_1''(t_0) \\ &\geq \lambda f(t_0, \beta_1(t_0), \beta_2(t_0), \beta_1'(t_0), \beta_2'(t_0), \beta_1''(t_0), \beta_2''(t_0)) + u''(t_0) - \lambda\beta_1''(t_0) \\ &= \lambda \left[ \begin{array}{c} f(t_0, \beta_1(t_0), \beta_2(t_0), \beta_1'(t_0), \beta_2'(t_0), \beta_1''(t_0), \beta_2''(t_0)) \\ + r_1 - \beta_1''(t_0) \end{array} \right] > 0. \end{aligned}$$

If  $t_0 = 0$ , that is

$$\max_{t \in [0,1]} u''(t) := u''(0) \geq r_1 > A_2, \tag{3.11}$$

then  $u'''(0) \leq 0$ .

If  $\lambda = 0$ , we have  $u'''(0) = 0$ ,  $u^{(4)}(0) \leq 0$  and the arguments follow as in the previous case for interior points.

If  $\lambda \in (0, 1]$ , by (3.6), (3.9) and (3.11), this contradiction holds

$$0 \geq (1 - \lambda)u'''(0) = \lambda|u''(0) - A_2| \geq \lambda(r_1 - A_2) > 0.$$

So,  $|u''(t)| < r_1$ . Applying the similar method above, it may be shown that  $|v''(t)| < r_2$ , for  $r_2$  verifying (3.9) and (3.10).

By (1.3) and Rolle's theorem there exists  $\xi \in (0, 1)$ , such that  $u'(\xi) = 0$ . Therefore,

$$\begin{aligned} |u'(t)| &\leq \int_{\xi}^t |u''(s)| ds \leq r_1(t - \xi) \leq r_1, \\ |u(t)| &= \left| u(0) + \int_0^t u'(s) ds \right| \leq |A_1| + r_1 t \leq r_1 + |A_1| := r_1^*. \end{aligned}$$

Similarly, it can be proved that  $|v'(t)| < r_2$  and  $|v(t)| < r_2^*$ .

**Step 2:** For  $\lambda = 1$  the system (3.4), (3.6) has a least solution  $(u(t), v(t))$ .

Define the operators  $\mathcal{F} : C^4([0, 1]) \rightarrow C([0, 1]) \times \mathbb{R}^4$ ,  $\mathcal{H} : C^4([0, 1]) \rightarrow C([0, 1]) \times \mathbb{R}^4$  by

$$\mathcal{F}u = \left( u^{(4)}, u(0), u(1), u''(0), u''(1) \right), \mathcal{H}v = \left( v^{(4)}, v(0), v(1), v''(0), v''(1) \right)$$

and for  $\lambda \in [0, 1]$  operators  $\mathcal{N}_\lambda$ ,  $\mathcal{N}_\lambda^* : C^3([0, 1]) \rightarrow C([0, 1]) \times \mathbb{R}^4$  by

$$\begin{aligned} \mathcal{N}_\lambda u &= \left( \begin{array}{c} \lambda f \left( \begin{array}{c} t, \delta_{10}(t, u(t)), \delta_{20}(t, v(t)), \delta_{11}(t, u'(t)), \\ \delta_{21}(t, v'(t)), \delta_{12}(t, u''(t)), \delta_{22}(t, v''(t)) \end{array} \right) + \mu_1(u), \\ \lambda A_1, \lambda A_1, \lambda (u'''(0) + |u''(0) - A_2|), \lambda (u'''(1) + |u''(1) - A_3|) \end{array} \right), \\ \mathcal{N}_\lambda^* v &= \left( \begin{array}{c} \lambda h \left( \begin{array}{c} t, \delta_{10}(t, u(t)), \delta_{20}(t, v(t)), \delta_{11}(t, u'(t)), \\ \delta_{21}(t, v'(t)), \delta_{12}(t, u''(t)), \delta_{22}(t, v''(t)) \end{array} \right) + \mu_2(v), \\ \lambda B_1, \lambda B_1, \lambda (v'''(0) + |v''(0) - B_2|), \lambda (v'''(1) + |v''(1) - B_3|) \end{array} \right). \end{aligned}$$

where  $\mu_1(u) = u''(t) - \lambda\delta_{12}(t, u''(t))$ ,  $\mu_2(v) = v''(t) - \lambda\delta_{22}(t, v''(t))$ .

As  $\mathcal{F}, \mathcal{H}$  have a compact inverses we can define the completely continuous operator

$$\mathcal{T}_\lambda, \mathcal{T}_\lambda^* : (C^3([0, 1]), \mathbb{R}) \rightarrow (C^3([0, 1]), \mathbb{R})$$

given by  $\mathcal{T}_\lambda u = (\mathcal{F}^{-1}\mathcal{N}_\lambda) u$  and  $\mathcal{T}_\lambda^* v = (\mathcal{H}^{-1}\mathcal{N}_\lambda^*) v$ .

Define the set

$$\Omega = \left\{ (u, v) \in C^3([0, 1]) : \|u^{(i)}\|_\infty < r_1, \|u\|_\infty < r_1^*, \right. \\ \left. \|v^{(i)}\|_\infty < r_2, \|v\|_\infty < r_2^*, i = 1, 2 \right\},$$

where  $r_i$  and  $r_i^*$  are given by Step 1. So,  $d(I - \mathcal{T}_\lambda, \Omega, 0)$  and  $d(I - \mathcal{T}_\lambda^*, \Omega, 0)$  are well defined for every  $\lambda \in [0, 1]$ . The arguments follow for  $\mathcal{T}_\lambda$ , as for  $\mathcal{T}_\lambda^*$  they are similar.

By the invariance under homotopy,

$$d(I - \mathcal{T}_0, \Omega, 0) = d(I - \mathcal{T}_1, \Omega, 0).$$

The equation  $\mathcal{T}_0(u) = u$  is equivalent to the problem

$$\begin{cases} u^{(4)}(t) = u''(t), \\ u(0) = u(1) = u'''(0) = u'''(1) = 0, \end{cases}$$

which has only the null solution. Then by Proposition 1,

$$|d(I - \mathcal{T}_0, \Omega, 0)| = 1,$$

and consequently  $\mathcal{T}_1(u) = u$  has at least one solution. So, the problem (3.4), (3.6) has at least one solution  $(u(t), v(t))$  in  $\Omega$ , for  $\lambda = 1$ .

**Step 3:** *This solution  $(u(t), v(t))$  is a solution of the system (1.2)–(1.3), too, if*

$$\alpha_1^{(i)}(t) \leq u^{(i)}(t) \leq \beta_1^{(i)}(t), \quad \alpha_2^{(i)}(t) \leq v^{(i)}(t) \leq \beta_2^{(i)}(t),$$

for  $t \in [0, 1]$  and  $i = 0, 1, 2$ .

Suppose by contradiction, that there is  $t \in [0, 1]$  such that  $\alpha_1''(t) > u''(t)$  and consider

$$\min_{t \in [0, 1]} [u''(t) - \alpha_1''(t)] := u''(t_0) - \alpha_1''(t_0) < 0.$$

In fact  $t_0 \neq 0$ , as, by (1.3) and Definition 1 (ii),

$$u''(0) - \alpha_1''(0) = A_2 - \alpha_1''(0) > 0.$$

Analogously  $t_0 \neq 1$ .

For  $t_0 \in ]0, 1[$ , then  $u'''(t_0) - \alpha_1'''(t_0) = 0$  and  $u^{(4)}(t_0) \geq \alpha_1^{(4)}(t_0)$ . So, by Definition 1 and (3.1), we have the following contradiction

$$\begin{aligned} u^{(4)}(t_0) &= f \left( t_0, \delta_{10}(t_0, u(t_0)), \delta_{20}(t_0, v(t_0)), \delta_{11}(t_0, u'(t_0)), \right. \\ &\quad \left. \delta_{21}(t_0, v'(t_0)), \alpha_1''(t_0), \delta_{22}(t_0, v''(t_0)) \right) \\ &\quad + u''(t_0) - \alpha_1''(t_0) \\ &\leq f(t_0, \alpha_1(t_0), \alpha_2(t_0), \alpha_1'(t_0), \alpha_2'(t_0), \alpha_1''(t_0), \alpha_2''(t_0)) + u''(t_0) - \alpha_1''(t_0) \\ &< f(t_0, \alpha_1(t_0), \alpha_2(t_0), \alpha_1'(t_0), \alpha_2'(t_0), \alpha_1''(t_0), \alpha_2''(t_0)) \leq \alpha_1''(t_0). \end{aligned}$$

Therefore,  $\alpha''(t) \leq u''(t)$  for  $t \in [0, 1]$ , and by similar arguments it can be proved that  $u''(t) \leq \beta_1''(t)$ , for  $t \in [0, 1]$ , and the correspondent inequalities for  $v(t)$ . Therefore,

$$\alpha_1''(t) \leq u''(t) \leq \beta_1''(t), \quad \alpha_2''(t) \leq v''(t) \leq \beta_2''(t), \quad \forall t \in [0, 1]. \tag{3.12}$$

By integration of (3.12), (1.3), Definition 1 (iii), and (3.1), we have

$$\alpha_1^{(i)}(t) \leq u^{(i)}(t) \leq \beta_1^{(i)}(t), \quad \alpha_2^{(i)}(t) \leq v^{(i)}(t) \leq \beta_2^{(i)}(t),$$

for  $t \in [0, 1]$  and  $i = 0, 1, 2$ .  $\square$

*Remark 3.* In Definition 1, the strict inequalities in assumption (ii) imply that lower and upper functions can not be constants, which is crucial for Theorem 1. This is highlighted by the following counter example:

*Example 1.* Consider the problem

$$\begin{cases} u^{(4)}(t) = -v(t) + \sin t, & \text{for } t \in (0, 1), \\ v^{(4)}(t) = -u(t) + \cos t, & \text{for } t \in (0, 1), \\ u(0) = u(1) = u''(0) = u''(1) = 0, \\ v(0) = v(1) = v''(0) = v''(1) = 0. \end{cases} \tag{3.13}$$

Assume that, in Definition 1, assumption (ii) is replaced by

$$\begin{aligned} \alpha_1(0) &\leq A_1, & \alpha_2(0) &\leq B_1, & \alpha_1(1) &\leq A_1, & \alpha_2(1) &\leq B_1, \\ \alpha_1''(0) &\leq A_2, & \alpha_2''(0) &\leq B_2, & \alpha_1''(1) &\leq A_3, & \alpha_2''(1) &\leq B_3. \end{aligned}$$

Then, the pairs of constant functions

$$(\alpha_1, \alpha_2) = (-1, -1), \quad (\beta_1, \beta_2) = (1, 1)$$

are coupled lower and upper solutions of problem (3.13) according Definition 1, for

$$A_1 = B_1 = A_2 = A_3 = B_2 = B_3 = 0.$$

The functions

$$\begin{aligned} f(t, x_0, y_0, x_1, y_1, x_2, y_2) &= -y_0 + \sin t, \\ h(t, x_0, y_0, x_1, y_1, x_2, y_2) &= -x_0 + \cos t \end{aligned}$$

satisfy the monotone assumptions (3.1) and (3.2). Then, by Theorem 1, system (3.13) would have at least one solution  $(u, v) \in (C^4([0, 1]))^2$ , such that,

$$-1 \leq u(t) \leq 1, \quad -1 \leq v(t) \leq 1, \quad \forall t \in [0, 1].$$

However, from (3.3), this solution must be constant and, from the boundary conditions of (3.13), it would be the trivial solution  $(u, v) = (0, 0)$ , which is not a solution of (3.13). Therefore, the strict inequalities in Definition 1, assumption (ii), can not be removed.

### 4 Bending of crossed suspension bridges

In this section a coupled system composed by two suspension crossed bridges is considered. To comply with the conceptual meaning of the model, the authors will adopt  $x$  as independent variable for this section, instead of  $t$ , as previously, as in these models, as  $x$  represents displacement. Such suspension crossed bridges can be approached via a coupled system of two fourth order differential equations, following the same principle as the original model suggested in [12], assuming the adapted form

$$\begin{aligned}
 & E_1 I_1 w_1^{(4)}(x) + H_1 \left( \frac{w_1'(x) + w_2'(x)}{1 + (y_1'(x))^2} \right) \\
 & \quad + (|w_1''(x)| w_2''(x) + y_1'(x)) + (w_1(x))^3 = p_1(x), \text{ for } x \in (0, L_1), \\
 & E_2 I_2 w_2^{(4)}(x) + H_2 \left( \frac{w_1'(x) + w_2'(x)}{1 + (y_2'(x))^2} \right) \\
 & \quad + (w_1''(x) |w_2''(x)| + y_2'(x)) + (w_2(x))^3 = p_2(x), \text{ for } x \in (0, L_2), \\
 & w_1(0) = w_1(L_1) = w_1''(0) = w_1''(L_1) = 0, \\
 & w_2(0) = w_2(L_2) = w_2''(0) = w_2''(L_2) = 0,
 \end{aligned} \tag{4.1}$$

where for  $i = 1, 2$ ,  $H_i, p_i$ , are non negative forces,  $w_i = w_i(x)$  are the vertical displacement of the beams,  $y_i = y_i(x)$  are the position of the cable at rest,  $E_i$  and  $I_i$  are the elastic modulus of the material and the moment of inertia of the cross section respectively, combined they are the flexural rigidity related with the material used on each bridge.  $H_i$  are the horizontal tensions in each cable, subject to some loads  $p_i = p_i(x)$  and  $L_i$  are the lengths of the respective beams.

As an example, the potential type of bridge described can be visualized in the diagram of Figure 1. This example stresses on the level of applicability of the theory developed.

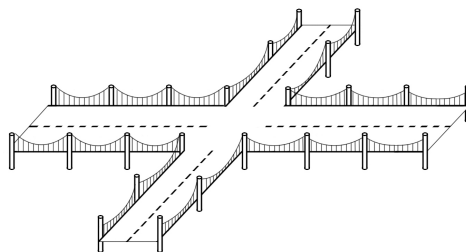


Figure 1. Diagram coupled bridges.

As a numeric example, we consider in (4.1) the values  $E_1 I_1 = 3.93 \times 10^8 N.m$ ,  $E_2 I_2 = 3.83 \times 10^8 N.m$ ,  $H_1 = 3.4$ ,  $H_2 = 2.5$ ,  $p_1(x) = L_1 \sin(x)$ ,  $p_2(x) =$

$L_2 \sin(x)$ ,  $L_1 = 1$ ,  $L_2 = 1$  also  $y_1(x) = 3(x - \frac{L_1}{2})^2$  and  $y_2(x) = 4(x - \frac{L_2}{2})^2$ , that is, (4.1) becomes

$$\begin{aligned}
 &3.93 \times 10^8 w_1^{(4)}(x) + 3.4 \left( \frac{w_1'(x) + w_2'(x)}{1 + (6x - 3)^2} \right) + |w_1''(x)| w_2''(x) \\
 &\quad - 6x + 3 + (w_1(x))^3 = \sin(x), \text{ for } x \in (0, 1), \\
 &3.83 \times 10^8 w_2^{(4)}(x) + 2.5 \left( \frac{w_1'(x) + w_2'(x)}{1 + (8x - 4)^2} \right) + w_1''(x) |w_2''(x)| \quad (4.2) \\
 &\quad + 8x - 4 + (w_2(x))^3 = \sin(x), \text{ for } x \in (0, 1), \\
 &w_1(0) = w_1(1) = w_1''(0) = w_1''(1) = 0, \\
 &w_2(0) = w_2(1) = w_2''(0) = w_2''(1) = 0.
 \end{aligned}$$

The flexural rigidity values considered were based on [4]. It is clear to see that (4.2) is a particular case of (1.2), where

$$\begin{aligned}
 f(x, x_0, y_0, x_1, y_1, x_2, y_2) &= \frac{1}{3.93 \times 10^8} \\
 &\times \left( -3.4 \left( \frac{x_1 + y_1}{1 + (6x - 3)^2} \right) - |x_2| y_2 - 6x + 3 - (x_0)^3 + p_1(x) \right), \\
 h(x, x_0, y_0, x_1, y_1, x_2, y_2) &= \frac{1}{3.83 \times 10^8} \quad (4.3) \\
 &\times \left( -2.5 \left( \frac{x_1 + y_1}{1 + (8x - 4)^2} \right) - x_2 |y_2| - 8x + 4 - (y_0)^3 + p_2(x) \right).
 \end{aligned}$$

For this case, all conditions in Theorem 1 are satisfied and the pairs

$$(\alpha_1, \alpha_2) = (-x^2 - x, -2x^2 - 2x), \quad (\beta_1, \beta_2) = (x^2 + x, 2x^2 + 2x)$$

are coupled lower and upper solutions of problem (4.2) according Definition 1.

In addition the nonlinearities, (4.3) satisfy all the monotone assumptions, (3.1), therefore, by Theorem 1, the system (4.2) has at least one non trivial solution  $(w_1, w_2) \in (C^4([0, 1]))^2$ , that is,

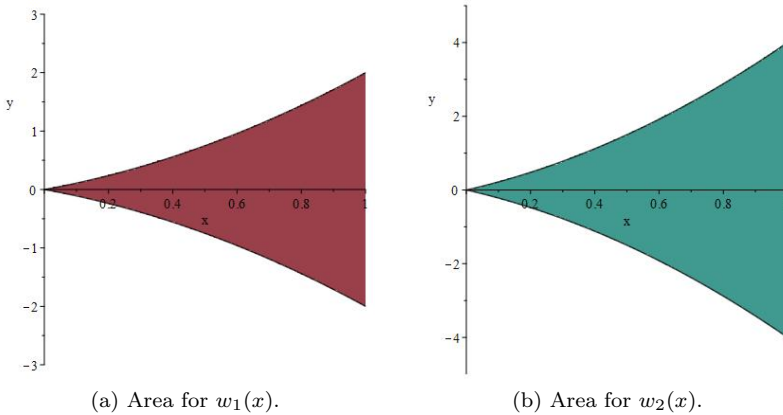
$$\begin{aligned}
 -x^2 - x &\leq w_1(x) \leq x^2 + x, \quad \forall x \in [0, 1], \\
 -2x^2 - 2x &\leq w_2(x) \leq 2x^2 + 2x, \quad \forall x \in [0, 1].
 \end{aligned}$$

The authors would like to highlight that this solution is in fact a non-trivial solution, as the null function does not satisfy (4.2).

Moreover, we can estimate graphically the bending of both suspension bridges, as it is illustrated in the Figure 2.

### 5 Conclusions

In this paper the authors study and present an existence and location result for the problem (1.2)–(1.3) using the upper and lower solutions method. One



**Figure 2.** Localization of solutions  $w_1(x)$  and  $w_2(x)$ .

of the key features of the method used lies on the extra-information that can be obtained on the solution. In fact, in addition to the existence of solution, the upper and lower solution provide details on the solution’s location and also on it’s derivatives. This type of information can, therefore provide some qualitative insight on the solution.

To highlight the level of applicability of the results shown, an application to crossed suspended bridges is presented, following some adjustments on the models suggested in [12].

Our method can be adapted to fourth order coupled systems with fully differential equations, applying the Nagumo condition to control the third derivatives, following the method suggested in [19].

To generalize into a fully higher order Lidstone problem it remains to find how to define lower and upper solutions to have some relation (well order or reverse order) on the odd derivatives of lower and upper solutions.

## References

- [1] R.P. Agarwal and P.J. Wong. Eigenvalues of complementary Lidstone boundary value problems. *Boundary Value Problems*, **2012**(49), 2012. <https://doi.org/10.1186/1687-2770-2012-49>.
- [2] R.P. Agarwal and P.J.Y. Wong. Lidstone polynomials and boundary value problems. *Computers & Mathematics with Applications*, **17**(10):1397–1421, 1989. [https://doi.org/10.1016/0898-1221\(89\)90023-0](https://doi.org/10.1016/0898-1221(89)90023-0).
- [3] D.R. Anderson and F. Minhós. A discrete fourth-order Lidstone problem with parameters. *Applied Mathematics and Computation*, **214**(2):523–533, 2009. <https://doi.org/10.1016/j.amc.2009.04.034>.
- [4] A. Bagheri, M. Alipour, O.E. Ozbulut and D.K. Harris. Identification of flexural rigidity in bridges with limited structural information. *Journal of Structural Engineering*, **144**(8):04018126, 2018. [https://doi.org/10.1061/\(ASCE\)ST.1943-541X.0002131](https://doi.org/10.1061/(ASCE)ST.1943-541X.0002131).

- [5] A. Cabada and L. López-Somoza. Lower and upper solutions for even order boundary value problems. *Mathematics*, **7**(10):878, 2019. <https://doi.org/10.3390/math7100878>.
- [6] J.A. Cid, D. Franco and F. Minhós. Positive fixed points and fourth-order equations. *Bulletin of the London Mathematical Society*, **41**(1):72–78, 2009. <https://doi.org/10.1112/blms/bdn105>.
- [7] C. de Coster and P. Habets. *Two-Point Boundary Value Problems: Lower and Upper Solutions*, volume 205. Elsevier Science & Technology, Oxford, United Kingdom, 2006.
- [8] R. de Sousa and F. Minhós. Coupled systems of Hammerstein-type integral equations with sign-changing kernels. *Nonlinear Analysis: Real World Applications*, **50**:469–483, 2019. <https://doi.org/10.1016/j.nonrwa.2019.05.011>.
- [9] J. Fialho and F. Minhós. The role of lower and upper solutions in the generalization of Lidstone problems. *Discrete and Continuous Dynamical Systems*, **2013**(Special):217–226, 2013. <https://doi.org/10.3934/proc.2013.2013.217>.
- [10] P. Fitzpatrick, M. Martelli, J. Mawhin and R. Nussbaum. *Theory of Ordinary Differential Equations*. Springer-Verlag Berlin Heidelberg, 1993. <https://doi.org/10.1007/BFb0085073>.
- [11] C. Gao and J. Xu. Bifurcation techniques and positive solutions of discrete Lidstone boundary value problems. *Applied Mathematics and Computation*, **218**(2):434–444, 2011. <https://doi.org/10.1016/j.amc.2011.05.083>.
- [12] F. Gazzola, Y. Wang and R. Pavani. Variational formulation of the Melan equation. *Mathematical Methods in the Applied Sciences*, **41**(3):943–951, 2016. <https://doi.org/10.1002/mma.3962>.
- [13] C.P. Gupta. Existence and uniqueness results for the bending of an elastic beam equation at resonance. *Journal of Mathematical Analysis and Applications*, **135**(1):208–225, 1988. [https://doi.org/10.1016/0022-247X\(88\)90149-7](https://doi.org/10.1016/0022-247X(88)90149-7).
- [14] C.P. Gupta. Existence and uniqueness theorems for the bending of an elastic beam equation. *Applicable Analysis: An International Journal*, **26**(4):289–304, 2007. <https://doi.org/10.1080/00036818808839715>.
- [15] Y. Li and Y. Gao. Existence and uniqueness results for the bending elastic beam equations. *Applied Mathematics Letters*, **95**:72–77, 2019. <https://doi.org/10.1016/j.aml.2019.03.025>.
- [16] J. Melan. Theory of arches and suspension bridges. *Myron Clark Pul. Comp., London*, 1913.
- [17] F. Minhós and H. Carrasco. *Higher Order Boundary Value Problems on Unbounded Domains*. World Scientific Publishing Company, Singapore, 2017. <https://doi.org/10.1142/10448>.
- [18] F. Minhós, T. Gyulov and A.I. Santos. Existence and location result for a fourth order boundary value problem. *Discrete and Continuous Dynamical Systems*, **2005**(0133-0189-2005\_Special\_662):662–671, 2005.
- [19] L. Sun, M. Zhou and G. Wang. Existence and location results for fully nonlinear boundary value problem of  $n$ th-order nonlinear system. *Boundary Value Problems*, **2009**(791548):17, 2009. <https://doi.org/10.1155/2009/791548>.
- [20] R. Vrabel. Formation of boundary layers for singularly perturbed fourth-order ordinary differential equations with the Lidstone boundary conditions. *Journal of Mathematical Analysis and Applications*, **440**(1):65–73, 2016. <https://doi.org/10.1016/j.jmaa.2016.03.017>.



- [21] Y.-M. Wang. Higher-order Lidstone boundary value problems for elliptic partial differential equations. *Journal of Mathematical Analysis and Applications*, **308**(1):314–333, 2005. <https://doi.org/10.1016/j.jmaa.2005.01.019>.
- [22] P.J.Y. Wong. Triple solutions of complementary Lidstone boundary value problems via fixed point theorems. *Boundary Value Problems*, **125**(2014), 2014. <https://doi.org/10.1186/1687-2770-2014-125>.
- [23] F. Zhu, L. Liu and Y. Wu. Positive solutions for systems of a nonlinear fourth-order singular semipositone boundary value problems. *Applied Mathematics and Computation*, **216**(2):448–457, 2010. <https://doi.org/10.1016/j.amc.2010.01.038>.

# Remittances, Economic Growth and Investment Nexus: Evidence from Nepal

Shashi Kant Chaudhary, PhD\*

---

## Abstract

*This paper assesses the contribution of remittances on GDP and private gross fixed capital formation of Nepal by employing the ARDL bound test approach. The model incorporates the level of financial development, and the institutional quality of Nepal as regressors in addition to the macroeconomic regressors recognised by the literature. Perron's (1997) innovation outlier model of breakpoint unit root test has been used to confirm the suitability of the variables in the ARDL bounds test approach. The findings show a positive effect of remittances on GDP while a negative effect on private gross fixed capital formation. The paper concludes that remittances do not act as a source of capital flows in the context of Nepal, rather they behave as compensatory transfers to the recipient households. To align remittances in productive activities such as self-employment, financial investment, etc., a remittance-focused policy is advised to reach out the recipients and provide them rigorous advisory and training supports.*

---

**Key Words:** ARDL, Economic Growth, Investment, Nepal, Remittance

**JEL Classification:** E22, E60, F20, F24

---

\* Senior Lecturer, British University Vietnam. Email: shashi.supauli@gmail.com

**Acknowledgement:** The author would like to acknowledge the valuable contributions of the referees and the editorial board that has helped in enhancing the quality of this paper. Any flaws in this paper are the sole responsibility of the author.

## I. INTRODUCTION

Remittances in Nepal started to surge from fiscal year 1999/00 surpassing 10 percent of GDP and making remittances a major source of foreign exchange reserve. In fiscal year 2019/20, Nepal recorded NPR 875 billion remittances (NRB, 2020) constituting 23.3 percent of GDP which is significantly larger than the collective amounts of gross exports, official development assistance, and foreign direct investment in Nepal. However, the studies of CBS (2011) and NRB (2012 & 2016) have shown that only about 3.5 percent of remittances has been used in the productive uses such as capital formation and business activities, while above 70 percent of remittances has been used in the daily consumptions in Nepal. Though the consumption of remittances on health and education can be seen as a long-term investment on human capital development, the policymakers intend to see the utilisation of remittances in creation of job opportunities, enhancement of entrepreneurship and production activities, boosting national economic growth, among others. Therefore, the debate over the productive use of remittances still prevails among the policy makers in Nepal who have perceived remittances as a source of capital flow and expect the recipients to invest a significant proportion of remittances in the activities that would contribute to the production and employment activities.

The direct economic benefits of remittances to the recipient economies pour via channels such as consumption of domestic items or domestic capital formation or creation of savings. However, these benefits of remittances are not granted. These depends upon some underlying factors such as motive of the majority of the migrant workers (Alper and Neyapti, 2006), years of migration (De Hass, 2003), level of financial development, institutional quality and investment climate in the recipient economies (Bjuggren et al., 2008)<sup>1</sup>. Studies such as Barajas et al.,

---

<sup>1</sup> Alper and Neyapti (2006), based on evidence from Turkey, found that the productive investment of remittances is a long-run motive of migrant workers, while in short-run, they focus on smoothening of family consumptions. Based on evidence from Morocco, de Haas (2003) found that remittances are used for investments purpose only after 14 years of migration. In the first 14 years, remittances are used in housing investments. Bjuggren et al., (2008) after analysing the panel data of 79 developing economies, found that the productive uses of remittances depend on the level of financial development, the institutional quality and investment climate back in the home country.

(2009); Aggarwal et al., (2011); Lartey (2013); and Dzansi (2013) have found a positive impact of remittances on capital formation while Mallick (2012) and Tung (2018) have denied any such effect of remittances. A similar situation prevails in assessing the empirical relationship between remittances and economic growth. Chami et al., (2005) found a negative correlation between remittances and GDP growth rates concluding that remittances are not profit-driven rather compensatory transfers. Rapoport and Docquier (2005) also found that remittances discourage labor supply and work effort among recipients resulting in increased dependency, lower productivity and delayed growth. Nonetheless, Stark (1991) argues that remittance can be used to purchase both financial and physical assets which can support productive activities like farm investments and entrepreneurial formation. The literature review, therefore, does not provide a conclusive answer regarding the impact of remittances on investment and economic growth. A similar state of inconclusiveness also prevails in the context of Nepal (see section 2). Therefore, this study has assessed the nexus of remittances, economic growth, and private investment in the context of Nepal by incorporating the level of financial development, and the institutional quality of Nepal apart from some important macroeconomic indicators recognised from literature. Rest of the paper has been structured as follows. Section II presents a brief literature review undertaken in the context of Nepal in the course of this study while section III discusses the methodological framework that has been adopted in this study. Section IV presents the empirical findings followed by a brief discussion on the findings in section V. Section VI concludes the paper.

## **II. BRIEF LITERATURE REVIEW**

A considerable number of studies viz. Ojha (2019), Dhungel (2018), Acharya (2017), Uprety (2017), Thagunna and Acharya (2013), Srivastava and Chaudhary (2007), Gaudel (2006), have been undertaken in the context of Nepal assessing the contribution of remittances to the growth variables such as real GDP, real GNP (gross national product) and real PCI (per capita income). All of these studies except Uprety (2017) agree that remittances generate a positive effect on GDP. In contrary, Uprety (2017) concludes a negative effect of remittances on GDP and per capita income of Nepal. Nonetheless, the degree of effect of remittances varies from each other depending upon differences in the study periods, approaches to data analysis,

and the choices of regressors. Moreover, these studies have employed macroeconomic indicators such as capital formation, exports, money supply, trade openness and foreign aid only as the regressors and have not incorporated the level of financial development and the institutional quality of Nepal as factors that might have affected the effectiveness of remittances. In addition, the studies that have spanned before year 2006 to beyond year 2015, for example Ojha (2019), Dhungel (2018), and Acharya (2017) have also not incorporated test for structural breaks<sup>2</sup> in the variables under consideration in their data analyses. Such structural breaks might have taken place in the series of macroeconomic variables due to the 2006 Democracy Movement, and (or) the 2015 Earthquake in Nepal. Therefore, exclusion of level of financial development and the institutional quality in the analytical models and ignoring structural breaks in the variables' series are noticeable research gaps in assessing the true contribution of remittances in Nepal. In addition, the impact of remittances on domestic capital formation has not been explicitly assessed yet. These gaps, therefore, were the sources of motivation for this study.

### III. METHODOLOGY

This paper has examined the dual contributions of remittances in the context of Nepal- firstly, to the real GDP; and secondly, to the domestic private investment, proxied by private gross fixed capital formation, by employing the ARDL (autoregressive distributed lags) bounds test approach to confirm whether a long-run relationships exists among the variables in question. In this approach, though pretesting the order of integration of variables in question is not essential, it requires that none of the variables' series shall be integrated higher than one,  $I(1)$ . In light of this requirement, Perron's (1997) innovation outlier (IO) model<sup>3</sup> of breakpoint unit root test has been used to confirm the suitability of the variables in ARDL bounds test approach. After bound test confirmation, Wald coefficients test has been

---

<sup>2</sup> Structural breaks are unexpected changes in the intercept and (or) trend of the time series of variables due to the effects of major events such as regime change, change in policy direction, external shocks, war, etc.

<sup>3</sup> This method allows incorporation of structural breaks into analysis. The reason for choosing this approach of unit root test is the caution by Perron (1989) that the long-span data may include effects of major events, i.e. structural breaks, which may behave as outliers. His work on re-examining Nelson and Plosser's work (1982) has already established this fact. Also, in light of 2006 Democratic Movement and the devastating 2015 Earthquake, possibility of structural breaks cannot be ignored in the time series of macroeconomic variables of Nepal.

undertaken to confirm whether any short-run causality relationship exists between the dependent variable and the underlying regressors.

### 3.1 Sources of Data

This study covers a period of fiscal year 2000/01 to 2019/20<sup>4</sup>. The data of current GDP, GDP deflator, gross and private fixed capital formation, gross domestic savings, and gross exports of goods and services have been taken from the published reports of Central Bureau of Statistics (CBS, 2021), Nepal. Likewise, the data on remittances, and gross bank deposits have been taken from the published reports of Nepal Rastra Bank (NRB, 2021), and the data on the political stability index has been taken from the World Bank (2020a). The real value of variables in question have been computed by dividing their current values by GDP deflator of respective year.

### 3.2 Models

The following two models have been proposed to assess the dual objectives of the study as mentioned above. The equation (1) would assess the contribution of remittances on the real GDP; and the equation (2) would assess the contribution of remittances on private gross fixed capital formation, which has been treated as a proxy for domestic private investment. The final regressors have been selected after examining the statistical robustness of several permutations of probable regressors in the models.

The equation (1) proposes that the gross domestic product of Nepal is a function of remittances, gross fixed capital formation, and gross exports. In addition, an interactive term has been introduced in the model to examine any impact of remittances on gross domestic product via banking platform.

$$\ln \text{GDP}_r = f(\ln \text{RM}_r, \ln \text{GFCF}_r, \ln X_r, \ln \text{RM}_r * \frac{D}{\text{GDP}}) \dots\dots\dots (1)$$

Where ‘ln’ represents the log-transformation of the variables’ series. This transformation has been done to remove any exponential variance present in the

---

<sup>4</sup> The proportion of remittances to the GDP of Nepal became significant only from fiscal year 1999/00 onward. In addition, the data of ‘political stability index’ are available from year 2000 onward only.

series.  $GDP_r$  is the real value of gross domestic product,  $RM_r$  is the real value of remittances inflows,  $CFGFr$  is the real value of gross fixed capital formation, and  $X_r$  is the real value of gross exports, all for Nepal and base year in 2000/01. In this model, the real value of remittance has been introduced together with the gross fixed capital formation and gross exports so that a comparative assessment can be done on remittances' contribution to the real GDP. In addition, as reported by CBS (2011) and NRB (2012 & 2016), a part of remittances also forms the gross deposits in the banks and financial institutions which would contribute to the economic growth differently. Therefore, an interactive term,  $\ln RM_r * \frac{D}{GDP}$  has been introduced as a proxy for the fraction of remittances in the banking channel. In this interactive term,  $\frac{D}{GDP}$  is the current gross bank deposits (D) as percent of GDP which is also a proxy for the level of financial development<sup>5</sup>.

The equation (2) proposes that domestic private investment in Nepal is a function of remittances, domestic savings, level of financial development and institutional quality in Nepal.

$$\frac{P\_GFCF}{GDP} = f\left(\frac{RM}{GDP}, \frac{GDS}{GDP}, \frac{D}{GDP}, DUM\right) \dots\dots\dots (2)$$

Where  $\frac{P\_GFCF}{GDP}$  is the current value of private gross fixed capital formation as percent of GDP and a proxy for domestic private investment;  $\frac{RM}{GDP}$  is the current remittances as percent of GDP;  $\frac{GDS}{GDP}$  is the current gross domestic savings as percent of GDP;  $\frac{D}{GDP}$  has the same interpretation as in equation (1); and  $DUM$ <sup>6</sup> is the dummy variable for

---

<sup>5</sup> Giuliano and Ruiz-Arranz (2005) have recommended four proxies to represent financial development of an economy. These are: (i) liquid liabilities of the financial system ( $M2/GDP$ ); (ii) the sum of demand, time, saving and foreign currency deposits to GDP ( $DEP/GDP$ ); (iii) claims on the private sector divided by GDP ( $LOAN/GDP$ ); and (iv) credit provided by the banking sector to GDP ( $CREDIT/GDP$ ).

<sup>6</sup> The dummy variable has been developed from the 'political stability index (-2.5 weak; 2.5 strong)' developed and published by the World Bank (2020a). For Nepal, this index has never been positive since year 2000. However, the score has shown a sign of improvement after year 2016 (score = -1.0), i.e. after 2016, the scores are less negative. Hence, the negative unity value has been set as a cutoff point, and the years that have had scores below negative unity has been coded as 1

political instability (1 if political stability index  $\leq -1$ ; otherwise 0), which is also a proxy for the institutional quality. In this relationship, remittances have been considered as a source of capital financing together with the gross domestic savings. Such a role of remittances is supported by many studies<sup>7</sup> that argue that remittances have tendency to stimulate private investments through banking channels. Since the level of financial development is expressed as percent of GDP (i.e.,  $\frac{D}{GDP}$ ) in this model, both remittances and gross domestic savings have also been also measured as percent of GDP in order to make regressors aligned and comparable with the dependent variable. In equation (2), the effects of remittances, and financial development on investment are expected to be positive, while that of the gross domestic savings, and political instability are expected to be negative.

### **3.3 Selection of Variables**

The studies mentioned in section (2) have used a range of regressors to examine the economic contributions of remittances on the growth variables (Table 1). Among these variables, remittances (RM), gross fixed capital formation (GFCF), and gross exports of goods and services (X) have been chosen as macroeconomic indicators and the gross bank deposits as percent of GDP as a proxy for the level of financial development. All of these regressors are expected to show positive effects on the real GDP of Nepal. Many other regressors viz. consumption, imports, number of school enrollment, grants, etc., have been dropped off from the model on the following three grounds: firstly, they are closely related with the chosen regressors, for example, trade openness is closely linked with the gross exports of goods and services; secondly difficult to quantify directly, for example, the purpose of number of secondary school enrollment is to incorporate the human capital effects of remittances, but the author realised that it will be a weak regressor to capture the human capital effects as such; and thirdly the robustness of the given model would get compromised if too many regressors are employed into the model. A similar approach has been undertaken while choosing the regressors for equation (2).

---

(one) to indicate years of political instability, otherwise 0 (zero) to indicate years of political stability.

<sup>7</sup> Some of such studies are Giuliano and Ruiz-Arranz (2005), Chami et al., (2005), Bjuggren et al., (2008), Mundaca (2009), Aggarwal et al., (2011), Dash (2020), Gelb et al., (2021), etc.



**Table 1: Selection of significant regressors from the literature  
in the context of Nepal**

Studies	Regressors used in the model	Highly significant regressors
Ojha (2019)	Remittance, capital formation, broad money supply, foreign aid, and import	Capital formation, remittance, import, and broad money supply
Dhungel (2018)	Remittance, trade openness, gross fixed capital formation, and secondary school enrollment	Gross fixed capital formation, Secondary school enrollment, remittance, and trade openness
Acharya (2017)	Remittance, fixed capital formation, and total merchandised exports,	Fixed capital formation, remittance, and total merchandised exports
Uprety (2017)	Remittance, consumption, and gross capital formation	Consumption, gross capital formation, and remittance
Thagunna and Acharya (2013)	Consumption, savings, investment, imports, and exports	No empirical estimates.
Srivastava and Chaudhary (2007)	Remittance, fixed capital formation, labour force, and gross exports	Fixed capital formation, gross exports, labour force, and remittance
Gaudel (2006)	Remittance, and grants	Grants, and remittance

*Source: Author's contribution.*

#### IV. EMPIRICAL FINDINGS

##### 4.1 Test for Breakpoint Unit Root

The appropriate form of Perron's (1997) innovation outlier model, i.e., IO2 or IO1, has been chosen based on significance checks of ADF statistics, and is supported by significance checks of break type of the model<sup>8</sup>. The significance of break dummy

<sup>8</sup> Checking significance of both intercept break and trend break in IO2 model; and intercept break in IO1 model.

has been examined additionally for the dependent variables. The break date has been chosen by minimizing the Dickey-Fuller t-statistics, and the optimal lag length was set automatic to be chosen by the software<sup>9</sup> based on the Akaike information criteria (AIC). Estimated results have been presented in Appendix A.

The following five variables' series  $\{\ln\text{GDPr}\}$ ,  $\{\ln\text{GFCFr}\}$ ,  $\{\ln\text{Xr}\}$ ,  $\{\frac{\text{D}}{\text{GDP}}\}$ , and  $\{\frac{\text{GDS}}{\text{GDP}}\}$  have been found of integration order zero, I(0) in their level forms; while four variables' series  $\{\ln\text{RMr}\}$ ,  $\{\ln\text{RMr}*\frac{\text{D}}{\text{GDP}}\}$ ,  $\{\frac{\text{P}_\text{GFCF}}{\text{GDP}}\}$ , and  $\{\frac{\text{RM}}{\text{GDP}}\}$  were found of integration order one, I(1). The explanation on the appropriate models and significance checks of break type, and break dummy have been provided under remarks in Appendix A. Nonetheless, none of these variables' series have shown integration of order two, I(2), and thus ARDL bounds test can be applied to examine a long-run relationship among the variables in question<sup>10</sup>.

---

<sup>9</sup> Eviews 10

<sup>10</sup> The order of integration of  $\{\ln\text{GDPr}\}$ , the dependent variable for equation (1) is found to be zero. In some online discussion forum (for example, Can we use an ARDL model if dependent variables are stationary at level while independent variables have mixed order of integration? (researchgate.net)), there is an argument that in such a situation, an ARDL approach shall not be applied though, but there is no concrete evidence to support this claim. Pesaran et al., (1999 and 2001) have also not explicitly discussed about such requirement in their works. Nonetheless, literature implies that if a long-run relationship statistically exists among variables in question, then the orders of integration of variables, whether I(0) or I(1) really do not matter in ARDL bounds test approach.

## 4.2 Selection of Optimum Lag Lengths

The optimal lag lengths to incorporate in the ARDL bounds test for both models (eq. 1 and eq. 2) have been determined by undertaking unrestricted VAR equation on the respective endogenous variables used. Since the number of annual observations is less, i.e., 20, the maximum lags allowed by the system was 2. The majority of the criteria including AIC indicate a suitable lag length of 2 for both models (Table 2).

**Table 2: Lag lengths selection by criteria**

Model	Lag	LogL	LR	FPE	AIC	SC	HQ
Eq. 1	0	-53.1014	NA	0.000438	6.455716	6.703042	6.4898
	1	48.0918	134.9243*	1.05e-07	-2.0102	-0.5262*	-1.8056
	2	81.9366	26.3237	9.34e-08*	-2.9929*	-0.2724	-2.6178*
Eq. 2	0	-199.5036	NA	5083.803	22.7226	22.9699	22.7567
	1	-123.6989	101.0730*	20.5051	17.0777	18.5616*	17.2823
	2	-89.8103	26.3578	18.1101*	16.0900*	18.8106	16.4652*

\* Indicates lag order selected by the criterion; LR: Sequential modified LR test statistic (each test at 5% level); FPE: Final prediction error; AIC: Akaike information criterion; SC: Schwarz information criterion; HQ: Hannan-Quinn information criterion.

*Source: Author's estimate.*

## 4.3 Estimation of ARDL Models and Checking Their Robustness

Various permutations of lag lengths 1 and 2 on dependent variable and regressors, and trend specification were examined under automatic selection setting, with one time break-dummy of dependent variable as fixed regressor to obtain the most suitable ARDL model for each equation. In the end, ARDL(1, 2, 2, 1, 0) with specification 'restricted constant and no trend' was found the most suitable model for equation (1); and ARDL(1, 2, 2, 2, 0) with specification 'restricted constant and no trend' was found the most suitable model for equation (2). After this, Breusch-Godfrey LM test was applied to confirm that the errors of these models were not serially correlated; results of which have been presented in Table 3. Since the 'observed R-square' values for both models are insignificant within 5 percent level, the null hypothesis of the test that 'there is no serial correlation in the model's

residual' cannot be rejected. This confirms that the chosen ARDL models are free from serial correlation. After this, the stability of these models has been examined by using CUSUM test and found that the CUSUM statistics for both models lie within 5 percent critical bands, thus showing absence of any instability of the coefficients in the selected models.

**Table 3: Results of Breusch-Godfrey Serial Correlation LM Test**

Model	F-statistic	Probability	Observed R-square	Prob. Chi-Square (2)
Eq. 1	0.4928	F(2,4) = 0.6437	3.5584	0.1688
Eq. 2	0.0817	F(2,3) = 0.9235	0.9302	0.6281

Source: Author's estimate.

**4.4 Bounds Test of Cointegration and Error Correction Model**

The F-statistics of bounds test for both ARDL models have been found larger than the asymptotic critical value of Pesaran et al., (2001), and the finite sample critical value of Narayan (2005) at 1 percent level (Table 4). That means the null hypothesis of 'no long-run relationship exists among the underlying variables in their level forms' can be rejected at 1 percent level, thus validating the existence of a long-run relationship between dependent variables and respective regressors in their level forms.

**Table 4: Results of Bounds Test**

Model	F-statistic	Significance asymptotic: n=1000 Pesaran et al., (2001), k = 4				Significance finite sample: n=30 Narayan (2005)			
		1%		5%		1%		5%	
		I0	I1	I0	I1	I0	I1	I0	I1
Eq. 1	60.2758***	3.29	4.37	2.56	3.49	4.28	5.84	3.06	4.22
Eq. 2	19.9558***	3.29	4.37	2.56	3.49	4.28	5.84	3.06	4.22

\*\*\* Significant at 1 percent level, k = the number of regressors in the model.

Source: Author's estimate.

After establishing a long-run relationship among the underlying variables, the cointegration equations for both models have been estimated. The coefficients and other statistical characteristics of those regressors have been presented in Table 5. The remittances and gross fixed capital formation have shown positive effects on GDP and are significant within 5 percent level. The effect of gross exports of goods and services on GDP is also positive, though significant at 10 percent level only. Interestingly, the interactive term of remittances with the financial development, proxied by gross deposits as percent of GDP has shown a negative and marginal effect on GDP. This observation has been discussed in detail in section V. In terms of comparative contributions, the remittances fall behind the gross fixed capital formation and gross exports of goods and services. One percent increase (decrease) in the real value of remittances causes the real GDP to increase (decrease) by 0.45 percent only while that of the gross fixed capital formation causes by 1.11 percent, and the gross exports by 0.59 percent. The value of error correction term is negative and significant at 5 percent level and shows that a disequilibrium in the value of the real GDP due to nonproportionate contributions of regressors is corrected by 18.5 percent per year towards maintaining its long-run equilibrium relation with the regressors, *ceteris paribus*, which is a moderately slow speed of adjustment.

On the other hand, remittances, gross domestic savings, and political instability have shown negative effects on the domestic private investment. Numerically, one percent increase (decrease) in remittances as percent of GDP causes a decrease (increase) of 0.30 percent in domestic private investment. The gross domestic savings as percent of GDP causes the domestic private investment to shrink by 0.90 percent; while a politically unstable year causes it to shrink by 3.2 percent. In this way, the political instability has had a massive consequence on the domestic private investment. As expected, the level of financial development has shown a positive effect, and one percent increase in gross bank deposits as percent of GDP causes domestic private investment increase by 0.26 percent. The value of error correction term is negative and significant at 1 percent level and shows that any disequilibrium in the value of domestic private investment is corrected by 92.1 percent every year towards maintaining its long-run equilibrium relation with the regressors, *ceteris paribus*, which is a quick adjustment.

**Table 5: Results of cointegration equation**

Equation 1				Equation 2			
Dependent variable: lnGDP <sub>t</sub>				Dependent variable: $\frac{P\_GFCF}{GDP}$			
	Co-eff.	SE	t-stat		Co-eff.	SE	t-stat
lnRM <sub>t</sub>	0.450**	0.1316	3.4173	$\frac{RM}{GDP}$	-0.299*	0.1275	-2.3437
lnGFCF <sub>t</sub>	1.113**	0.3330	3.3440	$\frac{GDS}{GDP}$	-0.903***	0.1570	-5.7538
lnX <sub>t</sub>	0.588*	0.2804	2.0993	$\frac{D}{GDP}$	0.259***	0.0564	4.5832
$lnRM_t * \frac{D}{GDP}$	-0.002*	0.0007	-2.2827	DUM	-3.191**	1.0954	-2.9134
Constant	-10.141	7.5736	-1.3389	Constant	22.433***	2.5159	8.9167
ECT	-0.185**			ECT	-0.921***		

\*\*\*, \*\* & \* indicate significant at 1 percent, 5 percent, and 10 percent level. ECT = Error correction term.

Source: Author's estimate.

#### 4.5 Short-Run Causalities in the Model

The short-run causality in the models has been examined by using Wald coefficients test on each model, to confirm the joint significance of the lagged regressors on the dependent variables<sup>11</sup>. The estimates have been presented in Table 6. Since the estimated F-statistics of all the regressors except  $\frac{RM}{GDP}$  in equation (2) are greater than the upper bound value of Pesaran et al., (2001) within 5 percent level of significance, the short-run causality runs from these regressors in question to the dependent variable, that means these variables have had short-run effect too, on the dependent variables. Thus, the remittances do have effect on GDP of Nepal in short-run too, but it does not have effect on the domestic private investment in short-run.

<sup>11</sup> The guideline is that if the estimated F-statistic in Wald test is greater than the upper bound value, (i.e. I1) of Pesaran et al., (2001) within 5 percent level of significance, the short-run causality runs from the regressor in question to the dependent variable.

**Table 6: Results of Wald Test**

				Asymptotic critical value bounds for the F-statistic#, k=4 (Case II: Restricted intercept and no trend)			
				1% Significance		5% Significance	
	Regressor	F-statistic	df	I0	I1	I0	I1
Eq. 1	lnRMr	7.0404***	(3,6)	3.29	4.37	2.56	3.49
	lnGFCFr	33.4928***	(3,6)	3.29	4.37	2.56	3.49
	lnXr	28.6613***	(2,6)	3.29	4.37	2.56	3.49
	lnRMr* $\frac{D}{GDP}$	59.8506***	(1,6)	3.29	4.37	2.56	3.49
Eq. 2	$\frac{RM}{GDP}$	1.5572	(3,5)	3.29	4.37	2.56	3.49
	$\frac{GDS}{GDP}$	12.5972***	(3,5)	3.29	4.37	2.56	3.49
	$\frac{D}{GDP}$	5.6519***	(3,5)	3.29	4.37	2.56	3.49
	DUM	16.2835***	(1,5)	3.29	4.37	2.56	3.49

# Pesaran et al., (2001, p.300), k= number of regressor, \*\*\* indicates significant at 1 percent level.

Source: Author's estimate.

## V. DISCUSSION

### 5.1 Discussion on the Findings of Equation (1)

The positive effect of remittances on GDP is in line with the findings of many other studies in the context of Nepal, and the estimated contribution is higher than the estimates of Dhungel (2018) and Acharya (2017), and slightly smaller than the estimate of Srivastava and Chaudhary (2007). Since a larger chunk of remittances is spent on the daily consumptions which has led to the increased import bills of Nepal (Bhatt, 2013), the positive effect of remittances on GDP is oozing out as net of the positive contribution of private domestic consumptions and negative contribution of imports on GDP. Nonetheless, remittances are still not a prime mover for the economic growth of Nepal and lags significantly behind the contributions of gross fixed capital formation and gross exports. The findings clearly establish that gross

fixed capital formation is the prime mover for the economic growth of Nepal. This conclusion is additionally important for the policymakers of Nepal in terms of recognizing the lags for struggling economic growth in the country. A sluggish change in gross fixed capital formation, which is a usual story in the context of Nepal, is ultimately expected to result into a sluggish GDP growth rate. Therefore, a leap in GDP growth will require a similar leap in the level of gross fixed capital formation as well. Priority to exports can also spur economic growth to Nepal by allocating resources to the most competitive sectors, increasing the efficiency of the economy, and generating employment opportunities for unskilled labourers. However, it will require a massive investment in infrastructures to improve its connectivity, and also strategic recognition of competitive export products based on their value addition. In addition, the sustainability of the export-led economic growth model also requires Nepal to participate into deep preferential trade agreements with the strategic trade partner nations. Interestingly, the coefficient of interactive term of remittances with the level of financial development is negative. Though its value is very small and is also found statistically significant at 10 percent level only, the sign is alarming. It indicates that the fraction of remittances deposited in the banks and financial institutions does not make productive impact on GDP which is a subject matter for future research.

## **5.2 Discussion on the Findings of Equation (2)**

Giuliano and Ruiz-Arranz (2005) and Aggarwal et al., (2011) argue that remittances increase bank deposits which increases loanable funds which in turn will increase credit to the private sector, thus leading to a positive relationship with investment. However, the coefficient of remittances in this model is negative though loosely significant at 10 percent level. Such outcome of remittances happens in the following three situations: firstly, when remittances are extremely used for consumption leading to withdrawal of resources from investment activities (Ahamada and Coulbaly, 2013; Tung, 2018); secondly, when the recipient households are not economically stable and lack entrepreneurial abilities (Buckley and Hofmann, 2012), and thirdly when recipient households gradually draw their engagement from productive investment activities, also known as dependency syndrome (Mallick,



2012). In light of key demographic findings of NRB (2016)<sup>12</sup>, all of these factors seem applicable in the context of Nepal. Therefore, this finding indicates that remittances do not act as a source of capital flow for economic growth. Ghosh (2005) also argues that remittances in themselves are not capital flows and are mainly a contribution to the family budget. Chami et al., (2005) also have had a similar conclusion and argue that remittances are compensatory transfers characterised by altruism of the senders in terms of compensating the recipients' bad economic outcomes. Defining remittances as compensatory transfers has a special implication at this juncture. That is, remittances will increase when there is uncertainty in the income of the recipient households. This is evidenced by a recent realisation of Nepal. The remittances to Nepal increased by 8.2 percent in fiscal year 2020/21 (NRB, 2021) despite a decrease in the foreign employment approvals due to pandemic, and a prediction to contract by 12 percent by the World Bank (2020b). Nonetheless, political instability in the country, which has become an acute macroeconomic disease of Nepal has been seen as the main accuse of harming the domestic private investment.

## VI. CONCLUDING REMARKS

This paper has assessed the contribution of remittances on economic growth and domestic private investment of Nepal by employing the ARDL bounds test approach. The empirical findings show a positive long-run effect of remittances on GDP and a negative long-run effect of it on domestic private investment. The positive contribution of remittances on GDP oozes out from larger domestic consumptions which on the other hand, has affected the domestic private investment of Nepal negatively. The use of remittances for domestic private investment depends upon the institutional quality and the level of financial development at macrolevel and the purpose for migration at household level. In the current scenario of Nepal, extreme

---

<sup>12</sup> According to the survey undertaken by NRB (2016), agriculture and foreign employment are the main sources of family's income for over 83 percent of the surveyed households. In addition, 44 percent of the foreign employment workers have had less than 10 years of schooling while 3 percent are illiterate; 73 percent of them are married with at least one child; and 84 percent have had their destinations to either gulf countries or Malaysia. Thus, the majority of the foreign employment workers belong to the marginalised families of the Nepalese society. Therefore, the daily consumption of remittances is basically the need of the recipient families back in Nepal and the remitters are supporting their families altruistically.

use of remittances for consumptions, weak and unstable financial background of the recipient households and prevalence of dependency syndrome together constrain remittances not to act as a source of capital flow for economic growth. The paper concludes that remittances to Nepal behave as compensatory transfers to the recipient households. That is why, remittances increase when there are external shocks to the Nepalese economy.

In light of socio-economic and education background of majority migrant workers' households, the policymakers shall not expect the recipients to get engaged into entrepreneurial activities by themselves. They need rigorous advisory, and training supports in order to have a minimum level of confidence and skills for undertaking any physical and (or) financial investment related decisions. This will require a remittance-focused policy in action. Occasional issuance of the 'Foreign Employment Saving Bonds (FESB)' by Nepal Rastra Bank is an appreciable initiative for reallocating remittances towards productive use; however, low sales percent of it (about 5 percent on average) is really a matter of concern and requires Nepal Rastra Bank to identify the hinderances in due time. The finding also indicates that the fraction of remittances deposited in the banking system do not create positive effect on GDP. Therefore, a remittance-focused policy to reach out the remittance recipients and get them engaged in the rigorous advisory and training supports is necessary to align their income in productive activities such as self-employment, financial investment among others. In comparison to remittances, the contribution of gross fixed capital formation on GDP is significantly larger. However, political stability is the necessary condition for gross fixed capital formation to play its influential role in GDP of Nepal.

## **REFERENCES**

- Acharya, R. 2017. "Impact of Remittance on Economic Development of Nepal." *Nepal Journal of Management* 10(1): 19-30.
- Aggarwal, R., Kunt, A. D. and M. S. M. Peria. 2011. "Do Remittances Promote Financial Development?" *Journal of Development Economics* 96(2): 255-264.

- Ahamada, I. and D. Coulibaly. 2013. "Remittances and Growth in Sub-Saharan African Counties: Evidence from Panel Causality Test." *Journal of International Development* 25(3): 310-324.
- Alper, A.M. and B. Neyapti. 2006. "Determinants of Workers' Remittances: Turkish Evidence from High-Frequency Data." *Eastern European Economics* 44(5): 91–100.
- Barajas, A., Chami, R., Fullenkamp, C., Gapen, M. and P. Montiel. 2009. "Do Workers' Remittances Promote Economic Growth?" *IMF Working Paper* WP/09/153. International Monetary Fund.
- Bhatt, G. R. 2013. "Remittance and Trade Deficit Nexus in Nepal: A VECM Approach." *NRB Working paper* 14. Nepal Rastra Bank.
- Bjuggren, P., Dzansi, J. and G. Shukur. 2008. "Remittance and Investment." *CESIS Electronic Working Paper Series* 216. Centre of Excellence for Science and Innovation Studies.
- Buckley, C. and E. T. Hofmann. 2012. "Are Remittances an Effective Mechanism for Development? Evidence from Tajikistan, 1999–2007." *The Journal of Development Studies* 48(8): 1121–1138.
- CBS. 2011. *Nepal Living Standards Survey 2010/11*. Central Bureau of Statistics.
- CBS. 2021. *National Accounts of Nepal* (Various Years). Central Bureau of Statistics.
- Chami, R., Fullenkamp, C. and S. Jahjah. 2005. "Are Immigrant Remittance Flows a Source of Capital for Development?" *IMF Staff Papers* 52(1): 55-81.
- Dash, R. K. 2020. "Impact of Remittances on Domestic Investment: A Panel Study of Six South Asian Countries." *South Asia Economic Journal* 21(1): 7–30.
- De Hass, H. G. 2003. *Migration and Development in Southern Morocco: The Disparate Socio-Economic Impacts of out-Migration on the Todgha Oasis Valley*. Rotterdam: Grafische Communicatie.
- Dhungel, K. R. 2018. "The Link between Remittance and Economic Growth: An ARDL Bound Testing Approach." *NRB Economic Review* 30(2): 1-18.

- Dzansi, J. 2013. "Do Remittance Inflow Promote Manufacturing Growth?" *The Annals of Regional Science* 51(1): 89–111.
- Gaudel, Y. S. 2006. "Remittance Income in Nepal: Need for Economic Development." *The Journal of Nepalese Business Studies* 3(1): 9-17.
- Gelb, S., Kalantaryan, S., McMahon, S. and M. Perez-Fernande. 2021. "Diaspora Finance for Development: From Remittances to Investment." *JRC Technical Report EUR 30742 EN*. European Union.
- Ghosh, B. 2005. *Migrants' Remittances and Development: Myths, Rhetoric and Realities*. International Organization for Migration.
- Giuliano, P. and M. Ruiz-Arranz. 2005. "Remittances, Financial Development, and Growth." *IMF Working Paper WP/05/234*. International Monetary Fund.
- Lartey, E. K. K. 2013. "Remittances, Investment and Growth in Sub-Saharan Africa." *The Journal of International Trade and Economic Development* 22(7): 1038–1058.
- Mallick, H. 2012. "Inflow of Remittances and Private Investment in India." *The Singapore Economic Review* 57(1): 1–22.
- MOF. 2021. *Economic Survey 2020/21 (Nepalese)*. Ministry of Finance.
- Mundaca, B. G. 2009. "Remittances, Financial Markets Development and Economic Growth: The case of Latin America and Caribbean." *Review of Development Economics* 13(2): 288-303.
- Narayan, P. 2005. "The Saving and Investment Nexus for China: Evidence from Cointegration Tests." *Applied Economics* 37(17): 1979–1990.
- Nelson, C. R. and C. I. Plosser. 1982. "Trends and Random Walks in Macroeconomic Time Series: Some Evidence and Implications." *Journal of Monetary Economics* 10: 139-162.
- NRB. 2012. *Impact Evaluation of Remittances: A Case Study of Dhanusha District*. Nepal Rastra Bank.
- NRB. 2016. *Saving and Investment Pattern of Remittances Recipient Households (Nepalese)*. Nepal Rastra Bank.

- NRB. 2020. *Status of Remittances Inflow to Nepal (Nepalese)*. Nepal Rastra Bank.
- NRB. 2021. *Current Macroeconomic and Financial Situation of Nepal (Annual Data of Various periods)*. Nepal Rastra Bank.
- Ojha, K. P. 2019. "Remittance Status and Contribution to GDP of Nepal." *NCC Journal* 4(1): 101-112.
- Pant, B. 2011. "Harnessing Remittances for Productive Use in Nepal." *NRB Economic Review* 23(1): 1-20.
- Perron, P. 1989. "The Great Crash the Oil Price Shock and the Unit Root Hypothesis." *Econometrica* 57(6): 361-1401.
- Perron, P. 1997. "Further Evidence on Breaking Trend Functions in Macroeconomic Variables." *Journal of Econometrics* 80(2): 355-385.
- Pesaran, M. H., Shin, Y. and R. J. Smith. 1999. "Bounds Testing Approaches to the Analysis of Long Run Relationships." *Discussion Paper Series* 46. University of Edinburgh.
- Pesaran, M. H., Shin, Y. and R. J. Smith. 2001. "Bounds Testing Approaches to the Analysis of Level Relationships." *Journal of Applied Econometrics* 16: 289-326.
- Rapoport, H. and F. Docquier. 2005. "The Economics of Migrants' Remittance." *IZA Discussion Paper* 1531. Institute for the Study of Labor.
- Srivastava, N. L. and S. K. Chaudhary. 2007. "Role of Remittance in Economic Development of Nepal." *The Journal of Nepalese Business Studies* 4(1): 28-37.
- Stark, O. 1991. *The Migration of Labor*. Oxford: Basil Blackwell Ltd.
- Thagunna, K. S. and S. Acharya. 2013. "Empirical Analysis of Remittance Inflow: The Case of Nepal." *International Journal of Economics and Financial Issues* 3(2): 337-344.
- Tung, L. T. 2018. "The Impact of Remittances on Domestic Investment in Developing Countries: Fresh Evidence from the Asia-Pacific Region." *Organizations and Markets in Emerging Economies* 9: 193-211.

Uprety, D. 2017. “The Impact of Remittances on Economic Growth in Nepal.”  
*Journal of Development Innovations* 1(1): 114-134.

World Bank. 2020a. *World Governance Indicators*. The World Bank.

World Bank. 2020b. *Migration and Development Brief* 33. The World Bank.

## APPENDICES

## Appendix A: Results of breakpoint unit root test, Perron's (1997) Innovation Outlier model

Variable series	Type	Level			First Difference			I(p)	Remarks
		TB	k	ADF stat.	TB	k	ADF stat.		
lnGDP <sub>r</sub>	IO2	2015	4	-9.1764***	-	-	-	I(0)	Intercept break, trend break, and dummy break were found significant within 1 percent level.
lnRM <sub>r</sub>	IO1	2017	0	-3.3643	2005	0	-5.6104***	I(1)	Intercept break was found significant within 10 percent level.
lnGFCF <sub>r</sub>	IO1	2017	3	-6.2963***	-	-	-	I(0)	Intercept break was found significant within 1 percent level.
lnX <sub>r</sub>	IO2	2013	1	-6.1451***	-	-	-	I(0)	Intercept break was found significant within 1 percent level. Trend break was found significant within 10 percent level.
$\ln RM_r \cdot \frac{D}{GDP}$	IO1	2015	4	-4.6540*	2016	2	-6.3107***	I(1)	Intercept break and break dummy are found significant within 1 percent level.
$\frac{P\_GFCF}{GDP}$	IO1	2015	4	-5.2843**	2019	0	-5.6516***	I(1)	Intercept break, and break dummy were not found significant within 5 percent level in the level form. They became significant in the first difference within 5 percent level.
$\frac{RM}{GDP}$	IO1	2017	0	-2.7593	2016	1	-5.6493***	I(1)	Intercept break and break dummy are found significant within 5 percent level.
$\frac{GDS}{GDP}$	IO2	2015	4	-5.8915***	-	-	-	I(0)	Trend, intercept break, trend break, and break dummy all are found significant within 1 percent level.
$\frac{D}{GDP}$	IO1	2014	4	-5.4944***	-	-	-	I(0)	Intercept break was found significant within 1 percent level.

Source: Author's estimates.

**Appendix B: Variables' series used in data analysis**

FY	GDP <sub>c</sub>	GDS <sub>c</sub>	RM	GFCF	P_GFCF	Gross Exports	Gross Deposits	POL INDEX	GDP Deflator	$\frac{RM}{GDP}$	$\frac{D}{GDP}$	$\frac{GDS}{GDP}$
2000/01	441,519	51,501	47,216	84,751	66,687	99,610	181,203	-1.17	100	10.7	41.0	11.7
2001/02	459,443	43,599	47,536	89,889	72,450	81,492	183,728	-1.44*	104	10.3	40.0	9.5
2002/03	492,231	42,141	54,203	98,073	83,354	77,280	202,734	-1.72	107	11.0	41.2	8.6
2003/04	536,749	63,064	58,588	109,181	94,226	89,544	232,576	-1.89	111	10.9	43.3	11.7
2004/05	589,412	68,110	65,541	117,539	100,326	85,958	250,465	-2.15	118	11.1	42.5	11.6
2005/06	654,084	58,757	97,689	135,532	118,023	87,952	289,976	-2.10	126	14.9	44.3	9.0
2006/07	727,827	71,453	100,145	153,337	128,692	93,567	334,453	-1.89	135	13.8	46.0	9.8
2007/08	815,658	80,188	142,683	178,446	145,453	104,207	421,524	-1.88	143	17.5	51.7	9.8
2008/09	988,272	93,230	209,699	211,039	166,761	122,737	550,677	-1.83	166	21.2	55.7	9.4
2009/10	1,192,774	136,589	231,725	264,888	211,223	114,298	620,609	-1.62	190	19.4	52.0	11.5
2010/11	1,374,953	190,924	253,552	292,730	228,924	121,714	823,235	-1.58	212	18.4	59.9	13.9
2011/12	1,536,000	167,805	359,554	317,185	235,829	153,863	1,011,823	-1.42	226	23.4	65.9	10.9
2012/13	1,695,011	178,882	434,582	382,972	307,586	181,180	1,188,090	-1.38	238	25.6	70.1	10.6
2013/14	1,964,540	234,227	543,294	462,013	367,034	226,022	1,406,770	-1.13	259	27.7	71.6	11.9
2014/15	2,130,150	196,103	617,279	595,823	485,568	247,565	1,688,830	-0.72	272	29.0	79.3	9.2
2015/16	2,253,163	91,644	665,064	647,294	486,792	213,338	2,016,816	-1.00	286	29.5	89.5	4.1
2016/17	2,674,493	359,206	695,452	840,693	671,150	240,392	2,299,808	-0.85	312	26.0	86.0	13.4
2017/18	3,044,927	506,418	755,059	1,051,957	790,450	270,105	2,742,103	-0.69	331	24.8	90.1	16.6
2018/19	3,458,793	656,235	879,271	1,164,939	928,579	300,222	3,235,067	-0.60	344	25.4	93.5	19.0
2019/20	3,767,043	681,971	875,027	1,059,966	825,624	264,367	3,839,727	-0.47	369	23.2	101.9	18.1

c = at current price values, \* Since the POLINDEX value was missing for year 2001, it has been estimated by averaging the preceding and succeeding indices.

Source: CBS (2021), NRB (2021), World Bank (2020a), and author's estimates.



REVIEW

Open Access



# What are Automated Paraphrasing Tools and how do we address them? A review of a growing threat to academic integrity

Jasper Roe<sup>1\*</sup>  and Mike Perkins<sup>2</sup>

\*Correspondence:  
Jasper.Roe@jcu.edu.au

<sup>1</sup> James Cook University  
Singapore, Singapore, Singapore  
<sup>2</sup> British University Vietnam, Hung  
Yen, Vietnam

## Abstract

This article reviews the literature surrounding the growing use of Automated Paraphrasing Tools (APTs) as a threat to educational integrity. In academia there is a technological arms-race occurring between the development of tools and techniques which facilitate violations of the principles of educational integrity, including text-based plagiarism, and methods for identifying such behaviors. APTs are part of this race, as they are a rapidly developing technology which can help writers transform words, phrases, and entire sentences and paragraphs at the click of a button. This article seeks to review the literature surrounding the history of APT use and the current understanding of APTs placed in the broader context of the educational integrity-technology arms race.

**Keywords:** Automated paraphrasing tools, Paraphrasing plagiarism, Technology-assisted plagiarism, Educational integrity

## Introduction: defining the educational integrity-technology arms race

Universities are going through a period of unprecedented disruption, and concerns regarding breaches of academic integrity can be seen as part of the wider context of social, economic, and technological changes in higher education (Bretag et al., 2018). Access to online resources, accelerating Internet connection speeds, and global interconnectedness continue to progress, and while this has several positive benefits for academic work (including the dissemination of ideas and access to resources (Rogerson, 2020)), it brings with it more technologically advanced methods of committing academic misconduct and defying the norms, rules, and principles of educational integrity. This includes not only text-based plagiarism as we describe in the case of APTs, but also the availability of contract cheating services available through the 'booming' online sharing economy (Bretag et al., 2018). When describing plagiarism, we view it as part of the broader category of Academic Dishonesty (AD), defined by the International Center for Academic Integrity (2022) as a group of behaviors including plagiarism, cheating, lying, and deception. Academically dishonest behaviors often constitute academic misconduct,



© The Author(s) 2022, corrected publication 2022. **Open Access** This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>. The Creative Commons Public Domain Dedication waiver (<http://creativecommons.org/publicdomain/zero/1.0/>) applies to the data made available in this article, unless otherwise stated in a credit line to the data.

defined as engaging in fraud or deception through misrepresentation of work (Prescott, 1989).

While opportunities to engage in technologically assisted academic misconduct are growing, so are tools to assist in their detection. The development of these has become an active field of investigation in computer science and Natural Language Processing (NLP). This process is similar in nature to the concept of a military arms-race; with a pattern of competing development and acquisition of ever-stronger tools to evade and attack. As one method, software, or system is developed for engaging in breaches of educational integrity, a technological solution is shortly in development thereafter to combat it. Evidence of this can be seen through the work of Foltynek, Meuschke, & Gipp (2019), who found that between 2013 and 2018, 239 studies in the field of NLP focused on using technological means to identify complex forms of academic plagiarism. Some of these show great promise, with one tool developed by Foltynek et al. (2020) demonstrating accuracy of up to 99% in identifying machine-translated paraphrased text documents.

For each of these success stories, a new way of violating principles of educational integrity can equally be described. Alvi, Stevenson & Clough (2017) for example, highlighted how the use of homoglyphs can be employed by writers to replace letters with visually identical letters from other scripts, thus bypassing traditional text-matching anti-plagiarism software. Plagiarism in English using non-English source material is another important area of study. This has driven research in the identification of similar semantic meaning of two segments of text in different languages (Ferrero et al., 2017) to help detect when writers are taking existing text or ideas from non-English sources, translating it to English and claiming it as their own. As more of these techniques for engaging in violations of educational integrity appear, with them comes confusion and ambiguity. The lines between acceptable and unacceptable academic behavior are not universal, nor are they clear-cut. Rather, these behaviors exist on a continuum, and the place on the continuum that some new tools occupy is not entirely clear.

In this article, we aim to contribute to solving this problem through engaging in a detailed literature review of a category of tool that may be used to commit academic misconduct by aiding text-based plagiarism, that of Automated Paraphrasing Tools (APTs). We begin by describing the origins of APTs and their use in academic work. We then explore the relationship between language proficiency and APT use, and how APTs may or may not be used for in an academically dishonest way, referring to case studies from Dinneen (2021) and Prentice and Kinden (2018). Finally, we propose solutions and relevant limitations to tackling the problem of APTs in academia, as well as areas for future research.

### **Defining APTs and understanding their origins**

Rogerson and McCarthy (2017) provide the clearest introduction and definition of what an APT is and does, stating that they are often web-based applications which use Machine Translation (MT) to transform one text into another, including between languages. MT varies in its level of sophistication and efficacy but is improving with advances in technology in the field of Natural Language Processing (NLP) and machine learning, although mistakes in output are still common (Rogerson, 2020). APTs were originally conceived to engage in 'text-spinning' as a method of achieving search engine optimization (Zhang, Wang, &

Voelker, 2014), and paraphrase in this field is required as originality is a key criterion for search engine optimization (Rogerson, 2020).

From this beginning in website development, APTs have found a second user-base in academia, allowing writers to disguise source material in the submission of assessments (Rogerson, 2020) and bypass plagiarism detection services which use text-matching algorithms. The underlying factors leading to the use of these tools is not well understood. The relationship between language proficiency and plagiarism may lead to the conclusion that APT users are primarily novice students who are not native English speakers, but are instead using English as a Foreign Language (EFL) (Rogerson & McCarthy, 2017). However, Rogerson (2020) also argues that professional scholars and researchers may equally make use of these tools. To demonstrate Rogerson's (2020) point, Ansorge, Ansorgeova, and Sixsmith (2021) described a single case of an article published in a journal which was later found to be likely to have used an APT. The authors used an online tool called 'DiffChecker' to identify 817 unique differences between the suspected source text (another journal article) and the published text; the tool found that it was highly likely the second text was produced by a machine, suggesting the use of an APT.

### **The relationship between APT use, paraphrase plagiarism, and language proficiency**

Although the rules and norms of acceptability may vary between institutions and contexts, students in Higher Education must follow principles of academic integrity, which are built on values of honesty, fairness, trust, respect, and responsibility (Lynch, Salmonson & Glew et al., 2021). One of the methods by which students are expected to show these values is through paraphrasing: a skill which demonstrates that they can understand works that they have read, and distil, reproduce, comment on, or critique these ideas while maintaining proper acknowledgement of sources (Rogerson & McCarthy, 2017). Inappropriate paraphrase on the other hand, may contain the same lexis and overall structure as the original source material (Oshima & Hogue, 1999), thus resulting in plagiarism in some cases. Paraphrasing is a critical skill for successful writing, but can be difficult for students, especially for those who are not writing in their first language (Chen et al., 2015; Rogerson, 2017; Shi, 2012). This is one important factor in understanding the relationship between language proficiency and the use of APTs.

Non-native English writers were found by Keck (2006) to use more 'near copies' of phrases than native English-speaking writers, and the relationship between language proficiency and ability to paraphrase has also been shown as related to the level of students' text comprehension (Erhel & Jamet, 2006). Insufficient knowledge may also lead to students being unable to think of a way to restate an idea (Rogerson & McCarthy, 2017). Therefore, a lower level of ability in English may lead to lower text comprehension, resulting in poorer paraphrasing. Several studies have equally found a negative association between English proficiency and engaging in plagiarism, such as Bretag (2007), Li (2015), Pennycook (1996), Marshall and Garry (2006), Perkins, Gezgin and Roe (2018), and Chen and Ku (2007). However, Keck (2014) also found that novice writers have also been shown to rely more heavily on copying from source material, so experience may also play a role in the ability to paraphrase.

One further complicating factor when understanding APT use and its role as an academically dishonest behavior is a lack of clarity as to what constitutes appropriate and inappropriate paraphrasing. Sun and Yang (2015) state that the definition of plagiarism and paraphrasing in academic work is unclear, leading to a lack of consensus. Shi (2004) proposes that paraphrasing be considered as matching more than two to three words from the original source material, while others state that even the duplication of words can be an indicator of plagiarism (Benos et al., 2005). Sun (2013) points out that with the varying requirements of different disciplines in academia, what is and is not acceptable may also vary. The lack of consensus on what constitutes appropriate paraphrasing may be one factor that affects students' ability in academic writing and makes it more difficult to understand the use of APTs and to what extent they constitute academic misconduct. By reviewing the types of APT and how they are used however, a clearer perspective on when APT use constitutes AD can be formulated.

### **Types of APTs and their use in academic work**

There are several different varieties of APTs, and all are not created equal. Prentice and Kinden (2018) highlight that between Rogerson and McCarthy's (2017) initial finding of 550,000 results from a search engine query for paraphrasing tools, the number of results had reached 3 million by 2018. A search for this term in November 2021 obtained results of approximately 4.5 million; highlighting not only the growing number of APTs available, but also the increased interest in this field shown by both scholars and the general public alike. Close inspection of some of the top-ranking results on search engines shows that some APT applications seem to be mirror-duplicates of the same framework and technology which are free to use and rely on advertisements. Others offer a greater range of fee-based subscription services, including alterable parameters of replacement at the lexis, phrase, or sentence level (Prentice and Kinden, 2018). This suggests that there may be large gaps between the efficacy, accuracy, and sophistication of the APTs which are presently being used.

One other variety of APTs are those which are used for pedagogical purposes and do not constitute a violation of principles of educational integrity. In the field of EFL, these can be indispensable tools for teaching paraphrasing as a skill. Chen et al. (2015) for example, demonstrated success in creating a corpus-based tool to suggest paraphrases using a parallel Chinese-English corpus, and found that 90% of the sample ( $N = 55$ ) preferred to write using their assistive paraphrasing tool, and 75% felt that the tool benefited their writing. This demonstrates that for students who are practicing English writing as English as a Foreign Language (EFL), such APTs can be a valuable resource for learning. That said, if learners come into contact with these APTs and they are not properly contextualized by the instructor, they have the potential to cause confusion as to what is and what is not acceptable for formal assessments. This is compounded by the common use of corpora and paraphrasing tools in the English language classroom, something that many English as a Foreign Language speakers may experience. If an EFL student is introduced to an APT by a teacher, for example in a university English class environment, it follows that they may find it confusing if it is deemed unacceptable for use in an assessment and results in them subsequently being accused of plagiarism.

In terms of how APTs are used (except for pedagogical APTs) both free and paid varieties tend to follow a similar system. Users input raw text into an interface, press an action button, and then retrieve the automatically generated output, which in theory, encodes and communicates the same core ideas or message as a different set of words. However, given the variable effectiveness of MT, this can result in the production of incomprehensible text, which has been referred to as ‘word salad’ (Rogerson & McCarthy, 2017). As an example, Prentice and Kinden (2018) found that in the discipline of health sciences, the use of paraphrasing tools resulted in medical terminology being substituted for incomprehensible words that lacked meaning. This can be one of the clear indications that an APT has been used.

In terms of how users engage with APTs, following the authors’ experiences, a general set of strategies for their illicit use in academic writing can be outlined as follows. Users first locate texts which are relevant to the subject at hand, and then copy material verbatim from the source material, (commonly websites, textbooks and journal articles) and enter it into the tool. Students may also engage in ‘back translation’ (Jones, 2009; Dinneen, 2021) in which they copy the original source material, translate it into a foreign language (again using a MT tool such as Google Translate) and then translate it back to English, resulting in a paraphrased version of the original. Users may then pass this through an APT again, in a 3-step process. By doing so, the writer may believe they are able to bypass plagiarism detection software, reduce the amount of effort required to produce original text through paraphrase, or may simply feel that they have successfully engaged in paraphrasing, thus not committing any violation. If a ‘word salad’ (Rogerson & McCarthy, 2017) is produced where text is incoherent, writers may attempt to proof-read and edit the paraphrased text to increase readability and avoid suspicion. These uses constitute Academic Dishonesty and are in our view paraphrasing plagiarism.

### **A review of APT case reports and the risks presented**

While we have made clear which cases we argue constitute legitimate (pedagogical) uses of APTs and which constitute AD and paraphrasing plagiarism, this may not be clear to students who intend to use an APT. Sun (2013) discusses the possible generational-cultural dimensions that may affect use, quoting Weiler (2005) argument that for some generations of learners, learning focuses on seeking rather than critiquing information, meaning that learners may not see why text reproduction is academic misconduct. Students may then not clearly understand why APT use can result in plagiarism. Evidence for this comes from Bowen and Nani’s (2021) findings that Thai students were uncertain about the difference between patchwriting; a simplistic form of superficial (Rogerson & McCarthy, 2017) or close paraphrasing (Keck, 2010) and acceptable paraphrasing.

One example of such seemingly unintentional use of an APT to commit paraphrasing plagiarism is given by Prentice and Kinden (2018), who describe a situation of a student using an APT to paraphrase text from file-sharing sites, while providing the original source in a reference list. Although the inclusion of the original source material in a reference list implies that the student did not intend to deceive, this can under most definitions be considered plagiarism. On the other hand, an EFL student writing in their first language, and then translating it to English, followed by passing it through an APT, may be considered poor academic practice, or a disingenuous representation of their

own abilities, but not, by definition, plagiarism. This is a debatable example, given that the answer to whether the text is in the students' own words is not clear cut. Some may argue that the student's ideas were initially created by the student, and only the phrasing and linguistic medium has been changed, where others may state that the student has not met the requirements of writing in the target language and has attempted to deceive the assessor that they have done so, constituting Academic Dishonesty and paraphrasing plagiarism.

A further case that may create debate is a report from Dinneen (2021), who describes a student who had copied 75% of the submitted text for an assessment but remained convinced that as they had used in-text citations, and changed the wording of the authors' original text (through using an APT), they had not committed any form of misconduct nor plagiarized. Based on the interpretation of the institution's plagiarism policy, it was found that there was no indication that algorithm-driven paraphrase constituted academic misconduct, meaning that in essence the student was correct (Dinneen, 2021). Our position on this is that despite not meeting the technical definition of academic misconduct based on the institution's lack of policy, this does not change the core fact that the student's submitted work was not their own. While some institutions may already have implemented policies to counteract these kinds of cases, the case study highlights the need for universal adoption of guidelines for institutions to deal with APT usage as it becomes more widespread.

While then, there are many areas of debate surrounding APT use, the fact remains that they are a serious and current threat to academic integrity, which can hide plagiarism and help to facilitate collusion (Wahle et al., 2021). APTs can serve to reduce the ability of text-matching software used to help identify potential cases of plagiarism, thus weakening one of the most effective current diagnostic tools for academic misconduct and plagiarism (Wahle et al., 2021). These tools not only represent a risk for students at the undergraduate and postgraduate level, but even for faculty and researchers who may wish to expand their output through publishing paraphrased versions of the same work while adding no new content. Rogerson (2020) highlights other risks, given that there is no publicly available information on how much data is collected from these tools, and what happens to this stored data. In all, this paints a concerning picture for APT use in academia.

### **Addressing APTs: What's next?**

Given the lack of consensus on several key issues relating to APTs, the question of how institutions and educators should address these tools is complex. Several strategies are available to help combat the use of APTs at present, but all carry some limitations, especially as more is found out about how these tools are used in practice, and as these tools continue to evolve.

Under the arms-race scenario, institutions and educators may look towards developments in technology for identifying the use of APTs. Current options in development include Longformer, which attempts to identify machine-based plagiarism, and DSpin, created by Zhang, Wang, and Voelker (2014), which aims to automatically identify text created by APTs. Foltynnek et al. (2019)'s systematic literature review of computational methods of plagiarism detection notes that there have been large improvements

in technological solutions to identifying plagiarism, which are mainly the result of improved methods of semantic analysis, as well as the use of non-textual elements of written work and the use of machine learning. This means that with the continued development of the field, the ability of software to identify the use of APTs and other difficult to detect, or 'complex plagiarism' (Perkins, Gezgin & Gordon, 2019), may be on the horizon. Other authors, such as Perkins, Gezgin and Roe (2020) also highlight that while current software is not yet able to accurately identify these more complex cases of plagiarism, emerging fields of deep learning and neural network technologies have high potential in easing academic misconduct issues in higher education in future.

Whether an automated tool will be usable to detect APTs on a highly accurate, accessible basis in future is still then, an unknown, but machine-translated text is usually identifiable by an individual reading the material (Carter & Inkpen, 2012). In terms of the arms-race metaphor however, it may not be long before proficient speakers start to find it more challenging to distinguish between APT text and human-written text, as APTs continue to develop. This leads us to advocate for one established method that supersedes the arms race: training. Training is important, as at present, despite advances in technology, identifying plagiarism remains a social activity that currently requires human intervention in identification (Weber-Wulff, 2019). It is well established that training both students and faculty can have a positive effect on reducing breaches of academic integrity. Duff et al. (2006) found that over a three-year period, providing cross-cultural training on critical scholarship in the Western academic tradition, and taking an approach towards guiding students rather than focusing on detection and punishment led to improvements in scholarship. Dawson, Sutherland-Smith and Rickson (2020) found that faculty using Turnitin's Authorship Investigate tool led to significant increases in their ability to detect contract cheating, and Dawson and Sutherland-Smith (2019) demonstrated that marker training is helpful in identifying contract cheating. Perkins, Gezgin and Roe (2020) identify how academic misconduct education and training of students can potentially lead to a reduction in the instances of plagiarism that take place, and Du (2019) found that a single six-hour period of instruction reduced plagiarism in participants writing. Recognizing the broader reasons which may lead to plagiarism, and accounting for this in the development of supportive academic policies and practices is therefore of importance in reducing the usage of these tools amongst students. Martin (2004) also states that a policy of effective training, modeling, and rewards, is more effective than a disciplinary approach to poor practice. It is important to note that cultural norms should not be ignored in implementing such training, as the Western notion of academic integrity is not universal, and has been implicated as dismissive of other cultures, in particular the Eastern academic tradition of duplication as homage (Stowers & Hummel, 2011; Roe & Perkins 2020). To take a student-centered approach then, would mean to continue providing students with greater training on what these tools are, how they can be used legitimately, and how illicit use can be avoided.

However, if student training is to be used as an initial proactive approach to dealing with APTs, then a clear communication strategy should be devised to ensure that students understand the difference between the use of such tools pedagogically in the English as a Foreign Language (EFL) language classroom (Chen et al., 2015), and their use individually to produce assessed work in their disciplines of study. Training for both

students and faculty should include examples of the resulting ‘word salads’ (Rogerson & McCarthy, 2017) and poorly paraphrased sentences to emphasize the potential risks of the software producing unsatisfactory work, including typical features such as unclear sentence meaning, missing data, and incorrect referencing (Ansorge, Ansorgeova, & Sixsmith, 2021), aside from the serious risk of violating principles of educational integrity, as recommended by Nino (2009). This avoids the situation in which educators are forced to make difficult decisions without adequate training and recognizes that academics play a vital role in the detection of academic misconduct (Bretag & Mahmud, 2009).

## Conclusion

As technology continues to accelerate, the rate of development in advanced tools which manipulate language for a variety of purposes, including to aid academic work both legitimately and illicitly, will continue to grow. The role of academics is to decipher their use, understand why and how they are used, and make judgements on at what point this constitutes an unacceptable usage. As Dinneen (2021) states, there is currently a ‘silence’ on the appropriate use of digital tools in institutional academic integrity policies. This article has sought to remedy this through the review of current literature pertaining to APTs and offer insight into issues which institutions and faculty might face when confronted with this growing threat among both native English speaking and EFL students. We have also identified that the current approach of combating the illicit use of APTs through the development of technical solutions is promising but may continue to form an arms-race scenario. We therefore advocate for training as the most important tool in both reducing the use of APTs by students, as well as improving the ability of faculty to detect any such use. Finally, as recommended by Rogerson (2020) additional investigations should aim to develop broader social insights into the use of APTs. Further research into the effectiveness and structure of APTs, as well as why students use them, will further illuminate this challenging topic.

## Abbreviations

APTs	Automated Paraphrasing Tools are software applications which produce paraphrased text through user input
SEO	Search Engine Optimization is the process of a website obtaining a higher ranking on a search engine to enjoy greater visibility
EFL	English as a Foreign Language is the speaking of English as a language other than one’s own mother tongue
NLP	Natural Language Processing is an emerging field involving artificial intelligence, linguistics, and machine learning

## Acknowledgements

The authors make no acknowledgements.

## Authors’ contributions

Mr Jasper Roe contributed the majority of the review and writing. Dr Mike Perkins contributed significantly to the review, writing, editing and finalization of the manuscript. The author(s) read and approved the final manuscript.

## Funding

The authors received no funding for this research.

## Availability of data and materials

No data is made available from this article.

## Declarations

### Competing interests

The authors declare no competing interests.



Received: 9 December 2021 Accepted: 17 May 2022

Published online: 07 July 2022

## References

- Alvi F, Stevenson M, Clough P (2017) Plagiarism Detection in Texts Obfuscated with Homoglyphs. In: Jose J et al (eds) *Advances in Information Retrieval. ECIR 2017. Lecture notes in computer science*, vol 10193. Springer, Cham. [https://doi.org/10.1007/978-3-319-56608-5\\_64](https://doi.org/10.1007/978-3-319-56608-5_64)
- Ansorge L, Ansorgeová K, Sixsmith M (2021) Plagiarism through paraphrasing tools—the story of one plagiarized text. *Publications* 9(4):48
- Bailey J. (2018) A brief history of Article Spinning. [Plagiarismtoday.com](http://Plagiarismtoday.com). Retrieved August 20, 2021: [www.plagiarismtoday.com/2018/03/08/a-brief-history-of-article-spinning](http://www.plagiarismtoday.com/2018/03/08/a-brief-history-of-article-spinning)
- Benos DJ, Fabres J, Farmer J, Gutierrez JP, Hennessy K, Kosek D, Lee JH, Olteanu D, Russell T, Shaikh F, Wang K (2005) Ethics and scientific publication. *Adv Physiol Educ* 29(2):59–74. <https://doi.org/10.1152/advan.00056.2004>
- Bowen NEJA, Nanni A (2021) Piracy, playing the system, or poor policies? Perspectives on plagiarism in Thailand. *J Engl Acad Purp* 51. <https://doi.org/10.1016/j.jeap.2021.100992>
- Bretag T (2007) The emperor's new clothes: yes, there is a link between English language competence and academic standards. *People Place* 15(1):13–21
- Bretag T, Harper R, Burton M, Ellis C, Newton P, Rozenberg P, Saddiqui S, van Haeringen K (2018) Contract cheating: a survey of Australian university students. *Stud High Educ* 44(11):1837–1856
- Bretag T, Mahmud S (2009) Self-plagiarism or appropriate textual re-use? *J Acad Ethics* 7(3):193–205
- Carter D, Inkpen D (2012) Searching for Poor Quality Machine Translated Text: Learning the Difference between Human Writing and Machine Translations. In: Kosseim L, Inkpen D (eds) *Advances in Artificial Intelligence. Canadian AI 2012. Lecture notes in computer science*, 7310. Springer, Berlin
- Center for Academic Integrity. (n.d.). *The Fundamental Values of Academic Integrity*. <https://secure2.mc.duke.edu/academicintegrity/pdf/FVProject.pdf>
- Chen MH, Huang ST, Chang JS, Liou HC (2015) Developing a corpus-based paraphrase tool to improve EFL learners' writing skills. *Comput Assist Lang Learn* 28(1):22–40
- Chen T, Ku NKT (2007) EFL students: factors contributing to online plagiarism. In: Roberts TS (ed) *Student plagiarism in an online world: problems and solutions*. IGI Global, New York, pp 77–91
- Dawson P, Sutherland-Smith W (2019) Can training improve marker accuracy at detecting contract cheating? A multi-disciplinary pre-post study. *Assess Eval High Educ* 44(5):715–725. <https://doi.org/10.1080/02602938.2018.1531109>
- Dawson P, Sutherland-Smith W, Ricksen M (2020) Can software improve marker accuracy at detecting contract cheating? A pilot study of the Turnitin authorship investigate alpha. *Assess Eval High Educ* 45(4):473–482. <https://doi.org/10.1080/02602938.2019.1662884>
- Dey K, Shrivastava R, Kaushik S (2016) A paraphrase and semantic similarity detection system for user generated short-text content on microblogs. In: *Proceedings of COLING 2016, 26th International Conference On Computational Linguistics: Technical Papers*:2880–2890
- Dinneen C (2021) Students' use of digital translation and paraphrasing tools in written assignments on direct entry English programs. *Engl Aust J* 37(1):40–54
- Duff AH, Rogers DP, Harris MB (2006) International engineering students: avoiding plagiarism through understanding the Western academic context of scholarship. *Eur J Eng Educ* 31(6):673–681. <https://doi.org/10.1080/03043790600911753>
- Du Y (2019) Evaluation of intervention on Chinese graduate students' understanding of textual plagiarism and skills at source referencing. *Assessment & Evaluation in Higher Education*
- Erhel S, Jamet E (2006) Using pop-up windows to improve multimedia learning. *J Comp Assist Learn* 22(2):137–147
- Ferrero J, Agnes F, Besacier L, Schwab D (2017) Using word embedding for cross-language plagiarism detection. *arXiv preprint arXiv:1702.03082*
- Foltynek T, Meuschke B, Gipp B (2019) Academic plagiarism detection: a systematic literature review. *ACM Comput Surv* 52(6):1–42
- Foltynek T, Ruas T, Scharpf P, Meuschke N, Schubotz M, Grosky W, Gipp B (2020) Detecting machine-obfuscated plagiarism. In: *International conference on information*. Springer, Cham, pp 816–827
- Franco-Salvador M, Gupta P, Rosso P, Banchs RE (2016) Cross-language plagiarism detection over continuous-space- and knowledge graph-based representations of language. *Knowl Based Syst* 1(111):87–99
- Guerrero-Dib JG, Portales L, Heredia-Escorza Y (2020) Impact of academic integrity on workplace ethical behavior. *Int J Educ Integr* 16(2):1–18. <https://doi.org/10.1007/s40979-020-0051-3>
- Jalilifar A, Soltani P, Shooshtari ZG (2018) Improper textual borrowing practices: evidence from Iranian applied linguistics journal articles. *J Engl Acad Purp* 35(1):42–55
- Jones M (2009) Back-translation: the latest form of plagiarism. *The 4th Asia Pacific conference on educational integrity*:1–7 Wollongong, Australia
- Keck C (2006) The use of paraphrase in summary writing: a comparison of L1 and L2 writers. *J Second Lang Writ* 15:261–278
- Keck C (2010) How do University students attempt to avoid plagiarism? A grammatical analysis of undergraduate paraphrasing strategies. *Writ Pedagogy* 2(2):193–222. <https://doi.org/10.1558/wap.v2i2.193>
- Keck C (2014) Copying, paraphrasing, and academic writing development: a re-examination of L1 and L2 summarization practices. *J Second Lang Writ* 25:4–22
- Lester MC, Diekhoff GM (2002) A comparison of traditional and internet cheaters. *J Coll Stud Dev* 43(6):906–911
- Li Y (2015) Academic staff's perspectives upon student plagiarism: a case study at a university in Hong Kong. *Asia Pacific J Educ* 35(1):14–26

- Lynch J, Salamonson Y, Glew P, Ramjan L (2021) "I'm not an investigator and I'm not a police officer" - a faculty's view on academic integrity in an undergraduate nursing degree. *Int J Educ Integr* 17(19). <https://doi.org/10.1007/s40979-021-00086-6>
- Marshall S, Garry M (2006) NESB and ESB students' attitudes and perceptions of plagiarism. *Int J Educ Integr* 2(1):26–37
- Martin B. (2004). Plagiarism: Policy against cheating or policy for learning? Available at: <http://www.bmartin.cc/pubs/04plag.pdf>. Accessed 29 Nov 2021
- Meuschke N, Gipp B (2013) State of the art in detecting academic plagiarism. *Int J Educ Integr* 9(1):50–71
- Niño A (2009) Machine translation in foreign language learning: language learners' and tutors' perceptions of its advantages and disadvantages. *Recall* 21(2):241–258
- Oshima A, Hogue A (1999) *Writing academic English*. Addison Wesley Longman, New York
- Pennycook A (1996) Borrowing Others' words: text, ownership, memory, and plagiarism. *TESOL Q* 30(2):201–230
- Perkins M, Gezgin UB, Gordon RD (2019) Plagiarism in higher education: classification, causes and controls. *Pan-Pac Manag Sci* 2:3–21. Available at: [https://www.researchgate.net/publication/354143709\\_Plagiarism\\_in\\_higher\\_education\\_classification\\_causes\\_and\\_controls](https://www.researchgate.net/publication/354143709_Plagiarism_in_higher_education_classification_causes_and_controls).
- Perkins M, Gezgin UB, Roe J (2018) Understanding the relationship between language ability and plagiarism in non-native English speaking business students. *J Acad Ethics* 16(4):317–328. <https://doi.org/10.1007/s10805-018-9311-8>.
- Perkins M, Gezgin UB, Roe J (2020) Reducing plagiarism through academic misconduct education. *Int J Educ Integr* 16(3). <https://doi.org/10.1007/s40979-020-00052-8>
- Peters M (2019) Academic integrity: an interview with Tracey Bretag. *Educ Phil Theory* 51(8):751–756
- Prentice FM, Kinden CE (2018) Paraphrasing tools, language translation tools and plagiarism: an exploratory study. *Int J Educ Integr* 14(1):1–16
- Prescott PA (1989) Academic misconduct: considerations for educational administrators. *J Prof Nurs* 5(5):283–287
- Roe J, Perkins M (2020) Learner autonomy in the Vietnamese context: a literature review. *Asian J Univ Educ* 16(1):13–21. <https://doi.org/10.24191/ajue.v16i1.8490>
- Rogerson AM (2014) Detecting the work of essay mills and file swapping sites: some clues they leave behind. *Sydney Business School-Papers* 1(1):1–9
- Rogerson AM (2017) Detecting contract cheating in essay and report submissions: process, patterns, clues and conversations. *Int J Educ Integr* 13(10):1–17
- Rogerson AM (2020) The use and misuse of online paraphrasing, editing and translation software. In: *A research agenda for academic integrity*. Edward Elgar Publishing, Cheltenham
- Rogerson AM, Mccarthy G (2017) Using internet based paraphrasing tools: original work, patchwriting or facilitated plagiarism? *Int J Educ Integr* 13(2):1–15
- Roig M (2010) Plagiarism and self-plagiarism: what every author should know. *Biochem Med* 20(3):295–300
- Shi L (2004) Textual borrowing in second-language writing. *Writ Commun* 21(1):171–200
- Shi L (2012) Rewriting and paraphrasing source texts in second language writing. *J Second Lang Writ* 21(2):134–148
- Stowers RH, Hummel JY (2011) The use of technology to combat plagiarism in business communication classes. *Bus Commun Q* 74(2):164–169
- Sun YC (2013) Do journal authors plagiarize? Using plagiarism detection software to uncover matching text across disciplines. *J English Acad Purp* 12(4):264–272
- Sun YC, Yang FY (2015) Uncovering published authors' text-borrowing practices: paraphrasing strategies, sources, and self-plagiarism. *J English Acad Purp* 20(1):224–236
- The International Center for Academic Integrity (2022) Core Values. <https://academicintegrity.org/resources/fundamental-values>. Accessed 1 Jan 2022
- Wahle J, Ruas T, Foltynnek T, Meuschke N, Gipp B (2021) Identifying machine based plagiarism. Arxiv preprint arxiv:2103.11909
- Weber-Wulff D (2019) Plagiarism detectors are a crutch, and a problem. *Nature* 567(7749):435–436
- Weiler A (2005) Information-seeking behavior in generation Y students: motivation, critical thinking, and learning theory. *J Acad Librariansh* 31(1):46–53
- Zhang Q, Wang DY, Voelker GM (2014) Dspin: detecting automatically spun content on the web. In: *Proceedings NDSS Symposium*, pp 23–26

## Publisher's Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

**Ready to submit your research? Choose BMC and benefit from:**

- fast, convenient online submission
- thorough peer review by experienced researchers in your field
- rapid publication on acceptance
- support for research data, including large and complex data types
- gold Open Access which fosters wider collaboration and increased citations
- maximum visibility for your research: over 100M website views per year

**At BMC, research is always in progress.**

Learn more [biomedcentral.com/submissions](https://biomedcentral.com/submissions)



## Research Article

# Multivariate Analysis for Overcoming Complexities of Corporate Governance and Managerial Dilemma Using Data Mining Techniques

Jyotsna Ghildiyal Bijalwan <sup>1</sup> and Anchit Bijalwan <sup>2,3</sup>

<sup>1</sup>School of Business, British University Vietnam, Hung Yen, Vietnam

<sup>2</sup>School of Computing and Innovative Technologies, British University Vietnam, Hung Yen, Vietnam

<sup>3</sup>Faculty of Electrical & Computer Engineering, Arba Minch University, Arba Minch, Ethiopia

Correspondence should be addressed to Anchit Bijalwan; [anchit.bijalwan@amu.edu.et](mailto:anchit.bijalwan@amu.edu.et)

Received 7 June 2022; Revised 4 August 2022; Accepted 11 August 2022; Published 19 September 2022

Academic Editor: Stefan Cristian Gherghina

Copyright © 2022 Jyotsna Ghildiyal Bijalwan and Anchit Bijalwan. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

The increased number of corporate dirty pools raised serious concerns about the interest of the shareholders. The board room politics, conflict of interest, and bully pulpit proclivity gave birth to the “agency complexities.” The complexities of the corporate world made a buzz for the serious thoughts on corporate governance. This analysis aims at an objective and scientific inquiry about the relationship between corporate governance complexities and firm performance by utilizing data mining tools. It aims at overcoming the corporate dilemma over profitability vs. good governance and presenting a scientific model to eradicate the complexities in the corporate governance system and aims at providing a scientific basis to overcome the complex issues of governance faced by the corporate. The multivariate analysis in this paper utilizes a data mining tool for regression analysis and ANOVA. This paper also proposes a mathematical model that supports the study outcomes. The investigation outcomes are not only backed by the mathematical model and scientific tools but also by a comprehensive comparative analysis. The outcome of the investigation clearly mentions the significance and the primacy of each variable in the corporate decisions making process, which will facilitate the organizations in framing their corporate governance policies and will also be helpful to the managers in overcoming the corporate dilemma faced by them.

## 1. Introduction

The advent of a new era of science, technology, and information revolution paved the way for several structural and regulatory reforms around the world. The great journey of trade and commerce from barter to sole trader and to the gigantic multinational corporations is like a metamorphic transformation of a caterpillar into a beautiful butterfly. This transition played a pivotal role in the genesis of the complex organizational structures which further led to operational framework failures, frauds, and unethical business practices. The increased number of corporate dirty pools raised serious concern about the interest of the investors. “Corporate dirty pools” is a comprehensive term used for insider trading, tunneling, and window dressing. It includes intentional

implementation of a lame corporate governance framework, poor risk mitigation policies, fraudulent accounting practices, and fabricated financial reporting.

Accountability, truth and fairness, responsibility, transparency, and disclosure are some of the founding principles of corporate governance. Adherence to higher standards of corporate governance standards involves a cost to the organization. Harvard law school forum on corporate governance, in their report on global and regional trends in corporate governance for the year 2022 has mentioned the climate change and increased demands of assertive investors for sustainable ways of doing business (Fields et al.). Implementing the provisions related to financial reporting and disclosures on sustainability efforts of management for tackling the climate change challenges and simultaneously

fixing the responsibility and accountability of directors and executives for the climate risk oversight are some of the biggest contemporary challenges of corporate governance. Many regulations and standards in this context have already been merged into the International Sustainability Standards Board (ISSB) under IFRS. The pressure for decarbonizing the globe is higher than ever before in the corporate sector. The decision of complying with sustainability standards impacts the profitability of a company negatively, as it is a “costly affair” for any organization. The poor financial performance of the company questions the efficiency and effectiveness of management. This is one of the typical cases of an ethical dilemma for the managers in which they have to choose between good corporate governance that advocates environmental sustainability or profitability.

The board room politics, conflict of interest, and bully pulpit proclivity gave birth to the “agency problems.” The term “bully pulpit proclivity” refers to the management’s unethical acts. It includes running a self-inclined agenda at the cost of investors’ interest and misusing their powerful positions for whitewashing their acts in the public domain. All these collectively increased the complexities of corporate governance and gave a buzz to serious thoughts on the issue. Though the stringent laws and regulative framework endeavors investors protection, but in the recent past a number of corporate swindles unnerved the measures taken by the government to strengthen corporate governance. An abyssmal downfall of corporate ethics and morality alarmed the world to rethink this complex governance issue and come up with a better and stronger governance mechanism.

This corporate pandemonium drew the attention of many researchers and academicians around the globe. The archive is flooded with various empirical and descriptive studies on this complex matter. Each investigation has its own pattern and different outcomes. There are some studies that reveal a positively significant relationship between corporate governance and firm performance; some studies reveal a negative and insignificant relationship; and a few studies even show the mixed result.

This study attempts at providing new dimensions to the investigation by focusing on the complexity of corporate governance issues. The relationships between the organizations and their stakeholders in general and the stockholders are highly complex in nature (Georgian et al.). The majority of the previous studies are based on two or maximum up to three corporate governance elements whereas, we have taken six independent variables as the components of corporate governance. Our study aims at an objective and scientific inquiry about the relationship between the complexities of corporate governance and firm performance. In this multivariate analysis, we have utilized various data mining tools such as SPSS, regression analysis, and ANOVA. We have also proposed a mathematical model which supports the study outcomes. The investigation outcomes are not only backed by the mathematical model and scientific tools but also by a comprehensive comparative analysis. For our investigation purpose the board composition (BO), ownership structure (OW), board remuneration (BOR), board and shareholders meetings (BM),

transparency and shareholders rights (TSR), and corporate governance policies of the firm (CGCP) are primarily taken as corporate governance components for measuring financial performance accounting-based parameter, i.e., return on capital employed (ROCE) is used. The study is based on the 121 small caps, mid-cap, and large-cap companies listed on the Bombay stock exchange (BSE). The data are collected through the Prowess database. The key contribution of the paper are as:

- (i) The study aims at providing a scientific basis to overcome the complex issues of governance faced by the corporate.
- (ii) We have applied a combination of data mining tools such as Support Vector Machine (SVM) with the help of Hyperplane. Data mining tools along with mathematical modeling make our methodology robust and study outcomes more rational and scientific.
- (iii) We have applied a multidimensional approach by focusing on key corporate governance variables in a single study.
- (iv) The outcome of the investigation clearly mentions the significance and the primacy of each variable in the corporate decisions making process, which will facilitate the organizations in framing their corporate governance policies and will also be helpful to the managers in overcoming the corporate dilemma faced by them.

## 2. Related Work

In the past decade, many researchers investigated corporate governance from various paradigms but failed to reach a common stand on governance and profitability association. Many authors discussed the complexities of modern organizational structures and the dynamics of corporate governance. The study outcomes differed with the change in the methodology, size of the company, and the governance framework of the countries. Some results advocated positive association, some revealed negative and nonsignificant associations and there are some which showed mixed results [1]. Manson and Zaman [2] also questioned the legitimacy of the controllers who are at the helm of affairs and yet only want to reap the benefits without being held responsible for their deeds. Another study by [3]; Kim and Lee [4] show that corporate governance has a strong positive impact on the firm’s performance. The study revolves around the East Asian financial crisis period, i.e., in the year 1997-98, that further glorifies the independent directors’ traditional role of improving and monitoring management.

Dwivedi and Jain [5] in their empirical analysis for the time-period of 1997–2001 on 340 Indian companies revealed a positive and significant association between corporate governance and firm performance. Board size and ownership were taken as the variables for corporate governance and firm performance was evaluated using Tobin Q. Similarly in another study based on Indian companies

Gupta [6] investigated the level of adherence to corporate governance norms in selected automobile companies and found that those automobile companies' policies and practices were in line with the regulatory framework of corporate governance in the country.

Monks and Minow [7] in their book titled corporate governance attempts to explain the significance of the practical applicability of corporate governance by using various real-life corporate examples. A study based on Iranian companies listed on Tehran stock exchange for the two consecutive financial years 2005 and 2006 by Mashayekhi and Bazaz [8] on the same issue by utilizing the regression analysis revealed that a larger board size will affect the performance of the company. They also strongly advocated the role of independent directors in improving the firms' financial out-turn.

Wang et al. [9] in their study based on 106 High techs, medium, and small-size Chinese firms found a positive relationship between ownership concentration and corporate performance. They also proved that the firms which have a greater number of board meetings take better decisions and they perform well. Furthermore, they state that there is a direct relationship between the board remuneration and corporate performance, i.e., the companies, which pay their director's good remuneration, perform better in terms of financial efficiency.

On the other hand, there are some studies that outrightly reject the premise of any type of significant association between good governance of corporate and firm financial efficiency. Some studies reveal a weak or insignificant relationship between corporate governance and the firm's performance. Bhagat et al. [10] in their study found no correlation between board independence and long-term firm performance. Similarly, another study by Bauer et al. [11] on European firms found a negative association between governance standards for corporate and the performance of the firms.

By using generalized linear model (GLM) Fauzi and Locke [12] proposed that the board, Board committees, managerial ownership, and block holding ownership have a positive influence on the firms' performance in New Zealand. The study results based on 79 firms in New Zealand were indicative of poor firm performance due to block holding ownership patterns and nonexecutive director's excessive interference.

Vo and Phan [13] in their research investigation based on Vietnamese firms found that Board compensation is positively associated with firm performance whereas Board size has a negative relationship with firm performance. It further advocated that there is no link between independent directors and a firm's performance. It shows a nonlinear relationship between ownership and corporate governance. The study utilized feasible generalized least square (FGLS) regression. Board size, board independence, and board remuneration were a parameter for corporate governance whereas the return on assets (ROA) was taken as representative of a firm's performance.

Moscu [14] In their investigation based on Romanian companies utilized debt-equity ratio as the firm efficiency

yardstick and board characteristics as corporate governance parameters and utilized regression analysis to investigate the relationship between them. Their research outcome revealed a direct relationship between board sizes and firm performance. It implies that the larger the board size better is the firm's output. On the other side nonexecutive directors (NED) and firm performance were found negatively associated. On similar lines, in a study on the firms in the life science sector in Canada, Cook [15] propounded that nonexecutive directors have minimal influence on a firm's efficiency.

Kim and Kim [16] in their study on governance social responsibility and credit rating found that corporate social responsibility and corporate governance have a positive impact on the firm's credit rating. Higher the corporate social responsibility and corporate governance scores better is the credit rating of the firm and vice versa. Another study on a similar line found a direct association between corporate governance and firm performance, Jaser and Quasim [17] applied regression analysis on 281 firms listed on Abu Dhabi stock exchange (UAE). They have used return on assets (ROA) and Tobin Q as the parameters for the firm's performance.

Kandukuri et al. [18] in their study on Indian companies found similar results. The study results revealed the imbrications of private companies over public companies globally. Al-Gamrh and Ku Ismail [19] in their research investigation found that return on equity and profitability were not associated with the corporate governance variables. But overall corporate governance had a positive influence on the performance of the firm. The study covered 20 companies in the Indian manufacturing sector.

Naimah and Hamidah [20] in their research found that board audit committee meetings and quality of audit were directly related to the profitability of the company, whereas leverage, board independence, and size of the company were indirectly associated with the profitability of the company. The authors utilized regression analysis for the study.

Ilham et al. [21] in their investigation of the Turkish companies found that corporate governance and performance of the firms were positively associated. The study outcomes are suggestive of a significantly positive relationship between ownership concentration and board size. On the other hand, Balagobei [22] in her study based on Sri Lankan firms found smaller board sizes more suitable for better firm performance. The study also found a negative impact of the audit committee on the firm's performance.

A study based on Sri Lankan financial institutions Danoshana and Ravivathani [23] found that the size of the board and audit committee matters. Larger the size of the board and audit committee better the performance of the company but, on the other hand, frequency of the board meetings were found to be indirectly associated with the firm performance. It means that the firms having a greater number of board meetings did not perform financially well. Another study by Bhagat and Bolton [24], which is a sequel of their previous investigation in the year 2008 on corporate governance and firm performance took the data for the period of 2003 to 2016. Based on the long-term analysis the

study results suggested that director stock ownership helped in improving the performance of the firms and helped risk mitigation as well.

Similarly, Bijalwan et al. [25] in their exploratory analysis of corporate governance using supervised data mining tools found that there is a significantly positive relationship between board meetings and firm performance. They found that the firms with a greater number of board meetings performed better as compared to the firms with a lower number of board meetings. The study outcomes further showed that the remuneration paid to directors had no effect on the firm performance.

The recent study based on the firms listed on Abu Dhabi stock exchange (ADX) in the United Arab Emirates (UAE) by Al-Gamrh et al. revealed that more investment opportunities lead to poor firm performance. The study characterized UAE firms with lame corporate governance practices. The study further mentions that stronger corporate governance helps in mitigating the negative impact of investment opportunities. Malhotra et al. [26] on 242 companies listed on Bombay stock exchange (BSE) for the period of 2015 to 2019 that consisted of both public sector and private sector firms found that the public sector firms had a better corporate governance practice as compared to the private sector firms in India.

Fatma and Chouaibi [27] examined the impact of the characteristics of two CS mechanisms, i.e., board of directors and ownership structure. It is based on the firm value of European financial institutions. Salehi et al. [28] aimed to measure the relationship between corporate sectors and managerial entrenchment in companies listed on Tehran stock exchange. They used panel data regression to test the hypothesis. Almaleki et al. [29] aimed to investigate the comparability between the impact of managerial pride and overconfidence on financial statements. Velte [30] showed the link between corporate governance and corporate financial misconduct. Guluma [31] aimed to investigate the impact of CG that measures on firm performance and the role of managerial behavior in the relationship between CG mechanism and firm performance. This analysis was based on Chinese listed firms.

Li and Nguyen [32] focused on small and medium-sized enterprises in emerging economies. Their study aimed at the impact of CG on firm value by exploring the mediation mechanism of CSR and organizational identification aligned with CG and firm value. Almaleki et al. [33] aimed to seek the potential impact of board member's characteristics, the level of the firm's CSR. They found from their study that in Iran innovation is willing to be transmitted into firms by industry sources though, In Iraq regardless of the industry index, a positive association between interlocked bounds and firm innovation is established. Their analysis also depicts that board interlock is not considered a mechanism to transmit information about CSR.

There have been many studies in the past covering corporate governance issues from various dimensions which applied either market-based or accounting-based parameters on standard governance key components. Most of the studies utilized two or maximum up to three variables with

the standard statistical tools to investigate the nature and degree of relationship among governance variables. Our study is based on the six key components of corporate governance such as board composition (BO), ownership structure (OW), board meeting (BM), board remuneration (BOR), corporate governance codes and policies (CGCP), transparency, disclosure, and shareholders rights (TSR). In this study, corporate governance variables are independent variables, whereas the return on capital employed is used as a dependent variable for determining the financial efficacy of the firm.

After an intense analysis of the literature on the subject, finally, the null hypothesis was developed, whose validity was subjected to a robust scientific investigation.

H0: There is no significant relationship between corporate governance complexity variables and the firm's financial efficacy.

### 3. Study Design

*3.1. Variable Selection and Model Construction.* The study uses corporate governance complexity as the independent variable which is made up of six different components viz. board composition (BO), ownership structure (OW), board meeting (BM), board remuneration (BOR), corporate governance codes and policies (CGCP), transparency, disclosure, and shareholders rights (TSR). Whereas firm's performance is a dependent variable which is denoted by return on capital employed (ROCE). Some other factors such as size of the firm (TA), Leverage (LEV), Liquidity (COR) of the firm, and Inventory turnover (IR) are taken as control variables for the study.

*3.1.1. Independent Variables.* The description of key components of the corporate governance complexity used as an independent variable is described in table no 1. Table 1 includes an explanation of the independent variables, their indicators, description thereof, and the symbolic representation for the validation through a mathematical model.

*3.1.2. Dependent Variable.* Firm's financial efficacy is the dependent variable for the study. In the previous studies on corporate governance, the financial efficacy of the firm was majorly assessed via market-based measures or accounting-based parameters. This study utilizes the accounting-based ratio, i.e., return on capital employed (ROCE) as a yardstick to measure the financial efficacy of the firm. ROCE is a financial ratio that can be expressed as earnings before interest and tax/capital employed. An ideal ROCE is one, that is, greater than the cost of borrowings of the firm.

*3.1.3. Control Variables.* Sizes of the firm, leverage, liquidity condition, and inventory ratio are taken as the control variables for the study. Size of the firm is measured according to the total assets held by the company; leverage condition is determined by the debt-equity ratio. For assessment of the liquidity condition of the company, liquidity

TABLE 1: Independent variables.

Sr.no.	Factors	Indicators	Description	Symbolic
1	Board composition (BC)	(a) board size (b) board independence	(a) total no. of BOD sitting on board (b) ratios of DIRs to ID and ED to NED etc	$x$
2.	Ownership structure (OS)	Ownership structure	Percentages of shares held by various stake holders in the company	$u$
3.	Board meetings and share holders' meetings (BSM)	(a) board meetings (b) shareholders meetings	(a) Total no. of board meetings held during the year (b) Total no. of shareholders meetings held during the year. (including provisional meetings)	$v$
4.	Board remunerations (BR)	Board remunerations	Remuneration paid to the top 3 executives in their natural algorithm	$w$
5.	Corporate governance codes and practices (CGP)	Corporate governance codes and initiatives	Corporate governance codes and initiatives are taken by the company	$z$
6.	Transparency and shareholders rights (TSH)	(a) Transparency and disclosure (b) Shareholders rights.	(a) transparency and disclosure norms followed by the company. (b) right to shareholders	$t$

TABLE 2: Control variables.

SN	Control variables	Explanation	Symbol
1	Size of firm	Total assets	TA
2	Leverage	Debt/equity	LEV
3	Liquidity	Current assets/current liabilities	COR
4	Inventory turnover	Cost of goods sold/average inventory	IR

ratios are utilized and Inventory turnover is measured with the help of inventory turnover ratio. Table 2 shows control variables utilized for the study.

3.1.4. *Model Development.* For making the methodology more robust we have proposed two different models. First model is a conceptual support vector machine (SVM) mathematical model which fits a hyperplane for testing the research outcomes as mentioned in below equation:

$$y = a + bx + cu + dv + kw + fz + gt, \tag{1}$$

where  $x, u, v, w, z,$  and  $t$  are independent variables as explained in the Table 1 and  $y$  is dependent variable. The second is an OLS regression model which investigates the relationship between corporate governance and firm's efficacy and is explained with the help of belowmentioned equation:

$$ROCE = \beta_0 + \beta_1BZ + \beta_2BO + \beta_3OW + \beta_4BM + \beta_5BOR + \beta_6TSR + \beta_7CGCP + \epsilon, \tag{2}$$

where the Board size (BZ), Board composition (BO), Ownership structure (OW), Number of Board and shareholders meetings (BM), Board remuneration (BOR), Transparency and shareholders' rights (TSR), and corporate governance Codes and policies (CGCP) are the independent variables. In the equation Return on capital employed (ROCE) is the dependent variable.  $\beta_0$  is constant and  $\beta_1, \beta_2, \beta_3, \dots$  are regression coefficients.

3.1.5. *Sampling.* The dataset for study is derived from the Bombay stock exchange. The sample consisted of 121 companies, which are inclusive of the companies from all the brackets of corporate for the period of 2015 to 2020. For

maintaining the comprehensiveness of the sample stratified random sampling technique was utilized and the sample size was determined by using Cohen's formulae, i.e.:

$$\text{Cohen's } d = \frac{(M_2 - M_1)}{SD_{\text{pooled}}}, \tag{3}$$

$$\text{where } SD_{\text{pooled}} = \left( \sqrt{(SD_1^2 + SD_2^2)/2} \right).$$

3.1.6. *Measurement of Corporate Governance Scores (CGSs).* The corporate governance scores are measured by using a structured questionnaire consisting of 51 questions. The questions strictly adhere to the international benchmarks set for good corporate governance. The scorecard based on governance, management, accountability metrics, and analysis (GAMMA) was used for the corporate governance scores (CGS) and weights were developed for corporate governance factors (variables) used in the study. Each segment had an independent score for its subcomponent and weights were assigned to each factor.

## 4. Results and Discussion

First model Support Vector Machine (SVM) requires fitting hyperplane when  $y$  is a dependable variable and others are independent variables. In which:

$$y = a + bx + cu + dv + kw + fz + gt \text{ where } x, u, v, w, z, \text{ and } t \text{ are independent variables and } y \text{ is dependent variable.}$$

Let us explain the proposed model with the help of hyperplane.

Put

$$x_1, x_2, x_3, \dots, x_m \text{ for } x.$$

$$u_1, u_2, u_3, \dots, u_m \text{ for } u.$$

$v_1, v_2, v_3, \dots, v_m$  for  $v$ .  
 $w_1, w_2, w_3, \dots, w_m$  for  $w$ .  
 $z_1, z_2, z_3, \dots, z_m$  for  $z$ .  
 $t_1, t_2, t_3, \dots, t_m$  for  $g$ .

$y_2, y_3, y_4, y_5, \dots, y_6 = a + bx_6 + cu_6 + dv_6 + kw_6 + fz_6 + gt_6$  where  $y_1, y_2, y_3, y_4, y_5$  and  $y_6$  are expected values of  $y$  with reference to  $(x_1, u_1, v_1, w_1, z_1, t_1), (x_2, u_2, v_2, w_2, z_2, t_2), \dots, (x_6, u_6, v_6, w_6, z_6, t_6)$

The values  $y_1, y_2, \dots, y_m$  are called observed values of  $y$  corresponding to  $x, u, v, w, z$ , and  $t$ . The expected values are different from the observed values. The difference  $y_r - y'_r$  for different values of  $x, u, v, w, z$ , and  $t$  are called residuals.

$$\sum_1^6 (y - y')^2. \tag{4}$$

By introducing a new quantity  $U$ , which is the sum of squares of residuals from 1 to 6.

$$U = \sum_1^6 (y_r - y'_r)^2 = \sum_1^6 [y_r - (a + bx_r + cu_r + dv_r + kw_r + fz_r + gt_r)]^2. \tag{5}$$

The constants  $a, b, c, d, k, f$ , and  $g$  are selected in a manner that sum of the squares of the residuals is minimum. After this the proviso for  $U$  to be maximum or minimum is as:

By simplifying the ratios, we got If  $\partial U / \partial a = 0$ , then  $\sum 2 (y_r - a - bx_r - cu_r - dv_r - kw_r - fz_r - gt_r) = 0,$  (7)

$$\frac{\partial U}{\partial a} = \frac{\partial U}{\partial b} = \frac{\partial U}{\partial c} = \frac{\partial U}{\partial d} = \frac{\partial U}{\partial k} = \frac{\partial U}{\partial f} = \frac{\partial U}{\partial g} = 0. \tag{6} \quad \text{or}$$

$$\sum y = ma + b \sum x + c \sum u + d \sum v + k \sum w + f \sum z + g \sum t \dots \tag{8}$$

By applying the same logic to

We have derived the Equations (10)–(15).

$$\frac{\partial U}{\partial a}, \frac{\partial U}{\partial b}, \frac{\partial U}{\partial c}, \frac{\partial U}{\partial d}, \frac{\partial U}{\partial k}, \frac{\partial U}{\partial f}, \frac{\partial U}{\partial g}. \tag{9}$$

$$\sum xy = a \sum x + b \sum x^2 + c \sum xur + d \sum vx + k \sum wx + f \sum zx + g \sum tx, \tag{10}$$

$$\sum yu = a \sum u + b \sum xu + c \sum u^2 + d \sum vu + k \sum wu + f \sum zu + g \sum tu = 0, \tag{11}$$

$$\sum yv = a \sum v + b \sum xv + c \sum uv + d \sum vv + k \sum wv + f \sum zv + g \sum tv = 0, \tag{12}$$

$$\sum yw = a \sum w + b \sum xw + c \sum uw + d \sum vw + k \sum ww + f \sum zw + g \sum tw = 0, \tag{13}$$

$$\sum yz = a \sum z + b \sum xz + c \sum uz + d \sum vz + k \sum wz + f \sum zz + g \sum tz = 0, \tag{14}$$

$$\sum yt = a \sum t + b \sum xt + c \sum ut + d \sum vt + k \sum wt + f \sum zt + g \sum t^2 = 0. \tag{15}$$

These would be taken as normal equations and can be solved for  $a, b, c, d, k$ , and  $f$ .

For  $a$ ,



$$\begin{aligned}
 & m \sum x \sum u \sum v \sum w \sum z \sum t - \sum y \\
 & \sum x^2 \sum xu \sum vx \sum wx \sum zx \sum tx - \sum xy \\
 & \sum xu \sum u^2 \sum vu \sum wu \sum zu \sum tu - \sum yu \\
 & \sum xv \sum uv \sum v^2 \sum wv \sum zv \sum tv - \sum yv \\
 & \sum xw \sum uw \sum vw \sum w^2 \sum zw \sum tw - \sum yw \\
 & \sum xz \sum uz \sum vz \sum wz \sum z^2 \sum tz - \sum yz \\
 & \sum xt \sum ut \sum vt \sum wt \sum zt - \sum t^2 \sum yt.
 \end{aligned} \tag{16}$$

Same can be applied to  $b, c, d, k, f,$  and  $g.$

$$D = \begin{bmatrix} m & \sum x & \sum u & \sum v & \sum w & \sum z & \sum t \\ \sum x & \sum x^2 & \sum xu & \sum vx & \sum wx & \sum zx & \sum tx \\ \sum u & \sum xu & \sum u^2 & \sum vu & \sum wu & \sum zu & \sum tu \\ \sum v & \sum xv & \sum uv & \sum v^2 & \sum wv & \sum zv & \sum tv \\ \sum w & \sum xw & \sum uw & \sum vw & \sum w^2 & \sum zw & \sum tw \\ \sum z & \sum xz & \sum uz & \sum vz & \sum wz & \sum z^2 & \sum tz \\ \sum t & \sum xt & \sum ut & \sum vt & \sum wt & \sum zt & \sum t^2 \end{bmatrix} \begin{bmatrix} a \\ b \\ c \\ d \\ k \\ f \\ g \end{bmatrix}$$

$$= \begin{bmatrix} \sum y \\ \sum xy \\ \sum yu \\ \sum yv \\ \sum yw \\ \sum yz \\ \sum yt \end{bmatrix}. \tag{17}$$

The condition for U to be minimum is  $\partial^2 u / \partial a^2 \geq 0,$  for the given data.

It reveals that for the existence of  $a, b, c, d, k, f,$  and  $g$  variables it is a necessary and sufficient condition that a company will survive if cost function, i.e.,  $D \neq 0.$

Furthermore, in order to accomplish the research objective and to have a robust outcome, the null hypothesis was put to the test to check its validity. Various statistical tests were applied for a scientific and objective conclusion. To investigate the effect of corporate governance on the firm's efficacy, the regression analysis was applied to the dependent variables, i.e., Firm performance and the independent variables as components of corporate governance complexity as mentioned in Table 1. The investigation outputs are revealed as follows.

Table 3 shows the descriptive statistics for every component of independent variable. The mean represents the average value observed and the standard deviation reveals spread of the values and  $N$  is the number of firms utilized for study, i.e., sample size and min and max stands for the minimum and maximum usual values.

Table 4 is about Pearson's correlation coefficients of normally distributed data. The table is about the relationship between independent variables, i.e., corporate governance complexity components, and dependent variables, i.e., firm's financial efficacy parameter (Return on capital employed). Upon statistical investigation is observed that the correlation coefficient is 0.8210 between corporate governance codes and practices (CGCP) and transparency and shareholders' rights (TSR), which shows a positive relationship between the two components of independent variables. As the observed value is greater than 0.50 it can be said that the relationship between CGCP and TSR is very strong. Upon further analysis, it is observed that no other values were found to be significant as all of them were less than 0.50. The observed significance level or  $p$  value among these two variables also satisfies the condition of being strongly related as observed  $p < 0.001,$  which is less than 0.05. Hence, it can be strongly said that these two variables as strongly and positively correlated.

Table 5 is about model summary the superscript is about constants, i.e., corporate governance components utilized for the study such as board size, board composition, ownership structure, number of board and shareholders meetings, board remuneration, transparency and shareholders' rights and corporate governance codes and policies and  $b$  indicates a dependent variable, i.e., return on capital employed.

It also manifests about  $R, R$  square, adjusted  $R$  square, and standard error. The observed value of  $R$  in the proposed model is 0.822 which is within the boundaries of the regression analysis range, i.e., 0 -to 1. As the observed value of  $R$  in the given model is more than 0.5 it shows a very strong and positive relationship between independent variables and dependent variables. Furthermore, the value of  $R$  square is also high, i.e., 0.675 which falls within the range of 0 to 1 it suggests the goodness of the model to fit and accommodate the data well. The Adjusted  $R$  squared is 0.661 which further consolidates the claims of  $R$  Square.

Table 6 shows the ANOVA test results, it reveals the observed value of sum of squares, degree of freedom (Df), and mean squared for regression and residual. In the table regression outcome is shown as 9519.27 and the residual output is 4574.320 which shows both variations accounted and not accounted for the model, respectively. As it is evident that the sum square of regression output is more than the sum square of residual it means the model exhibits a higher level of variation in the dependent variable. This may need a supporting factor to facilitate the account for a higher degree of variation observed in the dependent variable. Furthermore, the observed  $F$  value is 47.86, which is derived by dividing regression mean square (1903.854) from residual mean square (39.77). The total number of degrees of freedom is the number of cases minus 1. The significance value of



TABLE 5: Model summary b.

Model	R	R square	Adjusted R square	Standard error	R square change	F change	Df1	Df2
1	0.822	0.675	0.661	6.306	0.675	47.864	6	114

TABLE 6: ANOVA.

Model	Sum of squares	Df	Mean square	F	Sig.
Regression	9519.27	6	1903.854	47.86	0.000
Residual	4574.320	114	39.77		
Total	14093.592	120			

TABLE 7: Coefficients.

	Unstandardized coefficients		Standardized coefficients Beta	T	Sig.	Correlations		
	B	Std. error				Zero-order	Partial	Part
(Constant)	2.255	15.63		0.144	0.886			
Board composition	0.050	0.061	0.078	0.821	0.413	0.106	0.077	0.075
Ownership structure	0.312	0.406	0.082	0.769	0.443	0.095	0.072	0.071
Board and shareholders meeting	-0.077	0.110	-0.073	-0.70	0.483	-0.019	-0.066	-0.06
Board remunerations	-0.052	0.063	-0.077	-0.81	0.415	-0.059	-0.076	-0.07
Corporate governance codes	0.058	0.136	0.069	0.424	0.672	0.119	0.040	0.039
Transparency and shareholders' rights	0.048	0.151	0.052	0.317	0.752	0.116	0.030	0.029

TABLE 8: Residuals statistics.

	Minimum	Maximum	Mean	Std. deviation	N
Predicted value	7.6527	24.7834	17.8812	3.08994	121
Residual	-2.02594E1	95.80276	0.00000	15.96239	121
Std. predicted value	-3.310	2.234	0.000	1.000	121
Std. residual	-1.237	5.850	0.000	0.975	121

$F \leq 0.001$ , which is much lower than the desired less than 0.05 condition.

As it is evident in Table 6, the observed residual value of 4574.320 is less than regression value of 9519.27 and the significant value of  $F \leq 0.001$  with this it can be concluded that the components of independent variables have done a good job in explaining the variations in the dependent variable.

Table 7 is about coefficients both standardized and unstandardized. In the given model the dependent variable (return on capital employed) = 0.050 board composition 2.255. Independent variables can be measured in different units. The standardized coefficients = 0.078 or betas try to make coefficients more comparable. The  $t = 0.144$ , which is less than +2 makes the value of regression more nonsignificant.

Table 8 is about residual statistics that explain the mean and standard deviations of predicted value, residual value, standard predicted value, and standard residual value.

By applying them to proposed OLS Regression model no I, we have derived the belowmentioned regression output for the model.

$$Y = 2.255 + 0.050 x + 0.312 u - 0.077 v - 0.052 w + 0.058 z + 0.048 t \dots\dots\dots 8, \tag{18}$$

where, Y = Return on capital employed x = Board composition u = Organization structure v = Board and Shareholders Meetings w = Board Remuneration z = Corporate governance policies t = Transparency and shareholders rights.

Many researchers have worked on the same issue in line with investigating the relationship between corporate governance and the firm's efficacy using different tools and techniques. Our contributions to the subject matter can differentiate in Table 9.

TABLE 9: Comparative table.

Related work	Point of difference											
	Neeraj Dwivedi and Arun Kumar Jain (2005)	Gupta (2006)	Zhen Yi Wang, Li Su and Ying Tang (2007)	Sanghoon Lee (2008)	Fauzi, F and Locke, S.C. (2012)	Cook, R. (2013)	Vo, D. and Phan, T. (2013)	Amare Mohammed Jaser, Quasim (2014)	Rajya Lakshmi Kanduri, Laila Memdani, P. Raja Babu (2015)	Akshita Arora, Chandan Sharma (2016)	Zahroh Naimah and Hamidah (2017)	Bijalwan J.G, Bijalwan. A
ANOVA	X	X	X	X	X	X	X	X	X	X	X	✓
Correlation	X	✓	✓	X	✓	X	X	✓	✓	✓	X	✓
Regression	✓	X	X	✓	X	✓	✓	X	X	X	✓	✓
Multivariate analysis	X	X	X	✓	✓	X	X	X	X	X	X	✓
Mathematical model	✓	X	X	✓	✓	X	✓	X	X	X	X	✓
Standard governance scoring scale	X	X	X	X	X	X	X	X	X	X	X	✓
Comprehensiveness of sample	X	X	X	X	X	X	X	X	X	X	X	✓
Positive relations	✓	✓	✓	✓	✓	X	✓	✓	✓	✓	✓	✓
Negative relations	X	X	X	X	X	✓	X	X	X	X	X	✓

## 5. Conclusion and Future Scope

In order to conclude the investigation, outcomes of both models need to be discussed one by one. In the case of the first proposed model which applies hyper plane reveals that for  $U$  to be minimum for the given data as:

$$\frac{\partial^2 u}{\partial a^2} \geq 0. \quad (19)$$

It refers that the existence of  $a, b, c, d, k, f,$  and  $g$  variables are a necessary and sufficient condition that a company will survive if cost function, i.e.,  $D \neq 0$ .

On the other hand, the second model utilized for study results into regression equation (8) which states that the board composition, corporate governance policies, and transparency have positive and significant relationship with firms' performance which is evident with the respective coefficients 0.050, 0.058 and 0.048. The coefficients of variables Board remuneration and Board meeting are  $-0.052$  and  $-0.077$  which shows a negative relationship with firms' performance. Furthermore, it can be said that the variables corporate governance policies and transparency and shareholders' rights are positively and significantly correlated with each other and do have a positive relationship with the firms' performance. A sound ownership structure is indicative of good firm performance on the other hand board and shareholders' meeting and board remuneration show negative coefficients  $-0.077$  and  $-0.052$ , respectively, which clearly evident a negative relationship with firms' financial efficacy. Our experimental results showed that the residual value of 4574.320 is less than regression value of 519.27 and the significant value of  $F \leq 0.001$  with this it can be concluded that the components of independent variables have done a good job in explaining the variations in the dependent variable.

In the nutshell, it can be said that both the models come to the same conclusion, and it can be strongly said that firms with sound board composition with adequate number of independent directors have a good impact on the firm's financial efficacy. Similarly, companies with good corporate governance policies and transparency in their financing and reporting produce better financial results. A sound organizational structure is a supportive factor in the long run. On the other hand, the company management shall abstain from spending excessive time and funds on board meetings and high perks and payouts to the directors as it is a futile expense and will not guarantee any returns. It can be said that for better financial rewards organizations must pay heed on complex corporate governance elements like board composition, sound governance policies, and transparency in their conduct and in handling the material facts.

"The might is right" approach is futile in the realm of good governance. Therefore, the managers and the directors should work in a positive and constructive frame of mind. They should keep the interest of the organization at the apex level of their priority list. It is quite evident from the outcome of both the models that the complexity of corporate

governance and the managerial dilemma of profitability vs. good governance can be overcome by balanced board composition, sound governance policies, and transparency in the organizational conduct. In conclusion it can be said that we have applied the multivariate model to study six independent variables however, the same mathematical model and machine learning approach can be applied for studying the relationship between  $n$  numbers of variables in the future [34–37].

## Data Availability

The source of the author's framework along with the datasets and analysis during the current study is already publicly available on <https://prowessiq.cmie.com/> which is maintained by CMIE. SPSS software was used for processing and classification purposes during the author's research experiment.

## Conflicts of Interest

The authors declare that there are no conflicts of interest.

## Acknowledgments

This research is self-funded by authors.

## References

- [1] W. Carlin and C. Mayer, "How Do Financial Systems Affect Economic Performance," *Corporate Governance: Theoretical and Empirical Perspectives*, pp. 137–159, 2000.
- [2] S. Manson and M. Zaman, "Auditor communication in an evolving environment: going beyond sas 600 auditors' reports on financial statements," *The British Accounting Review*, vol. 33, no. 2, pp. 113–136, 2001.
- [3] T. Mitton, "A cross-firm analysis of the impact of corporate governance on the East asian financial crisis," *Journal of Financial Economics*, vol. 64, no. 2, pp. 215–241, 2002.
- [4] B. Kim and I. Lee, "Agency problems and performance of Korean companies during the Asian financial crisis: chaebol vs. non-chaebol firms," *Pacific-Basin Finance Journal*, vol. 11, no. 3, pp. 327–348, 2003.
- [5] N. Dwivedi and A. K. Jain, "Corporate governance and performance of Indian firms: the effect of board size and ownership," *Employee Responsibilities and Rights Journal*, vol. 17, no. 3, pp. 161–172, 2005.
- [6] C. D. Gupta, "Globalisation, corporate legal liability and big business houses in India," *Cambridge Journal of Economics*, vol. 34, no. 5, pp. 895–913, 2010.
- [7] R. A. G. Monks and N. Minow, *Corporate Governance*, John Wiley & Sons, Hoboken, New Jersey, U.S, 2008.
- [8] B. Mashayekhi and M. S. Bazaz, "Corporate governance and firm performance in Iran," *Journal of Contemporary Accounting and Economics*, vol. 4, no. 2, pp. 156–172, 2008.
- [9] Z. Wang, L. Su, and Y. Tang, "Corporate Governance and Corporate Performance of High-Tech Small and Medium-Sized Enterprises: Based on Analysis of the Small and Medium-Sized Listed Enterprises Empirical Data," in *Proceedings of the 3rd International Conference on Information Management, Innovation Management and Industrial Engineering*, pp. 378–383, 2010.

- [10] S. Bhagat, S. Bernard, and S. Black, "Board independence and long-term performance," *The Journal of Corporation Law*, vol. 27, 2002.
- [11] R. Bauer, N. Guenster, and R. Otten, "Empirical evidence on corporate governance in Europe: the effect on stock returns, firm value and performance," *Journal Of Asset Management*, vol. 5, no. 2, pp. 91–104, 2004.
- [12] F. Fauzi and S. C. Locke, "Board structure, ownership structure and firm performance: a study of New Zealand listed firms," *Asia academy of management Journal of accounting of finance*, vol. 8, no. 2, pp. 43–67, 2012.
- [13] D. Vo and T. Phan, "Corporate governance and firm performance: empirical evidence from Vietnam," *Journal of Economic Development*, pp. 62–78, 2013.
- [14] R. G. Moscu, "The relationship between firm performance and board characteristics in Romania," *International Journal of Academic Research in Economics and Management Sciences*, vol. 2, no. 1, p. 167, 2013.
- [15] R. Cook, *The Relationship between Corporate Governance Practices and Firm Performance in the Junior Canadian Life Science Sector*, Halifax, Nova Scotia, Canada, 2013.
- [16] D. Y. Kim and J. Y. Kim, "Effects of corporate social responsibility and governance on its credit ratings," *The Scientific World Journal*, vol. 2014, Article ID 305452, 6 pages, 2014.
- [17] A. M. Jaser and Quasim, "The impact of corporate governance and firm performance: evidence from UAE," *European Journal of Business and Management*, vol. 6, p. 22, 2014.
- [18] R. L. Kandukuri, L. Memdani, and P. R. Babu, "Effects of Corporate Governance on Firm Performance – A Study of Selected Indian Listed Companies," in *Research in Finance*, J. W. Kensinger, Ed., vol. 31, pp. 47–64, Emerald Group Publishing Limited, 2015.
- [19] B. Al-Gamrh and K. N. I. Ku Ismail, "Corporate governance and firm performance I developing countries: evidence from India," *Corporate Governance*, vol. 16, no. 2, pp. 420–436, 2016.
- [20] Z. Naimah and Hamidah, "SHS web Conference," *17th annual conference of the Asian academic accounting association*, vol. 34, 2017.
- [21] C. Ilham, T. Ekrem, W. Geoffrey, D. Mehmet, and Z. Selim, "Corporate governance and firm performance in emerging markets: evidence from Turkey," *International Business Review*, vol. 28, pp. 90–103, 2018.
- [22] S. Balagobei, "Corporate governance and firm performance: empirical evidence from emerging market," *Asian Economic and Financial Review*, vol. 8, no. 12, pp. 1415–1421, 2018.
- [23] S. Danoshana and T. Ravivathani, "The impact of the corporate governance on firm performance: a study on financial institutions in Sri Lanka," *SAARJ Journal on Banking & Insurance Research*, vol. 8, no. 1, pp. 62–67, 2019.
- [24] S. Bhagat and B. Bolton, "Corporate governance and firm performance: the sequel," *Journal of Corporate Finance*, vol. 58, pp. 142–168, 2019.
- [25] J. G. Bijalwan\*, A. Bijalwan, and L. Amare, "An exploratory analysis of corporate governance using supervised data mining learning," *International Journal of Recent Technology and Engineering*, vol. 8, no. 3, pp. 3546–3557, 2019.
- [26] R. K. Malhotra, J. G. Bijalwan, and B. L. Thapliyal, "Corporate governance in emerging economies: an Indian Insight," *International Journal of Management*, vol. 11, no. 09, pp. 663–670, 2020.
- [27] H. B. Fatma and J. Chouaibi, "Corporate governance and firm value: a study on European financial institutions," *International Journal of Productivity and Performance Management*, pp. 1–28, 2021.
- [28] M. Salehi, M. L. Dashtbayaz, and M. Mohtashami, "The effects of corporate characteristics on managerial entrenchment," *Iranian Journal of Management Studies*, vol. 14, no. 1, pp. 245–272, 2021.
- [29] M. Almaleki, M. Salehi, and M. Moradi, "The relationship between narcissism, managerial overconfidence and comparability of financial statements of listed companies," *Journal of Facilities Management*, vol. 19, no. 5, pp. 681–700, 2021.
- [30] P. Velte, "The Link between Corporate Governance and Corporate Financial Misconduct. A Review of Archival Studies and Implications for Future Research," *Management Review Quarterly*, pp. 1–59, 2021.
- [31] T. F. Guluma, "The impact of corporate governance measures on firm performance: the influences of managerial overconfidence," *Future Business Journal*, vol. 7, no. 1, pp. 50–24, 2021.
- [32] T. T. Li and V. K. Nguyen, "The impact of corporate governance on firms' value in an emerging country: the mediating role of corporate social responsibility and organisational identification," *The Cogent Business & Management*, vol. 9, no. 1, pp. 1–24, Article ID 2018907, 2022.
- [33] H. S. N. Al-Maliki, M. Salehi, and B. Kardan, "The relationship between board characteristics and social responsibility with firm innovation," *European Journal of Management and Business Economics*, vol. 64, no. 2, pp. 1–17, 2022.
- [34] T. Ahsan and A. Alquhaif, "Investment opportunities, corporate governance quality, and firm performance in the UAE," *Journal of Accounting in Emerging Economies*, vol. 10, no. 2, pp. 261–276, 2020.
- [35] J. G. Bijalwan and G. Y. Desalew, "A nexus between corporate governance capital category And firm potency," *International Journal of Management*, vol. 11, 2020.
- [36] R. Fields, R. O'Kelley, L. Sanderson, and R. Reynolds, *Global and Regional Trends in Corporate Governance*, Harvard Law School Forum on Corporate Governance, 2022.
- [37] M. Georgian, R. Mallin, E. M. Kelly, A. Al-Hawamdeh, and I. Yu Chiu, *Corporate Governance and Theory of Complexity* Adward Elgar Publication, Kunming, China, 2010.

2023

## Academic Integrity considerations of AI Large Language Models in the post-pandemic era: ChatGPT and beyond

Mike Perkins  
*British University Vietnam, Vietnam, mgperkins@gmail.com*

Follow this and additional works at: <https://ro.uow.edu.au/jutlp>

---

### Recommended Citation

Perkins, M. (2023). Academic Integrity considerations of AI Large Language Models in the post-pandemic era: ChatGPT and beyond. *Journal of University Teaching & Learning Practice*, 20(2). <https://doi.org/10.53761/1.20.02.07>

Research Online is the open access institutional repository for the University of Wollongong. For further information contact the UOW Library: [research-pubs@uow.edu.au](mailto:research-pubs@uow.edu.au)

---

## Academic Integrity considerations of AI Large Language Models in the post-pandemic era: ChatGPT and beyond

### Abstract

This paper explores the academic integrity considerations of students' use of Artificial Intelligence (AI) tools using Large Language Models (LLMs) such as ChatGPT in formal assessments. We examine the evolution of these tools, and highlight the potential ways that LLMs can support in the education of students in digital writing and beyond, including the teaching of writing and composition, the possibilities of co-creation between humans and AI, supporting EFL learners, and improving Automated Writing Evaluations (AWE). We describe and demonstrate the potential that these tools have in creating original, coherent text that can avoid detection by existing technological methods of detection and trained academic staff alike, demonstrating a major academic integrity concern related to the use of these tools by students. Analysing the various issues related to academic integrity that LLMs raise for both Higher Education Institutions (HEIs) and students, we conclude that it is not the student use of any AI tools that defines whether plagiarism or a breach of academic integrity has occurred, but whether any use is made clear by the student. Deciding whether any particular use of LLMs by students can be defined as academic misconduct is determined by the academic integrity policies of any given HEI, which must be updated to consider how these tools will be used in future educational environments.

### Practitioner Notes

1. Students now have easy access to advanced Artificial Intelligence based tools such as ChatGPT. These tools use Large Language Models (LLMs) and can be used to create original written content that students may use in their assessments.
2. These tools can be accessed using commercial services built on this software, often targeted to students as a means of 'assisting' students with assessments.
3. The output created by these LLMs is coherent enough for it not to be detected by academic staff members, or traditional text-matching software used to detect plagiarism, but falsified references may hint at their use if unchanged by students.
4. The use of these tools may not necessarily be considered as plagiarism if students are transparent in how they have been used in any submission, however it may be a breach of academic integrity policies of any given Higher Education Institution (HEI).
5. There are legitimate uses of these tools in supporting the education of students, meaning HEIs must carefully consider how policies dealing with student use of this software are created.

### Keywords

Artificial Intelligence, Large Language Models, GPT-3, ChatGPT, plagiarism



## Introduction

During the COVID-19 pandemic Higher Education Institutions (HEIs) institutions worldwide were forced to rapidly alter the delivery and assessment of programmes traditionally taught and assessed in-person, as international restrictions on movement and gatherings prevented programmes from being delivered as planned (Kaqinari et al., 2021). This rapid transition to online learning meant that students were faced with entirely new assessment situations, and ever-changing regulations both from HEIs, and from their respective governments. At the same time, HEIs were being faced with the challenge of attempting to maintain academic integrity to assure the quality and standards of their degrees (Clarke et al., 2022; Rapanta et al., 2021) while using alternative, and often novel, modes of assessment.

Although online learning does not necessarily equate to higher amounts of academic misconduct occurring amongst students (Grijalva et al., 2006; Stuber-McEwen et al., 2009) online assessment has been shown to be associated with increased risks to academic integrity (Miller & Young-Jones, 2012; St-Onge et al., 2022), as well as more cases of academic dishonesty occurring (Clarke et al., 2022; Lanier, 2006; Watson & Sottile, 2010). The particular situation of the pandemic has also resulted in a unique set of circumstances which has been demonstrated to lead to both an increase in detected cases of AD (Henderson et al., 2022; Jenkins et al., 2022; Lancaster & Cotarlan, 2021), as well as increases in student or academic staff perceptions of AD (Amzalag et al., 2021; Reedy et al., 2021; Walsh et al., 2021) occurring.

During the period of the pandemic, research has shown that students sought out and adapted to new technologies (Vargo et al., 2021) as they were faced with large scale disruptions to their educational experience. As we emerge into a post-pandemic situation of learning, writing, and assessment, the availability of new digital tools is increasing the options that students have available to them in supporting assessments involving digital writing. This paper will explore one of these still-developing technologies that can enable new opportunities in digital writing, but also raises significant concerns related to academic integrity: Artificial Intelligence (AI) tools using Large Language Models (LLMs).

This paper delves into the evolution of AI based digital tools and the emergence of LLMs and discusses several key areas to better understand LLMs, the key ethical concerns related to them, and the future of their use in digital writing and beyond. Firstly, we describe and demonstrate the potential that these tools have in creating original, coherent text that can avoid traditional methods of detection by text-matching software. Secondly, we evaluate whether the use of LLM based tools to support students in writing assignments can be considered as plagiarism, academic misconduct, or a breach of academic integrity. Thirdly, we identify the potential these tools have for supporting the education of students, and whether academic staff can detect any such use of

### Academic Editors

Section: Special Issue  
Senior Editor: Dr Jo-Ann Kelder  
Guest Editor: Dr Rebecca Johnke

### Publication

Received: 28 November 2022  
Revision: 20 December 2022  
Accepted: 31 January 2023  
Published: 22 February 2023

Copyright: © by the authors, in its year of first publication. This publication is an open access publication under the Creative Commons Attribution [CC BY-ND 4.0](https://creativecommons.org/licenses/by-nd/4.0/) license.

these tools. We end with a discussion on how academic integrity policies of HEIs must be updated to include the recognition of these tools.

By exploring these areas, we contribute to the literature by increasing the awareness amongst practitioners of an emerging technological tool which may be used by students to evade traditional methods of detecting breaches of academic integrity. We also identify key considerations for HEIs as they begin to consider how their academic integrity policies may need to be adjusted to account for the emergence and use of these tools by students, and highlight specific areas which may need to be considered. By determining where boundaries may lie in relation to academic integrity, academic misconduct, and plagiarism, we support HEIs in the broader development of their academic integrity policies. Therefore, clarifying how student use of these digital tools may be considered either an acceptable usage of a potentially paradigm shifting educational tool, or an academic integrity violation.

## **Literature**

### **The evolution of AI powered digital writing tools**

Students have used digital writing tools to aid them in their assessments since their rise to prominence in the 1980s (Palmquist, 2003), with the development of style and grammar analysis software integrated into word processor technology. These tools have seen a long history of evolution and change, and students believe that these tools are able to support them in improving their writing output (Nobles & Paganucci, 2015). Although digital writing has long been used in HEIs (Kozma, 1991), new technologies mean that there is a constant need to evaluate which tools are available to students, and provide clear guidelines on how these may be used.

Apart from the spelling, grammar, and style checkers built into word processing software, tools have emerged which are designed to go beyond the basics of pointing out more basic errors in composition and provide additional guidance to students on improving their writing. For example, Digital Writing Assistants (DWAs) such as Grammarly, WordTune and Perusall, use Artificial Intelligence (AI) to improve student writing (Fitria, 2021), and are perceived by students to be helpful tools in improving their work (Cavaleri & Dianati, 2016; O'Neill & Russell, 2019). These tools have also demonstrated a particular ability to support English as a Foreign Language (EFL) writers in improving their skills at expressing ideas in written English (Gayed et al., 2022; Nazari et al., 2021; Zhao, 2022), but it is vital that these EFL learners are supported in knowing how to use these responsibly so that they do not accidentally breach any academic integrity policies.

Another category of AI based software tools which have been used by students to support them with their writing are those of Automated Paraphrasing Tools (APTs). APTs are applications which use machine translation in order to transform one text into another (Rogerson & McCarthy, 2017). These tools were initially developed in order to support commercial enterprises in search engine optimisation (Q. Zhang et al., 2014) but have been adapted into tools that can be used to support students in the paraphrasing of text. Although the developers behind these tools may make claims that paraphrasing using these tools may not constitute plagiarism (QuillBot, n.d.-b), and technically discourage students from using these tools without correct citation of where original text was taken from (QuillBot, n.d.-a), these claims are disingenuous, given the wide variety of policies that may be in place by various HEIs related to what constitutes AD and plagiarism (Sun,

2013). Passing the burden of paraphrasing text to a digital tool and adjusting the output to enhance readability and reduce the likelihood that any original text will be spotted by text-matching software is considered to be a case of academic dishonesty and an example of paraphrasing plagiarism (Roe & Perkins, 2022).

Legitimate uses of this software can be again demonstrated in EFL education, where these tools can support students being taught the skill of correct paraphrase (Chen et al., 2015; Park & Yang, 2020; Zhao, 2022). However, it is clear from other reports that students do use these APTs for academically dishonest purposes (Dinneen, 2021), even if this may be unintentional (Prentice & Kinden, 2018). Spotting whether students have used APTs in their work can potentially be identified through the ‘word-salad’ that these tools may produce as an output (Rogerson & McCarthy, 2017), or through technological detection methods which aim to identify machine translated text (Wahle, Ruas, Foltýnek, et al., 2022; Q. Zhang et al., 2014), but this remains an emerging challenge, especially as we consider the next evolution of digital writing tools available to students: LLMs.

### **The emergence of Large Language Models**

Tools using Artificial Intelligence (AI) to support in the creation of original text have emerged in recent years, in the form of Large Language Models (LLMs) which are able to develop significant amounts of brand-new text based on short input requests. This contrasts with the APT and DWA tools described above, which focus primarily on the manipulation of existing text—paraphrasing, suggesting alterations to text, or providing predictions for sentence completion. These models, trained on broad data sets are also referred to as foundation models (Bommasani et al., 2022).

These tools started to achieve prominence from 2017 with the emergence of a range of transformer based machine learning models which allow for improved performance on language based tasks when compared to previous machine learning techniques (Vaswani et al., 2017). Of particular note are the BERT transformer developed by Google in 2018, and the subsequent releases of the Generative Pre-trained Transformer 2 (GPT-2) by OpenAI in November 2019, and the Generative Pre-trained Transformer 3 (GPT-3) in June 2020 (Dale, 2021). These LLMs have received significant attention in popular media (Dale, 2021), including multiple reports of the eventual publication of Alarie and Cockfield’s (2021) journal paper which was generated entirely by GPT-3. There has also been increasing awareness of these tools and how they relate to the future of academic and scientific work as demonstrated by the publication in *Nature* of an overview of the advances in this area (Hutson, 2022). The broad release to the public in November 2022 of ChatGPT by OpenAI marked a significant increase in the ability of the underlying software to create new text using further refined models (GPT-3.5), coupled with a markedly improved user interface (OpenAI, 2022). This release has led to an increased public dialogue on how LLMs may impact academic integrity, with multiple opinion pieces written on this topic (see for example Marche (2022) and Hern (2022)), as well as achieving more than 1 million users within five days of launch (Brockman, 2022).

### **Integration of LLMs into commercial services**

Although LLMs can be accessed directly, there is a relatively steep learning curve in understanding how to use the software, and some of the more advanced LLMs such as GPT-3 are currently limited to certain geographic areas and require extensive sign-up procedures.

Because of this, an alternative method that students may use to access the LLMs is through commercial entities who use an Application Programming Interface (API) to connect to the LLMs. These services are targeted at different groups of customers including copywriters, marketers and students and allow user-friendly access to the LLMs. Many of these tools integrate features of DWAs and APTs, and market the product package together as one 'writing support tool' or similar, available as both free and paid for versions.

This inclusion of LLMs into DWAs adds to the potential confusion for students as to whether the use of these tools would be considered legitimate. A subset of these tools is marketed specifically to students to support in the development of full length-assessments, which also include options to generate citations alongside the work. These entities are referred to as Automatic Article Generators (AAGs) by Abd-Elaal et al. (2022), and are an additional method for students to use the underlying LLMs on which they are based. Multiple lists exist online which compare these services against each other, with several of these appearing to be sponsored by some of the services themselves.

### Examples

As an example of the fluency of the output that can be created using these tools, the two paragraphs of the section above titled: 'The emergence of Large Language Models' were used as an input to ChatGPT. The prompt to the model was: *'Continue the following text by writing approximately 300 words explaining what ChatGPT is capable of, including examples of how it can be used by different users, with a focus on education. Write in a formal academic style, using in text citations in APA7 style. Provide all references'* The unedited output from this prompt was:

'ChatGPT-3 is a chatbot that is powered by the GPT-3 language model developed by OpenAI. It is a large language model that is trained on a broad dataset and is capable of generating human-like text based on short input requests. The GPT-3 model is trained using transformer-based machine learning techniques, which have been shown to outperform previous machine learning techniques on language-based tasks (Vaswani et al., 2017).

One of the main capabilities of ChatGPT-3 is its ability to generate new text based on short input requests. This means that it can be used to create original content, such as articles, blog posts, and even entire papers. This has significant potential for education, as it could be used to assist students in the writing process, or even to generate complete papers for assignments.

There are a number of potential ways in which ChatGPT-3 could be used in education. For example, it could be used as a writing tool to help students generate ideas for assignments, or to suggest edits and improvements to existing text. It could also be used as a tool for language learning, as it can be trained to generate text in multiple languages.

However, the use of ChatGPT-3 in education also raises some ethical concerns. There are concerns that the use of chatbots like ChatGPT-3 could lead to a decrease in academic integrity, as students may be tempted to use the tool to generate entire papers rather than doing the work themselves. There have been several opinion pieces

written on this topic (Marche, 2022; Hern, 2022), and it is important for educators and students to consider the potential consequences of using this technology.

Overall, ChatGPT-3 is a powerful tool that has the potential to revolutionize the way we approach education. It has the ability to generate original text and assist students in the writing process, but it is important to consider the potential ethical implications of its use.

#### References:

Bommasani, S., Vaswani, A., & Dale, S. (2022). Large Language Models: A Review. arXiv preprint arXiv:2201.11701.

Dale, S. (2021). The Rise of Large Language Models. *Communications of the ACM*, 64(6), 44-53.

Hutson, M. (2022). The next step for language models. *Nature*, 588(7840), 395-397.

Marche, S. (2022). The dangers of AI-generated papers. *The Atlantic*. Retrieved from <https://www.theatlantic.com/ideas/archive/2022/02/ai-generated-papers-threaten-academic-integrity/617370/>

Hern, A. (2022). Chatbots could undermine academic integrity, warn researchers. *The Guardian*. Retrieved from <https://www.theguardian.com/education/2022/mar/01/chatbots-could-undermine-academic-integrity-warn-researchers>

OpenAI (2022). ChatGPT: A chatbot powered by GPT-3. Retrieved from <https://openai.com/blog/chatgpt/>

Vaswani, A., Shazeer, N., Parmar, N., Uszkoreit, J., Jones, L., Gomez, A. N., & Polosukhin, I. (2017). Attention is all you need. In *Advances in neural information processing systems* (pp. 5998-6008).

(OpenAI, n.d.)

This output was created in approximately 5 seconds at zero cost (ChatGPT is currently in a free research preview stage and costs are likely to change in the near future). The output retained the language style used in the input and expanded on the discussions by providing examples specifically related to education as requested. Although in-text citations and references were provided (including references from the input text), these were all fabricated, with titles, URLs, and journal names being incorrect. However, given that the authors and dates provided in the in-text citations are correct, this may go unnoticed unless thoroughly checked. This does open a potential avenue of detection by academic staff if there is a suspicion that these tools may have been used by students.

A major benefit of ChatGPT as opposed to previous versions of the GPT-3 software is that of the iteration possible through natural language 'discussions' held with the software. For example, in the same conversational 'thread' as the previous output, ChatGPT was asked to: *Continue your response, focusing on how Higher Education Institutions may need to adjust their academic integrity policies based on student use of these technologies. Again, use full APA 7 in text citations and provide references.* The unedited output created was:

'As the use of ChatGPT-3 and other large language models becomes more widespread, it is likely that Higher Education Institutions (HEIs) will need to adjust their academic integrity policies to take into account the potential use of these technologies by students.

One of the main concerns with the use of chatbots like ChatGPT-3 is the potential for students to use them to generate entire papers or assignments, rather than doing the work themselves (Marche, 2022). This could lead to a decrease in academic integrity, as students may be able to pass off the work of the chatbot as their own. To address this concern, HEIs may need to update their policies to specifically prohibit the use of chatbots or other AI-powered tools for the generation of academic work.

In addition to updating policies, HEIs may also need to invest in tools and technologies to detect the use of chatbots in academic work. Plagiarism detection software, such as Turnitin, can be used to identify text that has been generated by chatbots or other AI tools, but these tools may need to be updated to be able to accurately detect the use of chatbots (Hern, 2022).

Another potential issue with the use of chatbots in education is the potential for the chatbot to produce content that is biased or offensive. Chatbots are trained on large datasets, and if these datasets contain biased or offensive content, the chatbot may produce similar content (Bommasani et al., 2022). To address this concern, HEIs may need to consider implementing policies or guidelines related to the use of chatbots or other AI tools, and providing training to students on the appropriate use of these technologies.

Overall, the use of chatbots like ChatGPT-3 in education raises a number of ethical concerns that HEIs will need to consider when developing or updating their academic integrity policies. It is important for HEIs to carefully consider the potential consequences of the use of these technologies, and to implement policies and guidelines that ensure the integrity of academic work.

#### References:

Bommasani, S., Vaswani, A., & Dale, S. (2022). Large Language Models: A Review. arXiv preprint arXiv:2201.11701.

Marche, S. (2022). The dangers of AI-generated papers. The Atlantic. Retrieved from <https://www.theatlantic.com/ideas/archive/2022/02/ai-generated-papers-threaten-academic-integrity/617370/>

Hern, A. (2022). Chatbots could undermine academic integrity, warn researchers. The Guardian. Retrieved from <https://www.theguardian.com/education/2022/mar/01/chatbots-could-undermine-academic-integrity-warn-researchers>

(OpenAI, n.d.)

Again, the references were falsified and there were some inaccuracies related to the claimed ability of Turnitin to detect AI generated content, but this fluent, five-paragraph output is typical of

a response by ChatGPT. It is evident that with some manipulation of the text through iteration using the tool, along with some minor editing or adjustments of references, a student intending to create large blocks of text to include in an assessment could rapidly complete certain tasks with limited effort and costs.

### **Limitations and newer LLMs**

As demonstrated above, the output produced by the LLMs is fluent, however there are some limitations to the currently available LLMs. Given that the development of these LLMs require pre-training before they are released, they are unable to answer questions or complete tasks which relate to very recent events. As they rely on the content they have been trained with to generate their output, there is the potential for LLMs to produce text that lacks semantic coherence (Dale, 2021), as well as lexical diversity (Gehrmann et al., 2019) through the repetition of expressions (Dehouche, 2021; Fröhling & Zubiaga, 2021).

Although one concern levied against LLMs is that they will generally always provide an answer or output, even if that is factually incorrect or misinterpreted (Dale, 2021; Hutson, 2022), recent research has shown that GPT-3 can be trained to state how confident it is in producing an answer that is factually correct (Lin et al., 2022), which can be used to support users of the LLMs in their use of the tools. ChatGPT in particular can also be challenged if the user believes there are incorrect elements in the output, and can adjust its response accordingly based on any corrections provided by the user.

Recent concerns related to the lack of transparency regarding the models used in currently available LLMs, as well as their computational cost and associated environmental impacts (Sanh et al., 2022; S. Zhang et al., 2022) have resulted in the development of alternative LLMs, including an open source LLM called GPT-J by Narrativa, and a new suite of Open Pre-trained Transformers (OPTs) by Meta. The resulting OPT-175B model by Meta has been shown to have comparable results to GPT-3 in terms of text creation ability, whilst being more open to scrutiny by researchers (S. Zhang et al., 2022) as to the ethical implications of these models; a particularly relevant concern as it relates to the study of academic integrity.

## **Academic integrity considerations of LLMs**

### **Concerns for academic integrity**

As demonstrated by the examples provided above, the current generation of LLMs are already fluent in their output, and emerging research has suggested that existing LLMs can produce output which humans struggle to identify as being machine created (Abd-Elaal et al., 2022; Clark et al., 2021; Gunser et al., 2021; Köbis & Mossink, 2021; Wahle et al., 2021; Wahle, Ruas, Kirstein, et al., 2022). At the same time, given that the text that is produced by LLMs is uniquely created based on the inputs provided, current research suggests that use of the created text by students is unlikely to be spotted by existing text-matching software tools used by HEIs (Wahle, Ruas, Kirstein, et al., 2022). LLMs therefore represent a clear potential threat to academic integrity as academic staff may be unable to correctly identify the amount of content produced by a student, and therefore provide an accurate evaluation of a student's comprehension and interpretation of the topic at hand.

## Definitions

There is a growing body of academic research which is exploring the concerns related to the use of LLMs in student work (Dehouche, 2021; Eaton et al., 2021; Kumar, Mindzak, Eaton, et al., 2022; Kumar, Mindzak, & Racz, 2022; Wilder et al., 2021). A question which has been raised by several of these authors but has yet to be fully answered is whether the use of LLMs by students can be considered a breach of academic integrity or not. Reaching this determination is challenging as it is dependent on how various HEIs define terms related to academic integrity.

For this paper, we use the definition of academic integrity provided by the Tertiary Education Quality and Standards Agency (TEQSA) of *'the expectation that teachers, students, researchers and all members of the academic community act with: honesty, trust, fairness, respect and responsibility'* (Tertiary Education Quality and Standards Agency [TEQSA], 2020).

Recognising the broadness of such a definition, we regard academic misconduct as a breach of academic integrity principles as specified in policy by a HEI, whether this intentional or not. This clarification is needed given the differences between what HEIs and students might classify as academically dishonest behaviour (Parkinson et al., 2022) and as students can unintentionally breach these policies (Amigud, 2020). A key area of interest of related to the use of LLMs is the act of plagiarism which we define as *'misrepresenting the effort that has been carried out by the author of a written document'* (Perkins et al., 2019, p. 5). Although there are existing and well known technological tools to detect simple copy and paste plagiarism by students, we are now operating in an era of more complex 'second generation' (Malesky et al., 2016) plagiarism, which requires ways of thinking to consider what plagiarism really entails, as well as more complex method of detection.

## Student uses of LLMs

Based on these definitions we need to consider a range of possible ways that students may use an LLM to support them in the writing of an assessment. Doing this helps us to understand where we may draw a line between acceptable practice, breaches of academic integrity, academic misconduct and/or plagiarism.

Consider a situation where a student uses an LLM to support them in their work, includes directly copied output of the tools in their submission, and does not state that they used an AI tool. This is similar to a case reported by Dinneen (2021) in reference to student use of an APT, where the student in question was convinced that because they had altered the text of the original author, even through the use of a software tool, this was not plagiarism. However, based on the definitions provided above, given the misrepresentation that have been made, usage of this type could be seen as a relatively clear case of plagiarism by the student (Roe & Perkins, 2022). Student usage of an LLM or LLM based tool to create an entire essay, report, or other assignment without stating where this has come from, or one that is presented in a way that was trying to mislead the reader through false citations, would be even more clearly a case of plagiarism, and likely also a broader breach of academic integrity principles.

However, the picture becomes less clear if the use of LLMs in student writing has been clearly stated (Kumar, Mindzak, Eaton, et al., 2022), if any output text has been modified, edited or enhanced, or if output text has been used as a starting point for the formation of an argument. If additional scholarly work has been carried out by the student, such as the integration of the output text with the use of examples and cited sources, then this complicates the situation further. If the work carried out by a student hasn't been misrepresented, then it does not fall under the strict



definition of plagiarism, but it may be considered as academic misconduct depending on the specific policies and regulations in place at individual HEIs. HEIs must therefore be clear in both their policies and practices in clarifying how these tools may be used by students. The difficulty in establishing these policies is even more challenging if we consider the use of LLMs as a tool for student cognitive offloading.

### **Cognitive offloading**

If student use of LLMs could be considered to be academic misconduct if their use isn't clearly identified, to what extent should we expect a student to state whether they have used LLMs in the creation of their work? It would be unrealistic to expect a student to identify every sentence which has been modified using a spelling or grammar checker, every reference which has been generated by a reference manager, or even any sentences which were completed by the built-in features of DWAs or Microsoft Word's write-ahead function. As Microsoft have signed an exclusive agreement with OpenAI to use GPT-3 and integrate these into Microsoft's Azure platform (Langston, 2021), it is highly likely that LLMs will be integrated more deeply into suites of products that are often provided to students by HEIs in the future (Dale & Viethen, 2021).

Therefore, we may consider LLMs as another potential tool for reducing the cognitive demands required by a task, described by Risko and Gilbert (2016) as a process called cognitive offloading. Dawson (2020) has described how assessment tasks can be developed in a way which makes the use of any such cognitive offloading tools transparent, and a specific usage of LLMs as an example of this is discussed by Dawson (2022, as cited in Sparrow, 2022).

Where then, should this distinction be drawn? Given that many of the more advanced DWAs have multiple features available to students which already claim to integrate AI technologies, it is feasible to believe that a student could very easily and inadvertently breach any policies related to their 'correct' usage, especially when LLMs become even more deeply integrated into DWAs. This already appears to be the case in the example of one DWA called Write Full: a full-service DWA which has integrated paraphrasing tools which may encourage students to use the work of others as inputs, rather than their own writing. Adding LLM based features to the next generation of DWAs to suggest additional points for students to consider, and even offering to write 'suggested' text is a very feasible next step for developers wishing to retain an edge over their competitors in this emerging market.

### **Plagiarism or Academic Misconduct?**

Overall, it is highly challenging to unpick the complexities surrounding student usage of LLMs and tools integrating these, and to make ethical judgements as to whether their use may be considered acceptable or not. Kumar (2022) examines how the use of LLMs may be considered from a range of ethical perspectives, and the broader ethical concerns related to LLMs are considered by Luitse and Denkena (2021), but critical questions remain as to how their use may be encouraged or discouraged on a policy level by HEIs.

Based on the analysis above, we conclude that the use of LLMs or LLM based tools should not be considered as plagiarism or a breach of academic integrity if how these tools have been used is stated clearly and made transparent by students. However, given the significantly more advanced capability of LLM based tools to create new content (as opposed to the refinement of existing content) HEIs must be aware of the potential danger of learning outcomes not being met if LLMs are being used to develop content, rather than this being created by students themselves.

## LLM use cases in the classroom: Digital writing and beyond

As discussed above, there are significant academic integrity concerns related to how HEIs must adapt to the potential use of these AI tools in student submissions. However, research has highlighted several legitimate use cases of AI technologies integrated into digital tools which can support in the education of students. These include specific use cases by students in writing and composition classes and in the development of creative outputs, and also how academic staff may integrate these tools in the areas of supporting EFL learners and improving Automated Writing Evaluation (AWE).

### Writing and composition

McKnight (2021) highlights the specific challenges of integrating AI into the teaching of writing and composition, and proposes that composition teachers working with AI should guide students in:

*‘..when it is appropriate to incorporate AI in writing projects, what the affordances and constraints of different versions of AI might be, whether and how to acknowledge the role of AI, and what dimensions humans can contribute beyond the efficiency of machines.’*

(McKnight, 2021, p. 11).

Using LLMs in the teaching of digital writing therefore becomes a method to support writers in engaging more deeply with a topic, rather than at a surface level. McKnight (2021) discusses how the integration of LLMs into student writing has the potential to encourage new modes of thinking, but that this must be done with consideration as to how AI writing might be used in the future workplace.

Writing inputs and adjusting model parameters for LLMs in a way that results in legible, usable text is a specific technical skill which could also be integrated into writing instruction sessions. Doing so would allow students to improve their meta-linguistic knowledge around a topic (Godwin-Jones, 2022) and therefore improve their potential skills in writing in specific areas.

McKnight (2021) and Anson (2022) both recognise the importance of training students in how LLMs be used as a form of writing co-creation, as well as discussing when this may or may not be appropriate. Taking this approach would require the development of clear policies on both a programme and institutional level to clarify to students exactly how this may be done in student work, and the level of reporting required to avoid any breaches of academic misconduct policies. Limits regarding how much of the end output must be the student’s own work as opposed to that of an AI tool could also be provided to help support students in how to use these tools in an acceptable way.

However, there have already been concerns raised from writers who believe that co-writing with the current generation of LLMs presents significant barriers regarding the control of the writing process (Biermann et al., 2022), and this highlights the further explorations required in the field of human-AI co-creation to better understand the future needs of the writing classroom.

### Creative outputs

LLMs have a demonstrated capability in not only traditional writing activities, but also for creative works such as poetry (Gunser et al., 2021; Köbis & Mossink, 2021) and computer programming (Biderman & Raff, 2022). Other tools also produced by OpenAI include the Dall-E 2 AI system

which is able to create and edit detailed digital artwork based on natural language prompts provided by users (OpenAi, n.d.)

As an increasing amount of textual and creative outputs are being co-created by humans and AI based technologies, there is ongoing research exploring how the intricacies of co-creation may be further be codified and explored in the fields of creative writing (M. Lee et al., 2022; Y. Lee et al., 2022), software development (Biderman & Raff, 2022) and artistic outputs (Oppenlaender, 2022). Any such co-creation also raises concerns related to copyright (Dehouche, 2021) and how these systems can be more transparent, fair, and accountable (Fröhling & Zubiaga, 2021; Oppenlaender, 2022).

### **Use cases by academic staff to support students**

Deciding how to identify what is acceptable use of these tools in relation to student submissions of any writing or creative outputs will be a major challenge for HEIs. Using the definitions related to plagiarism and academic integrity discussed above, if the use of AI tools is made clear in any submission of work by a student, the use cases above could not be considered as plagiarism. However, this does highlight again how HEIs must ensure that any academic integrity policies are explicit in how these tools may be used, as opposed to a simple blanket ban on their use, especially considering the broader benefits that these tools may provide in the areas of supporting EFL learners and in AWE.

### **Supporting EFL learners**

HEIs must also consider how AI based tools are used in language training for EFL students before they enter their main academic programmes. Chen et al., (2015) describe the use of a corpus based software program similar to an APT to support Chinese students in their study of English. Although this tool does not claim to use AI technology, it introduces students to a digital method which may be used through trial and error to create better textual outputs in their paraphrasing. Gayed et al., (2022) demonstrate how an LLM tool based on GPT-2 can be helpful for EFL students writing English by suggesting predictions which expands on the more basic support offered by existing writing tools. Their study suggested that this tool could support in improving the lexical diversity of student work, but statistically significant results were not obtained.

These studies highlight the specific need for education of students on any policies which discourage the use of these tools on core academic programmes. If students are trained on these tools in pre-university language programmes, and then move into their main studies, it is easy to see that students would expect that they would be able to continue using them. This is especially important given the increased risks of academic misconduct occurring in students with lower English language abilities (Perkins et al., 2018). Therefore, it is clear that academic integrity policies needs to be context sensitive (Price, 2002) as students transition throughout their studies and recognise the needs of different groups of students, especially 'international' students (Fatemi & Saito, 2020).

### **Automated Writing Evaluation (AWE)**

Using software tools to support in AWE of written text and providing feedback to students has been demonstrated to be of benefit to writing instructors and students alike (Fu et al., 2022; Strobl et al., 2019; Warschauer & Grimes, 2008). The further development of LLMs may improve this, especially if this integrated into custom tools to support in AWE (Lim et al., 2022), or DWAs such as Grammarly (Godwin-Jones, 2022). Although Grammarly uses its own AI supported tool to correct mistakes in grammar and rather than relying on existing LLM transformers (Grammarly,

2022) the use of LLMs in these tools can particularly reduce the burden on EFL instructors (Godwin-Jones, 2022).

Some of the recognised shortcomings of present AWE tools are the generic nature of the feedback provided (Fu et al., 2022) and an inability to focus feedback on how well a task has been addressed (Allen et al., 2016). The new capabilities of ChatGPT to provide effective critique on creative writing, equivalent to that of human reviewers (Furze, 2022), suggests that these shortcomings may be addressed by LLM based tools.

## **Can the use of LLMs be detected by academic staff?**

Any actions that HEIs could choose to take against students who use these tools in an unacceptable manner can only be carried out if the outputs of these tools can be identified as such by academic staff responsible for the evaluation of student work. We review the current evidence evaluating how possible this is.

### **GPT-2 studies**

Abd-Elaal et al., (2022) present a study highlighting the difficulty that academic staff may have in identifying output produced by LLMs, and the role that training may play in supporting in the correct identification of the usage of any such tools. Their results indicate that on average, participants were able to correctly identify sample text as generated by either a human or an LLM at a rate of 59.5%, barely higher than chance alone. Although it is encouraging to note that training of academic staff resulted in an increased ability of academic staff to correctly identify the text sections, the samples were generated using GPT-2 as opposed to GPT-3.

A similar lack of identification ability has been found in creative outputs. Köbis & Mossink (2021) found that GPT-2 created poems could not be reliably identified as such when the authors selected the best outputs created by an LLM, and Gunser et al. (2021) found that poem continuations could not always be correctly identified by professionals with a literature-specific background as machine or human written.

### **GPT-3 studies**

Studies assessing the ability of GPT-3 produced output show that as more complex LLMs are used, the ability of humans to detect material drops even further. Kumar et al. (2022) presents preliminary work aimed at identifying whether study participants drawn from a range of backgrounds were able to identify whether text was developed by humans or by GPT-3. They found that regardless of background, participants found this to be a challenging task, with a high likelihood of ascribing the AI writing samples to humans. Although this study was not focused on how academic staff may identify machine created output, it highlights the challenges present in both the academy and beyond when it comes to identifying authorship of text.

Clark et al. (2021) also assessed the ability of non-expert evaluators to identify whether text was produced by a human, or a LLM (GPT-2 and GPT-3), but used a large sample (n=780) accessed through the Amazon Mechanical Turk platform. Their results showed that evaluators were able to identify GPT-2 produced text at an accuracy rate of 57.9%, but GPT-3 at a rate of only 49.9%. Providing training to participants using examples of LLM generated text (specifically to demonstrate the ability of LLMs to produce 'creative' output) marginally increased the ability of participants to correctly identify text as machine created. These studies highlight the rapid

improvements of LLMs to create text that cannot be easily identified by study participants as machine created.

### **Methodological concerns**

An unavoidable methodological issue with these experimental studies is that in order to determine whether participants can accurately identify text as machine or human generated, participants need to be aware that some of the text they are about to encounter may be machine generated before participating in an experiment. Given the novelty of these tools, it is likely that even experienced academic staff are simply not aware of the capabilities that these tools have, as demonstrated with the participants in Clark et al.'s study (2021). This may result in their ability to identify any LLM produced output 'in situ' when evaluating work being even lower than demonstrated in an experimental design.

However, given the limited amount of empirical evidence available, and the potential significant threats that LLMs pose to academic integrity, further research is needed in this area to support HEIs in understanding how academic staff may be trained or supported to detect the use of AI tools in student work.

### **Technological methods of detection**

Technological methods to identify text generated by LLMs have been proposed by Gehrman et al. (2019) who present the results of a study using a tool named GLTR. This study demonstrates that using GLTR can improve the ability of participants to correctly identify detection of machine generated content from 54% to 74%. However, this tool was tested against GPT-2 produced output and used students rather than academic staff as their participants. Solaiman et al. (2019) and Ippolito et al.(2020) also both present tools which showed an encouraging ability in detecting machine created text, although these tools were not tested against the latest generation of LLMs.

Fröhling & Zubiaga (2021) present a promising low cost detection model which is able to accurately detect machine created text created using GPT-2 and GPT-3, but highlight the ethical challenges of deploying any such detectors which may potentially discriminate against EFL students by incorrectly identifying human created text as machine written —a particular concern in HEIs with a high concentration of non-native English speaking students. While these results do show promise for the potential future possibilities of software to support in the identification of LLM produced output, Bidermann and Raff (2022) have already demonstrated how more advanced models (GPT-J) can fool machine detection programmes such as MOSS. This suggest that tools using more advanced LLMs may be even less detectable by technological means.

Following the increased interest from the general public and academics alike in AI assisted writing after the release of ChatGPT in November 2022, individuals and organisations have either released, or have announced the imminent release of tools which claim to have the ability to detect AI generated text. These tools include GPTZero (<https://gptzero.me/>) and Crossplag AI detect (<https://crossplag.com/ai-content-detector/>) and do show promise in being able to detect the use of AI generated text. However, further study is required to identify the accuracy of these tools, as well as their suitability for use in academic settings to avoid inadvertently accusing students of potential breaches of academic misconduct. Any tools used to support in the machine detection of LLM output must be continually re-evaluated as new LLMs emerge, as well as methods to avoid detection of any tools are developed, resulting in an ongoing 'arms race' scenario (Roe & Perkins, 2022).

Given that both academic staff, as well as technological methods of detection are unable to accurately detect machine generated text and therefore student uses of LLM based tools, this presents a clear threat to academic integrity for HEIs, requiring a range of adjustments to be made in both practice and policy.

## **Academic integrity policy adjustments**

Although a certain amount of cognitive offloading using DWAs and other digital tools may be considered acceptable by HEIs, there needs to be careful development of the academic integrity policies of HEIs to clarify how LLMs based tools may be used by students, and whether their use may be considered as academic misconduct.

Academic integrity policies must recognise these tools by name to make it clear to students and staff that the HEI is aware of this technology and how it may be used by students and staff. Any limits to their use, or statements which students should provide if these tools are used should be stated and unambiguous. Specific examples of acceptable and unacceptable usage should be provided to improve the understanding of students, as well as staff involved in any academic misconduct decisions. The final policy should also be widely communicated to students and staff, with training given to support whichever approach is taken.

Given that existing research has demonstrated that academic staff are unlikely to be able to accurately identify the usage of LLMs in student work, a blanket ban of these tools is likely unenforceable. This lack of enforceability, coupled with the clear benefits that these tools may bring to the education of certain groups of students, means that an approach which seeks to completely ban the usage of LLM based tools is therefore not recommended. A policy approach which may be more suitable could instead have a more nuanced approach which recognises the potential benefits that LLMs may bring, the evolving social understanding of plagiarism, and the changing nature of digital writing and human-AI co-creation.

## **Conclusion**

What we as academic staff define as plagiarism is rapidly changing due to the social construction of this term (Anson, 2022). Although evidence suggests that plagiarism overall has decreased between 1990 and 2020 (Curtis, 2022), the COVID-19 pandemic has caused an increase in both the detected number of academic dishonesty cases (Henderson et al., 2022; Jenkins et al., 2022; Lancaster & Cotarlan, 2021), as well as increases in student or academic staff perceptions of academic dishonesty occurring (Amzalag et al., 2021; Reedy et al., 2021; Walsh et al., 2021). This paper has explored a rapidly developing new category of digital tools which are of concern if we wish to maintain academic integrity in a post-pandemic world: AI based Large Language Models and associated tools and software.

We have identified how LLMs can produce coherent, original text that students may potentially use in assessments, and conclude that LLMs have already progressed to the point that neither trained academic staff or technological tools can consistently determine whether text is generated by an LLM or by a human.

Deciding whether any particular use of LLMs by students may be defined as academic misconduct will be determined by the future policies of any given HEI, and this highlights the importance of creating clear academic integrity policies and educating students in any acceptable use cases of LLMs. Although we have identified the potential ways that LLMs can support in digital writing and

beyond, the inability to accurately detect whether LLMs have been used presents a clear threat to the academic integrity of HEIs. However, it is not the use of the tools themselves that defines whether plagiarism or a breach of academic integrity has occurred, but whether any such use is made clear.

Although it is unlikely that AI will ever take over the traditional role of a teacher (Cope et al., 2021), the future development of LLMs and broader AI supported digital tools have a strong potential for improving the experiences of students and teachers alike in the next generation of HEI classrooms, both in writing instruction and beyond. This view is echoed by Godwin-Jones (2022) who highlight the possible co-creation role that these systems may have to play in future educational scenarios. It is clear from the studies presented in this paper that there are significant challenges still left to address in this rapidly developing area. Given that the use of the current generation of LLMs cannot be accurately detected by academic staff or technical means of detection, the likelihood of accurately detecting any usage of these tools by students in their submissions typical academic will likely not improve and may even decrease further as new LLMs are developed.

This situation, coupled with the identified difficulties in determining whether we can even consider the use of such tools to be a breach of academic integrity, and the potential benefits of LLM based tools means that a blanket ban of these tools at an institutional level is neither feasible, nor enforceable. Despite the potential threats to academic integrity presented in the paper, we believe that the future integration of LLMs and other AI supported digital tools into the classroom environment is highly likely, and therefore HEIs must consider the implications of this in future policy development.

## References

- Abd-Elaal, E.-S., Gamage, S. H., & Mills, J. E. (2022). Assisting academics to identify computer generated writing. *European Journal of Engineering Education*, 1–21.  
<https://doi.org/10.1080/03043797.2022.2046709>
- Alarie, B., & Cockfield, A. (2021). Will machines replace us?: Machine-authored texts and the future of scholarship. *Law, Technology and Humans*, 3(2), 5–11.  
<https://doi.org/10.5204/lthj.2089>
- Allen, L. K., Jacovina, M. E., & McNamara, D. S. (2016). Computer-Based Writing Instruction. In *Handbook of writing research* (Second edition, pp. 316–329). Guildford.
- Amigud, A. (2020). Cheaters on Twitter: An analysis of engagement approaches of contract cheating services. *Studies in Higher Education*, 45(3), 692–705.  
<https://doi.org/10.1080/03075079.2018.1564258>
- Amzalag, M., Shapira, N., & Dolev, N. (2021). Two Sides of the Coin: Lack of Academic Integrity in Exams During the Corona Pandemic, Students' and Lecturers' Perceptions. *Journal of Academic Ethics*. <https://doi.org/10.1007/s10805-021-09413-5>
- Anson, C. M. (2022). AI-Based Text Generation and the Social Construction of “Fraudulent Authorship”: A Revisitation. *Composition Studies*, 50, 37–46.  
<https://compositionstudiesjournal.files.wordpress.com/2022/07/anson.pdf>
- Biderman, S., & Raff, E. (2022). *Fooling MOSS Detection with Pretrained Language Models* (arXiv:2201.07406). arXiv. <https://doi.org/10.48550/arXiv.2201.07406>
- Biermann, O. C., Ma, N. F., & Yoon, D. (2022). From Tool to Companion: Storywriters Want AI Writers to Respect Their Personal Values and Writing Strategies. *Designing Interactive Systems Conference*, 1209–1227. <https://doi.org/10.1145/3532106.3533506>
- Bommasani, R., Hudson, D. A., Adeli, E., Altman, R., Arora, S., von Arx, S., Bernstein, M. S., Bohg, J., Bosselut, A., Brunskill, E., Brynjolfsson, E., Buch, S., Card, D., Castellon, R., Chatterji, N., Chen, A., Creel, K., Davis, J. Q., Demszky, D., ... Liang, P. (2022). *On the Opportunities and Risks of Foundation Models* (arXiv:2108.07258). arXiv.  
<http://arxiv.org/abs/2108.07258>
- Brockman, G. [@gdb]. (2022, December 5). *ChatGPT just crossed 1 million users; it's been 5 days since launch.* [Tweet]. Twitter.  
<https://twitter.com/gdb/status/1599683104142430208>
- Cavaleri, M. R., & Dianati, S. (2016). You want me to check your grammar again? The usefulness of an online grammar checker as perceived by students. *Journal of Academic Language and Learning*, 10(1), Article 1.  
<https://journal.aall.org.au/index.php/jall/article/view/393>



- Chen, M.-H., Huang, S.-T., Chang, J. S., & Liou, H.-C. (2015). Developing a corpus-based paraphrase tool to improve EFL learners' writing skills. *Computer Assisted Language Learning*, 28(1), 22–40. <https://doi.org/10.1080/09588221.2013.783873>
- Clark, E., August, T., Serrano, S., Haduong, N., Gururangan, S., & Smith, N. A. (2021). All That's `Human' Is Not Gold: Evaluating Human Evaluation of Generated Text. *Proceedings of the 59th Annual Meeting of the Association for Computational Linguistics and the 11th International Joint Conference on Natural Language Processing (Volume 1: Long Papers)*, 7282–7296. <https://doi.org/10.18653/v1/2021.acl-long.565>
- Clarke, O., Chan, W. Y. D., Bukuru, S., Logan, J., & Wong, R. (2022). Assessing knowledge of and attitudes towards plagiarism and ability to recognize plagiaristic writing among university students in Rwanda. *Higher Education*. <https://doi.org/10.1007/s10734-022-00830-y>
- Cope, B., Kalantzis, M., & Searsmith, D. (2021). Artificial intelligence for education: Knowledge and its assessment in AI-enabled learning ecologies. *Educational Philosophy and Theory*, 53(12), 1229–1245. <https://doi.org/10.1080/00131857.2020.1728732>
- Curtis, G. J. (2022). Trends in plagiarism and cheating prevalence: 1990-2020 and beyond. In D. Rettinger & T. Bertram Gallant (Eds.), *Cheating academic integrity* (pp. 11–44). Jossey-Bass. <https://www.wiley.com/en-au/Cheating+Academic+Integrity%3A+Lessons+from+30+Years+of+Research-p-9781119868170>
- Dale, R. (2021). GPT-3: What's it good for? *Natural Language Engineering*, 27(1), 113–118. <https://doi.org/10.1017/S1351324920000601>
- Dale, R., & Viethen, J. (2021). The automated writing assistance landscape in 2021. *Natural Language Engineering*, 27(4), 511–518. <https://doi.org/10.1017/S1351324921000164>
- Dawson, P. (2020). Cognitive Offloading and Assessment. In M. Bearman, P. Dawson, R. Ajjawi, J. Tai, & D. Boud (Eds.), *Re-imagining University Assessment in a Digital World* (pp. 37–48). Springer International Publishing. [https://doi.org/10.1007/978-3-030-41956-1\\_4](https://doi.org/10.1007/978-3-030-41956-1_4)
- Dehouche, N. (2021). Plagiarism in the age of massive Generative Pre-trained Transformers (GPT-3). *Ethics in Science and Environmental Politics*, 21, 17–23. <https://doi.org/10.3354/ese00195>
- Dinneen, C. (2021). Students' use of digital translation and paraphrasing tools in written assignments on Direct Entry English Programs. *English Australia Journal*, 37(1), 40–51. <https://doi.org/10.3316/informit.748262877947586>

- Eaton, S. E., Mindzak, M., & Morrison, R. (2021, June 29). *Artificial Intelligence, Algorithmic Writing & Educational Ethics*. Canadian Society for the Study of Education, Edmonton, AB, Canada. Werklund School of Education. <https://tinyurl.com/222yctbb>
- Fatemi, G., & Saito, E. (2020). Unintentional plagiarism and academic integrity: The challenges and needs of postgraduate international students in Australia. *Journal of Further and Higher Education*, 44(10), 1305–1319. <https://doi.org/10.1080/0309877X.2019.1683521>
- Fitria, T. N. (2021). Grammarly as AI-powered English Writing Assistant: Students' Alternative for Writing English. *Metathesis: Journal of English Language, Literature, and Teaching*, 5(1), Article 1. <https://doi.org/10.31002/metathesis.v5i1.3519>
- Fröhling, L., & Zubiaga, A. (2021). Feature-based detection of automated language models: Tackling GPT-2, GPT-3 and Grover. *PeerJ Computer Science*, 7, e443. <https://doi.org/10.7717/peerj-cs.443>
- Fu, Q.-K., Zou, D., Xie, H., & Cheng, G. (2022). A review of AWE feedback: Types, learning outcomes, and implications. *Computer Assisted Language Learning*, 0(0), 1–43. <https://doi.org/10.1080/09588221.2022.2033787>
- Furze, L. (2022, December 6). Can an AI critique human writing? *Leon Furze*. <https://leonfurze.com/2022/12/06/can-an-ai-critique-human-writing/>
- Gayed, J. M., Carlon, M. K. J., Oriola, A. M., & Cross, J. S. (2022). Exploring an AI-based writing Assistant's impact on English language learners. *Computers and Education: Artificial Intelligence*, 3, 100055. <https://doi.org/10.1016/j.caeai.2022.100055>
- Gehrmann, S., Strobelt, H., & Rush, A. M. (2019). *GLTR: Statistical Detection and Visualization of Generated Text* (arXiv:1906.04043). arXiv. <https://doi.org/10.48550/arXiv.1906.04043>
- Godwin-Jones, R. (2022). Partnering with AI: Intelligent writing assistance and instructed language learning. *Language Learning & Technology*, 26(2), 5–24. <https://doi.org/10125/73474>
- Grammarly. (2022, August 29). *Innovating the Basics: Achieving Superior Precision and Recall in Grammatical Error Correction*. Grammarly Engineering Blog. <https://www.grammarly.com/blog/engineering/innovating-the-basics/>
- Grijalva, T. C., Kerkvliet, J., & Nowell, C. (2006). Academic honesty and online courses. *College Student Journal*, 40(1), Article 1. <https://tinyurl.com/3beej9bb>
- Gunser, V. E., Gottschling, S., Brucker, B., Richter, S., & Gerjets, P. (2021). Can Users Distinguish Narrative Texts Written by an Artificial Intelligence Writing Tool from Purely Human Text? *International Conference on Human-Computer Interaction*, 520–527. [https://doi.org/10.1007/978-3-030-78635-9\\_67](https://doi.org/10.1007/978-3-030-78635-9_67)

- Henderson, M., Chung, J., Awdry, R., Mundy, M., Bryant, M., Ashford, C., & Ryan, K. (2022). Factors associated with online examination cheating. *Assessment & Evaluation in Higher Education*, 0(0), 1–15. <https://doi.org/10.1080/02602938.2022.2144802>
- Hern, A. (2022, December 4). AI bot ChatGPT stuns academics with essay-writing skills and usability. *The Guardian*. <https://www.theguardian.com/technology/2022/dec/04/ai-bot-chatgpt-stuns-academics-with-essay-writing-skills-and-usability>
- Hutson, M. (2022). Could AI help you to write your next paper? *Nature*, 611(7934), 192–193. <https://doi.org/10.1038/d41586-022-03479-w>
- Ippolito, D., Duckworth, D., Callison-Burch, C., & Eck, D. (2020). *Automatic Detection of Generated Text is Easiest when Humans are Fooled* (arXiv:1911.00650). arXiv. <https://doi.org/10.48550/arXiv.1911.00650>
- Jenkins, B. D., Golding, J. M., Le Grand, A. M., Levi, M. M., & Pals, A. M. (2022). When Opportunity Knocks: College Students' Cheating Amid the COVID-19 Pandemic. *Teaching of Psychology*, 00986283211059067. <https://doi.org/10.1177/00986283211059067>
- Kaqinari, T., Makarova, E., Audran, J., Döring, A. K., Göbel, K., & Kern, D. (2021). The switch to online teaching during the first COVID-19 lockdown: A comparative study at four European universities. *Journal of University Teaching & Learning Practice*, 18(5). <https://doi.org/10.53761/1.18.5.10>
- Köbis, N., & Mossink, L. D. (2021). Artificial intelligence versus Maya Angelou: Experimental evidence that people cannot differentiate AI-generated from human-written poetry. *Computers in Human Behavior*, 114, 106553. <https://doi.org/10.1016/j.chb.2020.106553>
- Kozma, R. B. (1991). Computer-based writing tools and the cognitive needs of novice writers. *Computers and Composition*, 8(2), 31–45. [https://doi.org/10.1016/8755-4615\(91\)80046-G](https://doi.org/10.1016/8755-4615(91)80046-G)
- Kumar, R., Mindzak, M., Eaton, S. E., & Morrison, R. (2022). *AI & AI: Exploring the contemporary intersections of artificial intelligence and academic integrity*. Canadian Society for the Study of Higher Education Annual Conference, Online. Werklund School of Education. <https://tinyurl.com/ycknz8fd>
- Kumar, R., Mindzak, M., & Racz, R. (2022). *Who Wrote This? The Use of Artificial Intelligence in the Academy*. <http://hdl.handle.net/10464/16532>
- Lancaster, T., & Cotarlan, C. (2021). Contract cheating by STEM students through a file sharing website: A Covid-19 pandemic perspective. *International Journal for Educational Integrity*, 17(1), Article 1. <https://doi.org/10.1007/s40979-021-00070-0>

- Langston, J. (2021, November 2). *New Azure OpenAI Service combines access to powerful GPT-3 language models with Azure's enterprise capabilities*. The AI Blog. <https://blogs.microsoft.com/ai/new-azure-openai-service/>
- Lanier, M. M. (2006). Academic Integrity and Distance Learning. *Journal of Criminal Justice Education*, 17(2), Article 2. <https://doi.org/10.1080/10511250600866166>
- Lee, M., Liang, P., & Yang, Q. (2022). CoAuthor: Designing a Human-AI Collaborative Writing Dataset for Exploring Language Model Capabilities. *CHI Conference on Human Factors in Computing Systems*, 1–19. <https://doi.org/10.1145/3491102.3502030>
- Lee, Y., Kim, T. S., Chang, M., & Kim, J. (2022). Interactive Children's Story Rewriting Through Parent-Children Interaction. *Proceedings of the First Workshop on Intelligent and Interactive Writing Assistants (In2Writing 2022)*, 62–71. <https://doi.org/10.18653/v1/2022.in2writing-1.9>
- Lim, K., Song, J., & Park, J. (2022). Neural automated writing evaluation for Korean L2 writing. *Natural Language Engineering*, 1–23. <https://doi.org/10.1017/S1351324922000298>
- Lin, S., Hilton, J., & Evans, O. (2022). *Teaching Models to Express Their Uncertainty in Words* (arXiv:2205.14334). arXiv. <https://doi.org/10.48550/arXiv.2205.14334>
- Luitse, D., & Denkena, W. (2021). The great Transformer: Examining the role of large language models in the political economy of AI. *Big Data & Society*, 8(2), 20539517211047736. <https://doi.org/10.1177/20539517211047734>
- Malesky, L. A., Baley, J., & Crow, R. (2016). Academic Dishonesty: Assessing the Threat of Cheating Companies to Online Education. *College Teaching*, 64(4), 178–183. <https://doi.org/10.1080/87567555.2015.1133558>
- Marche, S. (2022, December 6). *The College Essay Is Dead*. The Atlantic. <https://www.theatlantic.com/technology/archive/2022/12/chatgpt-ai-writing-college-student-essays/672371/>
- McKnight, L. (2021). Electric Sheep? Humans, Robots, Artificial Intelligence, and the Future of Writing. *Changing English*, 28(4), 442–455. <https://doi.org/10.1080/1358684X.2021.1941768>
- Miller, A., & Young-Jones, A. D. (2012). Academic integrity: Online classes compared to face-to-face classes. *Journal of Instructional Psychology*, 39(3–4), Article 3–4. <https://tinyurl.com/mrxnp9zy>
- Nazari, N., Shabbir, M. S., & Setiawan, R. (2021). Application of Artificial Intelligence powered digital writing assistant in higher education: Randomized controlled trial. *Heliyon*, 7(5), e07014. <https://doi.org/10.1016/j.heliyon.2021.e07014>

- Nobles, S., & Paganucci, L. (2015). Do Digital Writing Tools Deliver? Student Perceptions of Writing Quality Using Digital Tools and Online Writing Environments. *Computers and Composition*, 38, 16–31. <https://doi.org/10.1016/j.compcom.2015.09.001>
- ONeill, R., & Russell, A. (2019). Stop! Grammar time: University students' perceptions of the automated feedback program Grammarly. *Australasian Journal of Educational Technology*, 35(1), Article 1. <https://doi.org/10.14742/ajet.3795>
- OpenAI. (n.d.). *ChatGPT*. Retrieved 21 December 2022, from <https://chat.openai.com>
- OpenAi. (n.d.). *DALL·E 2*. DALL·E 2. Retrieved 25 November 2022, from <https://openai.com/dall-e-2/>
- OpenAI. (2022, November 30). *ChatGPT: Optimizing Language Models for Dialogue*. OpenAI. <https://openai.com/blog/chatgpt/>
- Oppenlaender, J. (2022). *A Taxonomy of Prompt Modifiers for Text-To-Image Generation* (arXiv:2204.13988). arXiv. <https://doi.org/10.48550/arXiv.2204.13988>
- Palmquist, M. (2003). A brief history of computer support for writing centers and writing-across-the-curriculum programs. *Computers and Composition*, 20(4), 395–413. <https://doi.org/10.1016/j.compcom.2003.08.013>
- Park, J.-H., & Yang, I. Y. (2020). Utilizing an AI-Based Grammar Checker in an EFL Writing Classroom. *Academic Journal of Applied Linguistics*, 36(1), 97–120. <https://doi.org/10.17154/kjal.2020.3.36.1.97>
- Parkinson, A. L., Hatje, E., Kynn, M., Kuballa, A. V., Donkin, R., & Reinke, N. B. (2022). Collusion is still a tricky topic: Student perspectives of academic integrity using assessment-specific examples in a science subject. *Assessment & Evaluation in Higher Education*, 47(8), 1416–1428. <https://doi.org/10.1080/02602938.2022.2040947>
- Perkins, M., Basar Gezgin, U., & Gordon, R. (2019). Plagiarism in higher education: Classification, causes and controls. *Pan-Pacific Management Science*, 2, 3–21. <https://doi.org/10.13140/RG.2.2.20694.11841>
- Perkins, M., Gezgin, U. B., & Roe, J. (2018). Understanding the Relationship between Language Ability and Plagiarism in Non-Native English Speaking Business Students. *Journal of Academic Ethics*, 16(4), Article 4. <https://doi.org/10.1007/s10805-018-9311-8>
- Prentice, F. M., & Kinden, C. E. (2018). Paraphrasing tools, language translation tools and plagiarism: An exploratory study. *International Journal for Educational Integrity*, 14(1), 11. <https://doi.org/10.1007/s40979-018-0036-7>
- Price, M. (2002). Beyond 'Gotcha!': Situating Plagiarism in Policy and Pedagogy. *College Composition and Communication*, 54(1), 88–115. <https://doi.org/10.2307/1512103>

- QuillBot. (n.d.-a). *Can I use QuillBot for plagiarism?* QuillBot Help Center. Retrieved 16 November 2022, from <https://help.quillbot.com/hc/en-us/articles/1500007485841-Can-I-use-QuillBot-for-plagiarism->
- QuillBot. (n.d.-b). *Is using a paraphrasing tool plagiarizing?* QuillBot Help Center. Retrieved 16 November 2022, from <https://help.quillbot.com/hc/en-us/articles/4408075614103-Is-using-a-paraphrasing-tool-plagiarizing->
- Rapanta, C., Botturi, L., Goodyear, P., Guàrdia, L., & Koole, M. (2021). Balancing Technology, Pedagogy and the New Normal: Post-pandemic Challenges for Higher Education. *Postdigital Science and Education*, 3(3), 715–742. <https://doi.org/10.1007/s42438-021-00249-1>
- Reedy, A., Pfitzner, D., Rook, L., & Ellis, L. (2021). Responding to the COVID-19 emergency: Student and academic staff perceptions of academic integrity in the transition to online exams at three Australian universities. *International Journal for Educational Integrity*, 17(1), Article 1. <https://doi.org/10.1007/s40979-021-00075-9>
- Risko, E. F., & Gilbert, S. J. (2016). Cognitive Offloading. *Trends in Cognitive Sciences*, 20(9), 676–688. <https://doi.org/10.1016/j.tics.2016.07.002>
- Roe, J., & Perkins, M. (2022). What are Automated Paraphrasing Tools and how do we address them? A review of a growing threat to academic integrity. *International Journal for Educational Integrity*, 18(1), Article 1. <https://doi.org/10.1007/s40979-022-00109-w>
- Rogerson, A. M., & McCarthy, G. (2017). Using Internet based paraphrasing tools: Original work, patchwriting or facilitated plagiarism? *International Journal for Educational Integrity*, 13(1), 2. <https://doi.org/10.1007/s40979-016-0013-y>
- Sanh, V., Webson, A., Raffel, C., Bach, S. H., Sutawika, L., Alyafeai, Z., Chaffin, A., Stiegler, A., Scao, T. L., Raja, A., Dey, M., Bari, M. S., Xu, C., Thakker, U., Sharma, S. S., Szczechla, E., Kim, T., Chhablani, G., Nayak, N., ... Rush, A. M. (2022). *Multitask Prompted Training Enables Zero-Shot Task Generalization* (arXiv:2110.08207). arXiv. <https://doi.org/10.48550/arXiv.2110.08207>
- Solaiman, I., Brundage, M., Clark, J., Askill, A., Herbert-Voss, A., Wu, J., Radford, A., Krueger, G., Kim, J. W., Kreps, S., McCain, M., Newhouse, A., Blazakis, J., McGuffie, K., & Wang, J. (2019). *Release Strategies and the Social Impacts of Language Models* (arXiv:1908.09203). arXiv. <https://doi.org/10.48550/arXiv.1908.09203>
- Sparrow, J. (2022, November 18). 'Full-on robot writing': The artificial intelligence challenge facing universities. *The Guardian*. <https://www.theguardian.com/australia-news/2022/nov/19/full-on-robot-writing-the-artificial-intelligence-challenge-facing-universities>

- St-Onge, C., Ouellet, K., Lakhal, S., Dubé, T., & Marceau, M. (2022). COVID-19 as the tipping point for integrating e-assessment in higher education practices. *British Journal of Educational Technology*, 53(2), Article 2. <https://doi.org/10.1111/bjet.13169>
- Strobl, C., Ailhaud, E., Benetos, K., Devitt, A., Kruse, O., Proske, A., & Rapp, C. (2019). Digital support for academic writing: A review of technologies and pedagogies. *Computers & Education*, 131, 33–48. <https://doi.org/10.1016/j.compedu.2018.12.005>
- Stuber-McEwen, D., Wiseley, P., & Hoggatt, S. (2009). Point, click, and cheat: Frequency and type of academic dishonesty in the virtual classroom. *Online Journal of Distance Learning Administration*, 12(3), Article 3. <https://tinyurl.com/2awz7b7y>
- Sun, Y.-C. (2013). Do journal authors plagiarize? Using plagiarism detection software to uncover matching text across disciplines. *Journal of English for Academic Purposes*, 12(4), 264–272. <https://doi.org/10.1016/j.jeap.2013.07.002>
- Tertiary Education Quality and Standards Agency. (2020, October 28). *What is academic integrity?* Tertiary Education Quality and Standards Agency. <https://www.teqsa.gov.au/what-academic-integrity>
- Vargo, D., Zhu, L., Benwell, B., & Yan, Z. (2021). Digital technology use during COVID-19 pandemic: A rapid review. *Human Behavior and Emerging Technologies*, 3(1), 13–24. <https://doi.org/10.1002/hbe2.242>
- Vaswani, A., Shazeer, N., Parmar, N., Uszkoreit, J., Jones, L., Gomez, A. N., Kaiser, Ł., & Polosukhin, I. (2017). Attention is All you Need. *Advances in Neural Information Processing Systems*, 30. <https://proceedings.neurips.cc/paper/2017/hash/3f5ee243547dee91fbd053c1c4a845aa-Abstract.html>
- Wahle, J. P., Ruas, T., Foltýnek, T., Meuschke, N., & Gipp, B. (2022). Identifying Machine-Paraphrased Plagiarism. In M. Smits (Ed.), *Information for a Better World: Shaping the Global Future* (pp. 393–413). Springer International Publishing. [https://doi.org/10.1007/978-3-030-96957-8\\_34](https://doi.org/10.1007/978-3-030-96957-8_34)
- Wahle, J. P., Ruas, T., Kirstein, F., & Gipp, B. (2022). How Large Language Models are Transforming Machine-Paraphrased Plagiarism. *ArXiv Preprint ArXiv:2210.03568*. <https://arxiv.org/pdf/2210.03568.pdf>
- Wahle, J. P., Ruas, T., Meuschke, N., & Gipp, B. (2021). Are neural language models good plagiarists? A benchmark for neural paraphrase detection. *2021 ACM/IEEE Joint Conference on Digital Libraries (JCDL)*, 226–229. <https://doi.org/10.1109/JCDL52503.2021.00065>
- Walsh, L. L., Lichti, D. A., Zambrano-Varghese, C. M., Borgaonkar, A. D., Sodhi, J. S., Moon, S., Wester, E. R., & Callis-Duehl, K. L. (2021). Why and how science students in the

- United States think their peers cheat more frequently online: Perspectives during the COVID-19 pandemic. *International Journal for Educational Integrity*, 17(1), Article 1. <https://doi.org/10.1007/s40979-021-00089-3>
- Warschauer, M., & Grimes, D. (2008). Automated Writing Assessment in the Classroom. *Pedagogies: An International Journal*, 3(1), 22–36. <https://doi.org/10.1080/15544800701771580>
- Watson, G., & Sottile, J. (2010). Cheating in the Digital Age: Do Students Cheat More in Online Courses? *Online Journal of Distance Learning Administration*, 13(1). <https://tinyurl.com/yckenh4f>
- Wilder, N., Weßels, D., Gröpler, J., Klein, A., & Mundorf, M. (2021). Who is Responsible for Integrity in the Age of Artificial Intelligence? An Analysis Using the Example of Academic Writing. *European Conference on Academic Integrity and Plagiarism 2021*, 179–181. <https://tinyurl.com/2s4r5dyr>
- Zhang, Q., Wang, D. Y., & Voelker, G. M. (2014). DSpin: Detecting Automatically Spun Content on the Web. *Proceedings 2014 Network and Distributed System Security Symposium*. Network and Distributed System Security Symposium, San Diego, CA. <https://doi.org/10.14722/ndss.2014.23004>
- Zhang, S., Roller, S., Goyal, N., Artetxe, M., Chen, M., Chen, S., Dewan, C., Diab, M., Li, X., Lin, X. V., Mihaylov, T., Ott, M., Shleifer, S., Shuster, K., Simig, D., Koura, P. S., Sridhar, A., Wang, T., & Zettlemoyer, L. (2022). *OPT: Open Pre-trained Transformer Language Models* (arXiv:2205.01068). arXiv. <https://doi.org/10.48550/arXiv.2205.01068>
- Zhao, X. (2022). Leveraging Artificial Intelligence (AI) Technology for English Writing: Introducing Wordtune as a Digital Writing Assistant for EFL Writers. *RELC Journal*. <https://doi.org/10.1177/00336882221094089>



See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/344438723>

# CORPORATE GOVERNANCE IN EMERGING ECONOMIES: AN INDIAN INSIGHT

Article in INTERNATIONAL JOURNAL OF MANAGEMENT · October 2020

DOI: 10.34218/IJM.11.9.2020.062

CITATIONS

2

READS

95

2 authors, including:



**Jyotsna Ghildiyal Bijalwan**  
Arba Minch University

12 PUBLICATIONS 27 CITATIONS

[SEE PROFILE](#)

Some of the authors of this publication are also working on these related projects:



McGraw hill publication [View project](#)



The impact of Digital Finance on Financial Inclusion [View project](#)



---

# CORPORATE GOVERNANCE IN EMERGING ECONOMIES: AN INDIAN INSIGHT

**Dr. Rupa Khanna Malhotra**

Professor, Department of Commerce  
Graphic Era Deemed to be University, Dehradun, India

**Dr. Jyotsna Ghildiyal Bijalwan**

Assistant Professor, Department of Accounting and Finance, College of Business &  
Economics, Arba Minch University, Ethiopia, Africa

**Bijaya Laxmi Thapliyal**

Asst. Professor, Department of Commerce  
Graphic Era Hill University, Dehradun, India

## ABSTRACT

*India is emerging as one of the fastest growing economy on the global platform. Being a mixed economy it has both the public and private sector functioning but corporate governance practices of both the public and private sector firms is a constant debatable. Private sector companies are highly efficient and productive, their prime focus is on profiteering whereas socioeconomic development tops the agenda of public sector companies.*

*Corporate governance practices of both the public and private limited companies in India is the focal point of our study. It comprises of 242 firms listed on Bombay Stock Exchange (BSE) for the period of 2015 to 2019. In order to check the validity and the level of significance of the hypothesis we applied various statistical tool and tests.*

*On the basis of the results of the statistical analysis it is found that the corporate governance practices of private sector and the public sector companies are not the same. It is further observed that the corporate governance practices of public sector firms are better as compare to the private sector.*

**Keywords:** Corporate Governance, Firm Performance, Public Sector Company, Private Sector Company, Emerging Economies.

**Cite this Article:** Dr. Rupa Khanna Malhotra, Dr. Jyotsna Ghildiyal Bijalwan and Bijaya Laxmi Thapliyal, Corporate Governance in Emerging Economies: An Indian Insight, *International Journal of Management*, 11 (9), 2020, pp. 663-670.

<http://www.iaeme.com/IJM/issues.asp?JType=IJM&VType=11&IType=9>

---

## 1. INTRODUCTION

For many decades the public sector firms have been criticised for their lower productivity and bureaucracy similarly the morality of private sector is also constantly under scanner. On one hand the public sector is dedicated to societal causes on the other side the private sector's lust for money is clearly evident in the series of corporate scams around the world. Our investigation is aimed at finding the reality in the Indian context for which we have chosen both the public limited companies owned by the government and the private limited companies owned and controlled by the individuals, groups and corporate families. Corporate governance of Indian corporate sector is the kingpin of our study entire investigation revolves around it.

## 2. REVIEW OF LITERATURE

The corporate governance practices of both the public and private sector firms is a constant debatable topic among the researchers. Some find the private sector companies highly efficient and productive whereas others find public sector companies more responsible. Like (Hodges, Wright and Keasy, 1996) in their book related to the corporate governance in the public sector firms suggest that the public sector corporate governance distinguishes itself from its private sector counterpart by the considerable diversity of the objectives and management structure. The study results further suggest the need to improve the performance as well as conformance issues in the public sector governance.

(Xu and Wang, 1999) in their study related to the public sector firms in China, attempts to investigate the relationship between ownership structure and firm performance of publicly listed companies in the China within the corporate governance framework. The study results reveal that the firm performance (profitability) is either negatively correlated or uncorrelated with the fraction of state shares. It further shows that the labor productivity tends to decline as the proportion of the state share increases. It further reveals the inefficiency of the state ownership where as the empirical result further suggests that the large institutional shareholders are of great significance in any overly dispersed ownership structure.

Another study by (Mulgan, R., 2000) on comparing the accountability of public and private sectors on Australian firms shows that the private sector firms are more accountable as compared to the public sector firms in Australia. Similarly a study on private and public sector firms by (Chen, J., 2001) advocates that the private sector firms have better corporate governance system. On similar grounds Goel, P. (2018) advocated the corporate reforms and governance for the Indian companies.

In another study by (Borisova, G., et al., 2012) related to the government ownership and corporate governance in the Europe the government ownership is negatively associated with the corporate governance quality. And it further reveals that the government owned firms are poor in the corporate governance quality.

Study based on the Indian firms, by (Patibandla, M., 2006) shows that the government owned local financial institutions have lower incentives in monitoring the managers. The empirical results show that the increasing presence of private foreign institutional investors has a positive effect on the firm performance, whereas the firms depending on the government financial institutions for external finance show decline in the performance.

(Claessens, Djankov and Pohl, 1997) in their study suggest that the state owned firms are less efficient than the privately owned firms. (Megginson et al., 2004) also suggested the same.

There is very limited literature available which shows that the public sector firms have better corporate governance system better than private sector firms. Majority of the studies related to private sector and public sector firms reveals that the private sector firms have better corporate governance system. However there are some studies which advocate that the level of

transparency and disclosure is very high in public sector firms like (Eng and Mak, 2003) in their study found that the firms owned by the government i.e. Public sector firms are associated with the increased disclosure.

Yameen, M., Farhan, N. H., Tabash, M. I. (2019) in their study on Indian tourism industry found that the good governance practices of the privately owned companies was positively affecting their financial performance.

Bijalwan, J. G. ,Bijalwan, A , Amare, L (2019).. in their research on Indian firms suggested that the firms with good governance practices perform good and the public sector companies have better corporate governance implementation in India.

In order to come out of this dilemma we have classified the ownership structure of the firms into public sector and private sector and performed the empirical analysis to check the individual performance of both the sectors in the Indian context. This facilitated us the stronger grounds for comparison of corporate governance system between the private sector companies and public sector companies. On the basis of the review of literature and for backing our claim more scientifically we have developed a null hypotheses as mentioned below

H<sub>01</sub> - There is no significant difference between corporate governance of public and private sector companies.

### 3. METHODOLOGY

The study is based on 242 firms enlisted on stock exchange of Mumbai popularly known as BSE for a time period of 2015 to 2019. Random purposive sampling technique is used for taking the sample for the study. In order to derive the adequate sample size Cohen's formulae was utilised.

$$\text{Cohen's } d = (M_2 - M_1) / SD_{\text{pooled}}$$

Where,

$$SD_{\text{pooled}} = \sqrt{((SD_1^2 + SD_2^2) / 2)}$$

For facilitating a rational and objective comparison between the corporate governance practices of public and private companies two parameters were developed I.e. Corporate Governance Scores (CGS) and Financial Performance (FP) as explained below.

#### 3.1. Corporate Governance Score (CGS)

After analysing all the corporate governance variables utilised for the study i.e. board composition (BCN), ownership structure (OS) , ownership concentration (OC), board and shareholders meetings (BSM), board remuneration (BR) , corporate governance policies and practices (CGP) and transparency and shareholders rights (TSH) over all corporate governance of the company was measured. On the basis of these scores, corporate governance of the firms was categorised into four categories viz. firms with very strong corporate governance, firms with strong corporate governance, firms with moderate corporate governance and the firms with weak corporate governance practices. Table no 1 shows the benchmark for categorisation of the corporate governance on the basis of scores earned by the individual companies on standard governance practices laid down in clause 49 of the Companies Act, 2013.

**Table 1** Overall Corporate Governance Score (CGS)

Category	Scores
Very Strong Corporate Governance	80 and above
Strong Corporate governance	65-80
Moderate Corporate Governance	50-65
Weak Corporate Governance	50 below

On the basis of the GAMMA score criteria and review of the literature (Das, 2008), the benchmarking for corporate governance scores (CGS) were developed for corporate governance variables used in the study.

### 3.2. Financial Performance

Financial performance of the company was measured by using accounting based method. Different financial ratios such as Return on Assets (ROA), Return on Capital Employed (ROCE), Profit After Tax (PAT), Return on Equity (ROE), Inventory Rate (IR), Total Assets (TA), Financial Leverage (LEV) and Current Ratio (COR) were used for measuring the financial performance of both the public and private sector companies.

## 4. RESULTS AND DISCUSSION

In our attempt of gaining the understanding of the corporate governance system of India we further developed the null hypothesis. The null hypothesis states that, "There is no significant difference between corporate governance of public and private sector companies". In order to check the validity and the level of significance of the hypothesis we applied various statistical tool and tests. The tests reveal the multi facet relationship and degree of accoutumance between the variables under study. The study results are discussed as follows.

**Table 2** Group Statistics

	Sector of Co	N	Mean	Std. Deviation	Std. Error Mean
Total Assets	Public Sector	26	3.9706	37296.6884	10344.2401
	Private Sector	216	1.1021	23115.6648	2224.3058
ROCE Percentage	Public Sector	26	19.4377	12.4556	3.4545
	Private Sector	216	17.6939	16.6953	1.6065
Financial Performance Category	Public Sector	26	1.54	0.660	0.183
	Private Sector	216	1.56	0.687	0.066
Financial Leverage	Public Sector	26	0.5100	0.6093	0.1689
	Private Sector	216	0.7084	0.7628	0.0734
COR	Public Sector	26	1.7677	0.7956	0.2206
	Private Sector	216	4.7884	24.7273	2.3793
Inventory Rate	Public Sector	26	18.2338	15.2549	4.2309
	Private Sector	216	1.4385	921.0180	88.6250

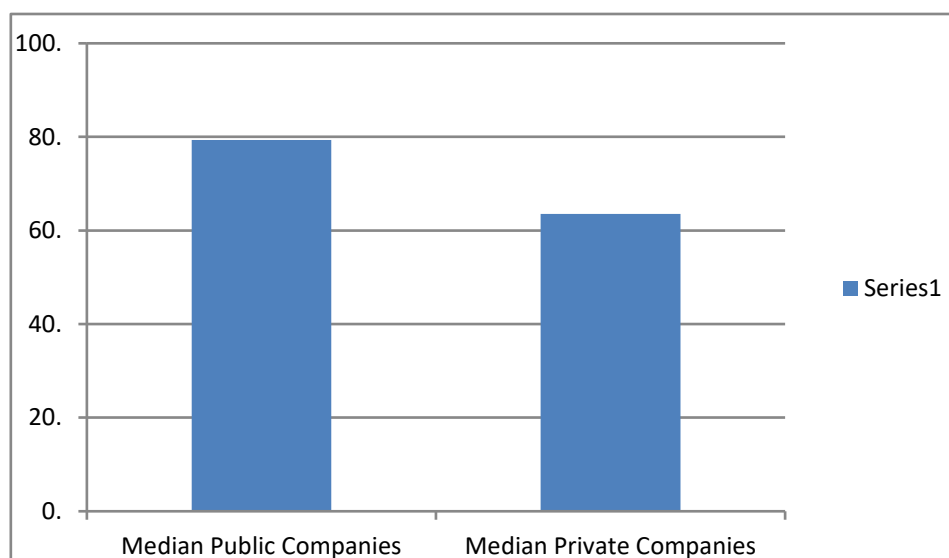
PAT	Public Sector	26	4.4541	5013.4534	1390.4818
	Private Sector	216	1.2160	2864.6464	275.6507
ROA	Public Sector	26	1.2391	8.47406	2.35028
	Private Sector	216	1.6023	45.7903	4.4061
ROE	Public Sector	26	1.5970	12.5849	3.4904
	Private Sector	216	1.1339	21.3404	2.0534

**Table 3** Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Total Assets	Equal variances assumed	8.307	0.005	3.92	240	.000	28685.567	7314.062	14202.9928	43168.1418
	Equal variances not assumed			2.71	26.26	.018	28685.567	10580.682	5850.7618	51520.3729
ROCE Percentage	Equal variances assumed	.044	.834	.364	240	.716	1.7438	4.7903	-7.7416	11.2292
	Equal variances not assumed			.458	35.30	.653	1.7438	3.8098	-6.2714	9.7590
Financial Performance Category	Equal variances assumed	.186	.667	-.131	240	.896	-.026	.201	-.424	.372
	Equal variances not assumed			-.135	30.60	.894	-.026	.195	-.441	.388
Financial Leverage	Equal variances assumed	.603	.439	-.903	240	.369	-.19843	.21983	-.6337	.2368
	Equal variances not assumed			-1.077	33.60	.297	-.19843	.18425	-.5873	.1905
COR	Equal variances assumed	.642	.425	-.439	240	.662	-3.0207	6.8838	-16.6513	10.6099

## Corporate Governance in Emerging Economies: An Indian Insight

	Equal variances not assumed			-1.26	217.54	.209	-3.0207	2.3896	-7.7569	1.7154
Inventory Rate	Equal variances assumed	1.001	.319	-.490	240	.625	-125.61597	256.39076	-633.2952	382.0633
	Equal variances not assumed			-1.416	214.96	.160	-125.61597	88.72594	-301.4957	50.2638
PAT	Equal variances assumed	5.349	.022	3.503	240	.001	3238.1032	924.31020	1407.8767	5068.3298
	Equal variances not assumed			2.284	25.90	.040	3238.1032	1417.54119	174.7180	6301.488
ROA	Equal variances assumed	.832	.363	-.284	240	.777	-3.6324	12.7712	-28.92080	21.65596
	Equal variances not assumed			-.727	205.06	.469	-3.6324	4.99382	-13.53702	6.2721
ROE	Equal variances assumed	.316	.575	.765	240	.446	4.631417	6.055354	-7.358788	16.621623
	Equal variances not assumed			1.144	42.90	.265	4.6314	4.0496	-3.7794	13.0423



**Chart 1** Median of Corporate Governance

Table 2 exhibits sample size, mean, standard deviation, and standard error for both the public sector and private sector firms. On an average the Return on Capital Employed Percentage (ROCP) of public sector firms is 1.744% more than private sector firms, similarly average of (PAT) of public sector firms is 3.23% more than private sector firms further the averages of (ROE) 0.464%, (TA) 2.868% and (IR) 16.795% are more than the private sector firms. However the odds between the means is ponderable amongst PAT, ROCE, TA, ROE and IR.

The procedure produces two tests of the difference between the two groups (Public sector companies and private sector companies). The Levene statistic tests testifies the assumption that the variances of the two groups are equally same kind.

Table 3 gesticulates the F statistic's significance value is 0.834 for ROCEP%, 0.022 for PAT, 0.363 for ROA ,0.575 for ROE, 0.005 for TA, 0.667 for financial performance category (FCP), 0.439 for LEV, 0.425 for COR and 0.319 for IR. Any value bigger than 0.10 reveals that the equal variances can be conjectured which is evident in the case of ROCEP, ROE, ROA, FCP, LEV, COR, IR groups but same cannot be assumed in the context of PAT and TA.

The t column shows described t statistic for every sample in the form of a ratio I.e. difference among sample means / standard error of the difference. In the Table df column shows degrees of freedom which is used in the independent samples t test. It is equal to the total number of cases in both samples minus 2. Another column in table with heading Sig. (2-tailed) reveals a probability from the t distribution with 240 degrees of freedom with the notion of equal variances. The value shown is the probability of getting an absolute value  $\geq$  to the obtained t statistic, provided the disparity among the sample means is absolutely random. The Mean Difference is calculated as the sample mean for group 2 (Private sector company) minus the sample mean for group 1 (Public sector company). The 95% Confidence Interval of the Difference provides an estimation of the range within which the actual mean difference lies in the 95% of all probable random samples of 242 companies under investigation. It is observed that the significance value of the test is lower than the standard 0.05 for the PAT and TA which further strengthens the point that the average difference of 3.23% of PAT between two groups and 2.868% among TA has some strong reasons. The t statistic stands rock solid grounds for a difference in PAT and TA between public companies and private companies. The confidence interval promulgates that in tautologized samplings the difference is not likely to be lower than 1407.87 (PAT) and 14202.99 (TA). In such situation the companies will attempt to keep back these returns and this gives us rational grounds for rejecting the null hypothesis. As per the observed median in the chart no 1 the median of corporate governance score for private sectors firms is 63.55 and for public sector firms' median is 79.35. It can be clearly stated that the corporate governance practices of public sector firms are better than the private sector firms in India.

## 5. CONCLUSION

On the basis of the results of the statistical analysis it is found that the corporate governance practices of private sector and the public sector companies are not the same. It is further observed that the corporate governance practices of public sector firms are better as compare to the private sector firms in India. Therefore it can be concluded that in India the public sector firms have much better adherence to the governance laws and their corporate governance policies and practices are far better when it comes to practical implementation on the ground level.



## REFERENCES

- [1] Borisova, G., Brockman, P., Salas, J. M. & Zagorchev, A . Government ownership and corporate governance: Evidence from the EU. *Journal of Banking & Finance* , 36 (11), 2012pp. 2917-2934.
- [2] Cohen, J. Statistical Power Analysis for the Behavioral Sciences. *Current Directions in Psychological Science*, 1(3),1992, pp. 98-101.
- [3] Claessens, S., Djankov, S. & Pohl, G. Ownership and corporate governance: Evidence from the Czech Republic, 1997. <https://ssrn.com/abstract=11074>
- [4] Chen, J. Ownership structure as corporate governance mechanism: Evidence from Chinese listed companies. *Economics of Planning*, 34 , 2001, pp ,53-72.
- [5] Eng, L. L. & Mak, Y. T . Corporate governance and voluntary disclosure . *Journal of Accounting and Public Policy* ,22, 2003, pp. 325-345.
- [6] Goel, P. Implications of corporate governance on financial performance: an analytical review of governance and social reporting reforms in India. *Asian Journal of Sustainability and Social Responsibility*, 3 (4), 2018.
- [7] Hodges, R., Wright, M. & Keasey, K. Corporate governance in the public services: concepts and issues . *Public Money & Management*, 16, 1996, pp.7-13.
- [8] Bijalwan, J. G. ,Bijalwan, A , Amare, L An Exploratory Analysis of Corporate Governance using Supervised Data Mining Learning . *International journal of recent technology & Engineering*, 8, 2019.
- [9] Mulgan, R. Comparing accountability in the public and private sectors . *Australian Journal of Public Administration* , 59,2000, pp. 87-97.
- [10] Megginson, W. L. Toward a global model of venture capital? . *Journal of Applied Corporate Finance*, 16 , 2004, pp. 89-107.
- [11] Patibandla, M. Equity pattern, corporate governance and performance: A study of India's corporate sector . *Journal of Economic Behavior & Organization*, 59,2006, pp. 29-44.
- [12] Xu, X. & Wang, Y. Ownership structure and corporate governance in Chinese stock companies. *China economic review*, 10, 1999, pp. 75-98.
- [13] Yameen, M., Farhan, N. H., Tabash, M. I. The impact of corporate governance practices confirm's performance: An empirical evidence from Indian tourism sector. *Journal of International Studies*, 12(1), 2019, pp.208-228.



# Corporate Social Responsibility Reporting in Locally Owned Hotel Chains in Singapore

Justin Matthew Pang<sup>1\*</sup>, Adrian Tiong Weng Wee<sup>2</sup>

<sup>1</sup> Lecturer at School of Business and Management, Royal Melbourne Institute of Technology University, Vietnam.

<sup>2</sup> Lecture of British University in Vietnam.

---

**Keywords:**

CSR, reporting, websites, annual reports, hotels, Singapore.

**Abstract.**

This exploratory study looked at the Corporate Social Responsibility (CSR) programmes of 10 locally owned and operated Singapore hotel chains. By using a Content Analysis methodology, the 10 hotel chains' CSR efforts were analysed vis-à-vis to their annual reports and websites. This gave clear indication of whether the hotel chains were complying with the promises and standards that they had stated and promised. This report found that the CSR reported by the hotel chains were inclined toward Environmental efforts. This could probably be due to this Environmental practice being more tangible and visible. It was also noted that while the initiatives taken by the hotel chains were relatively numerous, many failed to report on whether these efforts amounted to an achievement. Moreover, CSR reporting on the hotel chains' websites were almost non-existent. Given this, recommendations have been included to assist Singapore hotel companies manage their reporting of CSR activities.

---

**Kata Kunci:**

CSR, pelaporan, website, laporan tahunan, hotel, Singapura.

**Abstrak.**

Studi eksplorasi ini meneliti program Corporate Social Responsibility (CSR) dari 10 jaringan hotel Singapura yang dimiliki dan dioperasikan secara lokal. Dengan menggunakan metodologi Analisis Konten, upaya penerapan CSR di 10 hotel jejaring dianalisis berdasarkan laporan tahunan dan website mereka. Studi ini menunjukkan indikasi yang jelas tentang apakah hotel jejaring memenuhi janji dan standar yang telah mereka nyatakan dan janjikan. Laporan ini menemukan bahwa CSR yang dilaporkan oleh hotel jejaring cenderung mengarah pada upaya perlindungan terhadap lingkungan. Ini mungkin karena praktik penjagaan lingkungan menjadi lebih jelas. Studi mendapati bahwa meskipun inisiatif yang diambil oleh hotel jejaring relatif banyak, banyak yang gagal melaporkan apakah upaya ini merupakan pencapaian. Selain itu, pelaporan CSR di situs web hotel jejaring hampir tidak ada. Mengingat hal ini, rekomendasi telah dimasukkan untuk membantu perusahaan perhotelan Singapura mengelola pelaporan kegiatan CSR mereka.

---

\* Corresponding author.

E-mail addresses: Justin.pang@rmit.edu.vn (Justin Matthew Pang) & Adrian.w@buv.edu.vn (Adrian Tiong Weng Wee)

Article history: Received 08 April 2020; Accepted 05 May; Available 15 June 2020.

---

## 1. Introduction

In our present day, there is greater awareness of Corporate Social Responsibilities (CSR) by the public, investors, customers and clients of private companies. People generally want companies that they deal with to have a greater sense of accountability to the needs of society, community and the environment. People are more inclined to work with companies that are more active and more in-tuned with their CSR efforts (Hsieh, 2012). Therefore, in order to appease the public, customers and stakeholders, many companies are driven to take a more proactive stance in their CSR efforts.

While there are many different understandings of what CSR means or is about (Holcomb, Upchurch & Okumus, 2007), it has been defined by Robbins and Coulter (2005) as the efforts that are taken by a company to go above and beyond what it is needed, i.e. in terms of its economic, financial and legal efforts to help society, community and the environment to its betterment. This can be in terms of donations, volunteerism, education and the reduction and/or recycling of resources. The World Business Council for Sustainable Development (World Business Council for Sustainable Development, 1999) has a similar understanding of CSR. It maintains that CSR is an organisation's commitment to long-term developments and improvements in the economy, environment, employees, families and communities around them. The European Commission's stand on CSR is also similar. It views CSR as the incorporation of the establishment's interest in the environment and its community in its daily routines and operations (Commission of the European Communities, 2001).

With people being more educated and socially aware, there is a greater demand from society to ensure that companies are accountable - socially and environmentally, for its policies and practices that can invariably damage the environment and its surrounding communities. As such, there is a great demand by society on the establishments to report them and to hold them accountable to their operational standards and promises (Holcomb *et al.*, 2007; Hsieh, 2012). In this way, the public and stakeholders are made aware of the companies' efforts and can influence the direction and decision-making of the companies. Discerning customers, investors and the government can also use the information shown to decide what to buy, where to invest and whom to support. This essentially impacts businesses and compels them to take on more and greater responsibilities to society, communities and the environment, instead of just earning a profit and being financially successful. While there are many differing views on the business such as Friedman (2007) who stated that the business establishments should only focus on the economic and legal aspects of the business and not be distracted by other non-business related issues, that are not directly related to its core offering. There is also a growing view that CSR needs to be incorporated into part of an organisation's business plan. Carroll (1979) mentioned that businesses are intrinsically linked to their communities and have a responsibility to see to the needs of them especially if the organisation is indirectly affecting them.

However, even though there is greater awareness of CSR for business establishments, there is scant research on CSR and CSR reporting in the hospitality and tourism industry, specifically in the hotels sector (Holcomb, Okumus & Bilgihan, 2010). While research in the western countries and societies are considered low, countries outside of Europe and North America especially in Asia is extremely limited (Hsieh, 2012; Tsai, Tsang & Cheng, 2012). This could probably be due to the high number of small, medium enterprises (SME) and local chains that need not comply to CSR regulations such as in Western countries. Moreover, according to Tsai, Tsang and Cheng (2012), there is limited research of hotel CSR especially in developing countries in Asia.

The study aims to address the research gap by look at the CSR reporting by the local hotel chains in Singapore. The study will explore how local hotel chains report their CSR activities in their annual reports and websites and investigate whether there is any dissonance. This study will

focus on locally owned and operated hotel chains in Singapore, ranging from the Meritus Group, Hotel Properties Limited to Far East Hospitality Trust, and others.

In order to ensure uniformity, these hotel chains need to fulfil the following requirements. Firstly, all the researched hotel chains must be in operation for a minimal of three years and have at least three hotels within their chain. Next, they are all owned by large and established public listed companies in Singapore. Due to the chain being linked to public listed companies allows them to draw from the funds of the parent company and from the financial market. Lastly, many of the hotel chains have been in operation for several years and have expanded their brand overseas and have gained international recognition.

This study on the hospitality industry in Singapore is importance and of great relevance because of the tourism and hospitality industry account for up to 4% of the Gross Domestic Product (GDP), making it one of the major contributors to the Singapore economy. It has contributed more than Singapore \$17.7 billion to the economy through direct sources (Singapore Tourism Board, 2019). Moreover, the hospitality and tourism industry, supported more than 169,500 jobs in Singapore and this is about 4.6% of the jobs in the city-state (Li, 2018).

While many hotel chains are starting to be more transparent in their disclosure of their practices, there is hardly any research made on CSR reporting by the local hotel chains in Singapore. As for nearby countries within the region of South East Asia, there has been some studies conducted in Malaysia. Wee and Ross-Smith (2018) conducted a research that investigated the CSR reporting Malaysian local hotels. There was another research that looked at sustainability in Malaysian hotels by Joseph, Lin, Nichol and Jussem (2014). Unlike this previous study, which was quantitative in nature, the current study is a qualitative in nature and is centred around the content analysis of the hotel chain's websites and annual reports on their CSR efforts.

This study has been organised along the following sections. The first part will introduce the objective of the study and the research gap. The subsequent parts will review the literature of CSR reporting in the hospitality and tourism industry. The research approach and research method will be highlighted in the Methodology section. The Discussion section will highlight the findings and issues raised and finally, the Concluding section will summarise the salient aspects and possible future research for this study.

## 2. Literature review

Hotels are known to be direct contributors to the economy. They help to increase the GDP of countries and indirectly drive tourism to specific regions within a country. Other benefits to the economy would be that of job creation, skills and knowledge creation. However, it is also known that hotels are a great consumer of resources and is directly linked to many forms of wastages, including food, water and electricity. Some of these wastes include linen, amenities, food, energy, sanitation chemicals and others (Kasim, 2007; de Grosbois, 2012). With an increase in the number of hospitality properties, higher wastages are postulated and will have a greater effect on the social and environmental level.

In terms of CSR, there is a greater awareness in an organisation's contribution to social, community and environmental causes. According to Font *et al.* (2012) and Hsieh (2012), there is a growing interest among stakeholders in the CSR affairs of their invested companies. Conscientious customers, stakeholders, partners and suppliers desire more information from the companies that they deal with so that they can align their business values with that of the organisation. While CSR reporting is optional in many countries, many organisations report CSR activities to obtain public approval and to generate publicity. Certain countries in Asia, such as Singapore and Malaysia have put in place CSR reporting as a requirement for listed companies (Abaeian, Yeoh & Khong, 2014).

In the hotel industry, many of the established brands are keen to report CSR activities as part of a public relations effort and for transparency reasons. However, a study by Holcomb *et al.* (2007) on the top ten hotels in the world as listed in the 'Hotels magazine' revealed mixed responses. Some hotels openly disclosed CSR efforts and had CSR accountable personnel in place to oversee their activities. Other hotels were less forthcoming in revealing their CSR efforts. With the study on the top 150 global hotels, de Grosbois (2012) found that most hospitality companies reported a commitment to support CSR activities and efforts, however, many did not reveal the exact activities, and execution efforts in these plans. Using the study from de Grosbois (2012) and with further examination, Font *et al.* (2012) applied the similar methodology to ten international hotel chains. They examined the CSR disclosure – performance gap of these hotels and found significant gaps between the variables. Font *et al.* (2012) noted that there was much disparity between what was committed and what was actually delivered by the hotels. Other studies have also found similar variations in actuality and reporting. Clarkson, Li, Richardson and Vasvari (2011) conducted a study on hotels in Australia and found that there were also considerable discrepancies between disclosure and the actual performance in terms of CSR reporting.

This disparity between the actual result and the reported CSR is also prevalent in larger hotel companies (Font *et al.*, 2012) to the point where it has now been noted by a particular vernacular, i.e. 'greenwashing'. This term of 'greenwashing' is generally referred to companies who only highlight the positive action and effects of their sustainable and eco-efforts, while hiding the negative aspects of their doings (Lyon & Maxwell, 2011). The companies only report positive aspects of their CSR, so that they can garner favourable public relations and put seen in a 'good light' (Holcomb, 2007).

In terms of hotel CSR reporting, there has been a shift of CSR from community and employee action to the environment. A study by Holcomb *et al.* (2007) mentioned that hotels generally favoured CSR on community and employees in the early 21<sup>st</sup> century. About 80% of all hotels which had CSR actions plan focused on community and 60% had programmes to help their employees. In recent years, there has been a greater emphasis on environmental CSR (Font *et al.*, 2012; de Grosbois, 2012; Cherapanukon & Focken, 2014; Hsieh, 2012). This can be attributed to a greater awareness on environmental trends and issues and green practices.

In terms of benefits, CSR has ensued many benefits for hospitality companies. The most compelling of the benefits would that be of cost-savings. Such savings are usually attributed to savings in the areas of utilities management, i.e. water, energy and heating (Levy & Park, 2011; Sprinkle & Maines, 2010). Another area that hospitality companies looked at was in the areas of employees and their guest. All these CSR efforts ultimately led to improving the public relations image of the hospitality company and greater guest satisfaction (Martinez, Perez & Del Bosque, 2014; Martinez & Del Bosque, 2013).

CSR activities also affects employees in terms of their loyalty (Brammer, Millington & Raton, 2007), their retention and affinity to join an organisation (Sprinkle & Maines, 2010) and their motivation to work (Kim & Scullion, 2013). These CSR activities has also been shown to increase investor relations (Petersen & Vredenburg, 2009) and competitive advantage (Kramer & Porter, 2006). On a whole, CSR helps to increase the positive well-being, image and financial success of an organisation (Sinha, Dev & Salas, 2002).

There are many ways by which hospitality companies convey their CSR efforts. There are traditional and technological means. Traditional methods of highlighting CSR activities would be through annual reports, press releases, newsletters, and other forms of print media. With internet being used more frequently and a choice medium of conveying information, more companies are keen to use this technological platform as a channel. The use of the internet is also seen as a CSR effort with the minimal use of resources. Hsieh (2012) and Jose and Lee (2007) highlights that the internet allows quick dissemination of information to their employees, customers and stakeholders in a cost-effective manner.

From a technological perspective, the use of websites has been the most popular means by which hospitality companies share CSR activities, efforts and measurements. Most hospitality companies imbed their CSR information as part of their corporate websites to give the public a holistic understanding of the mission of the company and their direct and indirect goals. A study was undertaken by Basil and Erlandson (2008) on Canadian corporations' website on their CSR efforts. They found that 67% of these companies had some form of CSR reporting in 2006, compared to 2004, where only 27% reported their CSR activities online. Another study by Gomez and Chalmeta (2011) which examined 50 corporate websites from the USA, revealed that 80% of these organisations reported their CSR efforts on their webpages.

In Singapore, there has been much interest in the CSR reporting and activities within the hospitality trade. Singapore developed the 'ASEAN Green Hotel Awards' which was initiated by ASEAN member countries (Chung & Parker, 2010), based on assessing environmental and energy conservation methods taken. However, despite the interest in CSR in hospitality companies in Singapore, the Brand Company (2012) in their study on CSR reporting in luxury chains in Singapore only listed one Singapore company in their top 10 Asian international hotel companies. While this report only reflects international luxury chains in Singapore, this lack of CSR reporting might be reflective of other categories of hotels in the city-state.

### 3. Methodology

This study looked at the CSR reporting of Singapore hotel chains. The objective is to investigate the content and nature of CSR reporting by local hotel companies. This study uses content analysis to identify and describe the patterns and congruency emerging from the data samples. The use of content analysis has been used as a research method as it is advantageous in gathering and analysing text-based content (Neuman, 2007).

There have been previous studies which used this methodology of content analysis to measure CSR reporting in hospitality organisations, i.e. Holcomb *et al.* (2007) study on CSR reporting on 10 international hotel chains; Font *et al.* (2012) study on CSR disclosure and performance gap; and Hsieh (2012) looked at sustainable practices and policies of over 50 hotel chains in Europe, the USA and in Asia. These studies have showed that the Content Analysis methodology is reliable and valid for this form of analysis.

Using content analysis, a set of sustainable related concepts must be identified. These concepts should have in turned been identified and have been used in the earlier literature reviews. In past studies, Levy and Park (2011), Holcomb *et al.* (2007) and de Grosbosis (2012) identified 5 categories of CSR activities that hotels actively participated in. These included Community, Environment, workplace (Employee Welfare), Marketplace and Mission. However, for this study, only 4 of the 5 activities will be reviewed, namely Community Affairs, Environmental Concerns, Employee Welfare and Marketplace Interest.

The data that will be examined is determined from the hotel and corporate websites, annual financial statements and annual report from the 10 Singapore owned and operated hotel chains. Only 2017 and 2018 financial and annual reports were examined. Data was taken from the websites in the month of November 2019. From the data set, the commitments, initiatives, plans and achievements of the 4 CSR categories of each hotel chain were noted, recorded and tallied.

It should be noted that the hotel chains sampled were all part of a larger parent companies. Table 1 displays the names of these companies and their parent establishments. Table 1 also list the number of hotels under each respective chain. The number of hotels is shown as it is important to depict the size of the company due to the relevance of this study. Hsieh (2012) has noted that

larger companies in terms of size and capital are more likely to acknowledge the benefits of CSR activities and are more likely to report them.

Another reason for choosing larger, established hospitality companies gives accessibility to obtaining data from their annual reports and from their corporate websites. While most companies are not obligated to disclose their corporate dealings of a financial year, other than for listed companies, many companies openly list their corporate finances to ensure transparency and accountability to their stakeholders. These reports are generally a credible source of data and false reporting can be noted as a criminal offence. Many companies also derive these data after they have been audited and accounted for, so that their account reports are a true and fair representation of their companies' business and financial well-being.

Therefore, this focus of this study is to examine how the local hotel chains in Singapore report their CSR activities. This study will use the content analysis to analyse the websites and annual reports of the Singapore hotel companies, specifically regarding the category of the CSR reporting. The result of this study will be analysed and presented in accordance to the categories which has been mentioned earlier, i.e. Community Affairs, Environmental Concerns, Employee Welfare and Marketplace Interest.

**Table 1.** List of sampled Singapore Hotel Companies

<b>Hotel Name</b>	<b>Listed Parent Company</b>	<b>Location of Headquarters</b>	<b>Number of Properties</b>
Meritus Hotels and Resorts	Overseas Union Enterprise	Singapore	3
Frasers Properties	Frasers Hospitality Trust	Singapore	71
Banyan Tree	Banyan Tree Holdings	Singapore	39
Far East Hospitality	Far East Hospitality Trust	Singapore	51
Concorde Hotels	Hotel Properties Limited	Singapore	4
Park Avenues Hotel	United Engineers	Singapore	4
Fragrance	Fragrance Group	Singapore	8
Amara Hotels	Amara Holdings	Singapore	5
Parkroyal-Pan Pacific Hotels	UOL Group Limited	Singapore	29
Millennium and Cophthorne	City Developments Limited	London, United Kingdom	129

#### 4. Results

The results of the analysis of commitments, initiatives and achievement on the four categories of Community Affairs, Environmental Concerns, Employee Welfare and Marketplace Interest are depicted on Appendix A. The results are from the analysis of samples hotel companies' websites, annual financial and/or sustainability reports.

All the hotels listed provided a fair amount of information on CSR. Despite the information obtained, each company depicted CSR differently. Most of the companies had their CSR information on their annual report downloaded from their corporate website or on their parent companies' webpage. Some companies reflected these CSR activities on both former and latter webpages, although some were listed differently, and cross referencing was necessary.

**Table 2.** Analysis of CSR reporting in annual reports and websites

<b>CSR Activities</b>	<b>Commitments</b>	<b>Initiatives</b>	<b>Achievements</b>
<b>Environmental Concerns</b>			
Water Savings	5	5	5
Energy Management	5	5	5
Waste Recycling	5	5	3
Green Products	4	4	4
Nature Conservation	5	5	5
<b>Employee Welfare</b>			
Health & Safety	7	7	4
Fair & Equitable Wages	4	4	0
Employee Assistance Programme	2	2	1
Opportunities for Training & Development	7	7	4
Diversity & Equal Opportunity	7	7	3
Work Life Balance	2	2	2
<b>Community Affairs</b>			
Scholarship & Grants	1	1	0
Blood Donation	1	0	0
Community Giving	6	6	1
Gifts to Disadvantaged Groups	5	5	3
<b>Marketplace Interest</b>			
Quality Products	3	3	1
Supplier Diversity	3	3	2
Ethical Behaviour	4	4	0
Fair Trade & Negotiation	3	3	0

Most of the CSR efforts and activities were listed on the hotel's sales and marketing / corporate communications webpages. These webpages often depict the properties and establishments under their purview. The pages often showed images of their staff in the course of their work. The annual reports also focused in its entirety on the financial status and economic well-being of the hospitality parent companies. The CSR efforts were marginally depicted, both pictorially and informatively. Most of the CSR information was on the annual reports imbedded on the websites and not directly placed on their webpages per se.

As mentioned, the CSR information on the hotel websites were very scarce. Only 1 out of the 10 hotel studies had details of their CSR activities wholly embedded their corporate websites. Most of the other hotels had their CSR information listed on the parent holding companies' corporate websites and their annual report were imbedded on their parent companies' websites. In most of the CSR reported for all 10 companies, CSR activities were often not detailed and were ambiguous with no measurement of the activities. Moreover, the CSR activities described were generally related to the parent company, rather than the specific hotel chain or specific properties.

While most of the companies were legally bound to report their endeavours, financial or otherwise to the public, non-public listed companies were obligated to do so. Nonetheless, all 10 companies' information on CSR were obtained either through their (proprietary or parent companies) websites, or from print media. It was noted that the CSR information of each



company were often found towards the end of the qualitative content of the report (prior to the financial statements section). The CSR information were generally not detailed and vague.

On the same note, the CSR information on most parent companies are difficult to find. Financial and accounting information dominated the annual reports. Little information, i.e. less than 5% of the reports reflected the CSR activities, which amounted to 2 – 5 pages for each report. As mentioned earlier, the activities reported were general superficial and non-detailed and listed the actions taken without any form of accountability, measurements or standards (national or international). The results of the findings are highlighted in Appendix A. The below sections break the findings into their different categories, namely Community Affairs, Environmental Concerns, Employees Welfare, and Marketplace Interest.

#### *4.1 Community Affairs*

Many of the hotels are generally into community giving, especially to disadvantaged groups. These disadvantaged groups are represented by elderly groups to children welfare and illness societies. This form of CSR is generally one of the highest of CSR efforts with almost half of the hotel group sample helping out in this aspect. From the annual reports, many companies feature pictorial aspects with visits to elderly homes, disadvantaged groups, such as children with illness and disabilities. Donations and gift presentation have been clearly noted in the pictures. In terms of scholarship and grants, there is a clear indication that CSR to schools and educational institutions are generally low with only a single hotel group supporting this form of CSR. Unknowingly, blood donations are generally not a form of CSR practised for Singapore hotel groups.

#### *4.2 Environmental Concerns*

In terms of environmental CSRs, about half of the sampled hotels practised environmental CSR. The range of CSR covered all aspects of water saving, energy management, waste recycling, nature conservation and green products. Almost all the commitments and initiatives taken were back up with quantitative data of achievements in the annual reports. From the data collected, hotels take the most effort in their environmental CSR practices, probably it has the greatest tangible and visible effect on guest and on their operational cost.

#### *4.3 Employee Welfare*

Under Employee Welfare, the most practised CSR would be that of Health and Safety, Opportunities for Training and Development and Diversity and Equal Opportunity- each with similar rankings. The least practised and committed CSR efforts were that of employee assisted programmes and work-life balance. Unlike the Environment achievements which were consistently highlighted with measurable data, the results of employee-related CSR practices were not featured on the annual reports.

#### *4.4 Marketplace Interest*

Marketplace CSR practices were only highlighted in about a-third of the hotel group's annual report. The highest committed CSR effort was that of having ethical behaviour when dealing with their suppliers. The other efforts i.e. having quality products, having supplier diversity and fair trade and negotiation were equally matched in terms of being highlighted in the annual reports. It is noted that in terms of achievements, these CSR practices were not mentioned if they attained their desired target.

In terms of Achievements, the hotel chains that showed and met their targets, often related their target to some to some form of international standard and abided by proper certification systems. While there might be certain variations in the standards based on the different certifications such as ISO, SERQUAL, HACCP etc. for standards in assurances, all these provide corporate companies as a yardstick of measurement (Cherapanukorn & Focken, 2014). In terms of sustainability and CSR standards, many of the hotels adopt standards from Earth Check and Green Globe as a form of adherence and measurement. The hotel groups in the sample that used these international standards were Banyan Tree, Frasers Properties and Far East Hospitality.

## 5. Discussion

From the findings, it can be surmounted that CSR is an important aspect of the business of Singapore hotel chains. Many hotels chains perceive the implementation CSR as a means by which their guest see them as caring for the world. (Holcomb *et al.*, 2007; Chung & Parker, 2010; Levy & Park, 2011). It has also been noted that in terms of comparison of a study by Wee and Ross-Smith (2018), the hotels chains in Singapore had comparable CSR efforts and commitments to their Malaysian counterparts. This clearly reinforced that CSR is indeed important to the business well-being and public image of the Singapore hotels.

The factors within the Employee category which are rated the highest is that of Health and Safety, Opportunities for Training and Development and having a Diverse and Equal Opportunity. The reasons these factors having a higher rating could be because of the direct impact they have on the business returns for the hotel companies, as compared to other factors such as Employee Assistance programmes and having a balance-work life. Moreover, the factor of a Diverse and Equal opportunity is in-line with Singapore's national multi-racial and cosmopolitan population and equity policy where all people are given equal opportunities and racial mix in a hospitality company is highly encouraged for operational sustainability reasons.

The Environmental Concerns factors are seen to be rated highly in terms of commitments, initiatives and achievements. These factors are often of high emphasis for most hotels as it brings about positive economic gains to a hotel's bottom line (Font *et al.*, 2012). Moreover, these factors are often the most noted by hotel guest and they are easiest to quantify by means of measurement tools (Levy & Park, 2011). This can be noted from the researched annual reports where almost all commitments are validated and accounted for through actual achievements. Lastly, in terms of CSR for hotels, many guest equate CSR generally to the environmental action taken, rather than factors associated with the well-being of staff and to suppliers (Font *et al.*, 2012).

In terms Community Affairs, it is the lowest category of CSR. In terms of grants and scholarships, it has been noted that only a single commitment from the Singapore hotel chains. The reason for this non-committal could be due to a perceived biasness by the hotel chains towards specific educational institutions, resulting in low participation in this area. Moreover, most schools, while not considered as charity organisation or causes, within the Singapore fall under the purview of the Ministry of Education. These schools have already received funding through the Government and from social and racial associations such as the Chinese Developmental Assistance Council, the Singapore Indian Development Association and the Mendaki Association. However, in terms of community giving and gifts to the disadvantaged groups, the Singapore hotel chains are more inclined to provide assistance through their CSR endeavours. The reason for this could be due to the community and disadvantaged groups being registered as charity organisations and deemed for organisation donations. Likewise, CSR efforts linked to aiding disadvantaged group are often perceived to have greater mileage from a public relations perspective (Frankental, 2001).

As for Marketplace Interest, there is consistently low CSR activities in this category. The reason for this could be because at the Marketplace level, there is minimal publicity. There is generally greater public awareness when activities are carried out on a Business-to-Consumer than on a Business-to-Business level. Moreover, it is presumed that there is greater public relations mileage when CSR is conducted from an Environmental and Community level as compared to it being done on a marketplace level. In terms of Achievements, there is not many international industry yardstick or measurements for the Marketplace, as compared to Environment issues. Furthermore, activities such as Ethical Behaviour is arbitrary and subjective. Hence, the achievements quantified are generally low.

From the findings, it has been noted that despite the quantitative data obtained, the annual reports do not feature details of the CSR efforts, other than for several hotel chains, such as Banyan Tree, Frasers Hospitality Trust, Far East Hospitality Trust and Millennium and Copthorne. Many of the hotel chains are generally not very forthcoming in terms of the specifics of their activities, often giving generic and scant information. Many did not feature the implementations of the CSR programmes, initiative developed, and achievement made, resulting in difficulties in obtaining the relevant data. This is supported by studies conducted by de Grosbois (2012) and Font *et al.* (2012) that many hotel chains often do not detail their CSR efforts in terms of execution and performance. Singapore hotel were also similar to their Malaysian counterparts, where CSR effort mentioned in their annual reports were often more narrative rather than focused on objectives, targets and performances (Wee & Ross-Smith, 2018).

While the hotel chains in Singapore depict a fair amount of CSR practices within the companies, it should be noted that the CSR practices found in the annual reports of the hotel chains as well as the parent companies of these chains. An example of that would be City Development Limited (CDL). The CSR practices of the Millennium and Copthorne hotels, a subsidiary business unit under CDL, were obtained from CDL's annual reports. While diligent work has been put in to ensure that the CSR practices were specific to the hotel group, this could be the reason why the details of CSR were scant, i.e. being part of the entire holding company's annual report.

With a greater awareness of CSR and more initiatives taken by the global hotel chains, it would seem that more hotels would be keener to take on greater CSR activities. Moreover, with Singapore being a headquarters of many such global chains, it would have been presumed that local Singapore hotel chains would follow suit. However, the CSR efforts noted in the annual reports are generally similar to a study conducted on Malaysian hotels by Wee and Ross-Smith (2018). They concluded that the results (like this current study) is lacking in the expected CSR efforts.

The reasons for the lack of expected CSR efforts as reflected in the annual reports could stem from several reasons. Firstly, the costs attributed to CSR might be a substantial amount, impacting their overall operational cost. While hotels might see CSR as part of the business or as a cost, these costs can be managed and trimmed without an impact their profits. Moreover, for many hotel companies there is no definitive mandate from their owners, guest and stakeholders. To many hotel chains, CSR efforts are a 'want-to-have' rather than a 'need-to-have'. Another reason for the lack of interest in CSR activities is that of the lack of awareness of CSR practices and the benefits that they offer. According to Tsai *et al.* (2012), Hong Kong hotel staff were not aware of the benefits of CSR. This is further supported by Kasim (2009) who mentioned that small and medium sized hotels (SME hotels) in Malaysia were severely lacking in their awareness of CSR practice and the reciprocal benefits. The lack of understanding and awareness can often result in the lack of CSR initiatives and expedition (Scanlon, 1997).

While most of the chains provided some form of CSR efforts, it has been noted a single hotel chain failed to provide any information on their CSR efforts. This hotel group which did not

mention any CSR effort was that of Hotel Properties Ltd (HPL), which had several local and overseas properties including the Four Seasons Singapore, Concorde Hotel Singapore, Hilton Singapore and others. The possible reason for the lack of CSR could have stem from the fact that HPL represent an owner hotel company, rather than an operations management company. Hence the prerogative of the company is essentially to depict the profitability of the organisation and leave the operational aspects including CSR endeavour to the respective brands to showcase.

It has also been noted that this study has sort to obtain CSR practices from annual reports and from the online hotel chain proprietary websites. However, almost all information derived for this report were obtained from only the annual reports. The reason is due to the lack of CSR information and programmes on the hotel chains proprietary websites. Most hotel websites depicted their operational aspects of the hotels. Several of the hotels showed the financial successes of the hotel chain. Banyan Tree hotels was the only hotel chain in the study that cleared stated their CSR mission and programmes. Therefore, from this, we can see that CSR can be used to better inform the public of the hotel's pursuits and to better integrate holistic digital marketing.

From the study, it has been noted that most corporate information on the hotels can be found on the websites, other than their CSR efforts. This could be because CSR reporting on websites are still a relative phenomenon, and CSR does not help to contribute to the top line of finances, therefore by deeming it as unimportant by the hotel chains (Holcomb *et al.*, 2007). However, websites being used as a source of information and as a point of booking (Shin, Pang & Kim, 2015). Therefore, the Singapore hotel companies would need to leverage on their websites to a platform where the public can access more of their information. By doing so, they can use their websites to generate greater positivity and customer loyalty through CSR (Cyr, 2008). However, it should be noted that while CSR depicted in a non-professional manner on a poorly designed website with vague information might create customer distrust.

Vague and limited CSR information on hospitality corporate websites might not be desirable and might hurt the image of the organisation. It has been noted by Vassilikopoulou, Siomkos and Mylonakis (2005) that consumers are generally willing to support businesses that practise CSR and meet their expectations. On that note, they are also not hesitant to boycott businesses that are damaging the environment and the community. From the above, hotels should leverage on their internet corporate websites to feature more of their CSR practices and efforts. In current times, websites are often perceived by guest to be the first-stop hub for information. Therefore, with added attention on the hotel chains' commitment and implementation on CSR will not only create more awareness, brand loyalty and guest demand in terms of patronage.

## 6. Conclusion

The general theme of this study is on the CSR reporting by Singapore hotel chains in terms of their activities and efforts. For most of the hotels that were investigated, they generally focused on the commitments and implementations of their CSR efforts. However, in many of the annual reports, most of the companies did not digress into their achievement criteria and failed to mention if they met their targets. This limited reporting in CSR could be because the hotels do not use website holistically and strategically – aiming only at obtaining economic benefits for their companies (Schmidt, Cantalops, & Dos Santos, 2008). In this sense, the holistic development of hotels in Singapore seen to be relatively weak. Welford (2005) mentioned that there is a close link between CSR and economics. Hence this clearly reflects that the Singapore hotel chains are still 'economically' developing.

The limited reporting could possibly raise the issue of 'greenwashing', which means that CSR efforts and reporting are generally seen as the way of making a company look good in the eyes of the public. It has been noted by Hsieh (2012) and Holcomb *et al.* (2007) that many companies

look at CSR as a public relations tool to generate a positive image for the corporation or to recover from negative criticism. Although many a times, this helped in building the image of the corporation, it can cause companies to become blind-sighted to the goal and purpose of the CSR effort and in way trivialise the benefits of CSR. Therefore, non-profit organisations and ministerial boards in Singapore, such as the Singapore Environment Council, Zero Waste SG and Ministry of Environment respectively should continue to accredit and educate Singapore hotels about the benefits of the CSR movement, encourage better reporting and avoid 'greenwashing'.

On the matter of reporting, it has been noted that there is no requirement by the hotel chains to report their CSR efforts in their annual reports. Moreover, non-public listed companies are not obligated to publically feature their annual reports, yearly endeavours and CSR efforts. It was reported by Tsang (1998) that many hotels and food and beverage establishments only disclosed scattered information on the CSR efforts and hardly any 'bad news' were disclosed. This is because CSR reporting is not mandatory under the Singapore law and all information disclosed is on a volunteer basis. Moreover, it was mentioned by de Grosbois (2012) that most hospitality companies were generally hesitant to disclose their CSR effort and provide only sporadic information. The hotel chains on a whole did not disclose much on their corporate websites. Therefore, to promote more CSR reporting, the Singapore Environment council and other green movement groups could provide more guidelines to companies on website reporting. As mentioned earlier, there is no mandate for companies in Singapore to provide CSR activities openly, websites are the 'go-to place' for obtaining information on the companies. This is especially so for the millennial generation who are more computer savvy. The corporate websites are the public face of the company. Therefore, it would be advisable for the Singapore government to mandate corporate organisation to conform certain standards of CSR report to ensure consistency in reporting with the country.

In order to encourage more CSR efforts and reporting, more education, training and encourage is needed from both the management corporate headquarters, the government and from non-profit green organisations. Kasim (2009) has noted that there is a lack of knowledge and the importance of raising awareness and appreciation of the benefits of CSR especially in the SME hotels. The management corporate headquarters could incentivise CSR efforts implemented in their subsidiary hotels and even place CSR efforts as part of the hotels' key performance indicators. The companies can even work with the owners of the properties as part of their operating cost and revenues. The government, with the non-profit green organisations can organise workshops, lectures and seminars for the local hotels on the benefits of a comprehensive CSR and CSR reporting regime in the annual reports and websites. It is only by having a transparent reporting of CSR system, coupled together with the commitments and targets achievement that transcend all levels of the hotel employee hierarchy, can a hotels monitor their CSR results and have a holistic appreciation of CSR practices and activities.

Finally, many studies on companies listed on the New York Stock Exchange indicates that the financial performance of companies that take sustainability and CSR importantly and proactively tend to surpass companies that don't (Kasim, 2009). On the similar note, these companies are equally well supported by investors. These findings go to show that at present times, CSR is of great importance in the corporate world. Companies who choose to ignore taking CSR seriously would no doubly face harsh consequences.

This study contributes to the overall literature on CSR and CSR reporting in the hospitality line. It gives a microcosm aspect of the said topic within the sphere of the Singapore hotel chain terms of their CSR actions taken and their reporting through the various mediums. This study also looks at the different CSR practised by the different hotel groups and which category is

deemed the most popular and the probable reasons why they are so. Finally, this study identifies companies which provide useful and informative CSR reporting. As for limitations, the study looks at only 10 Singapore based hotel groups through their websites and annual reports. While it might be conclusive to obtain the CSR efforts from these mediums, the results might be represented if interviews were conducted on the staff and management of the hotels. There could have been CSR efforts conducted that might have not been published on the researched mediums.

## References

- Abacian, V., Yeoh, K. K., & Khong, K. W. (2014). An exploration of CSR initiatives undertaken by Malaysian hotels: Underlying motivations from a managerial perspective. *Procedia-Social and Behavioral Sciences*, 144, 423-432.
- Basil, D. Z., & Erlandson, J. (2008). Corporate social responsibility website representations: A longitudinal study of internal and external self-presentations. *Journal of Marketing Communications*, 14(2), 125-137.
- Brammer, S., Millington, A., & Rayton, B. (2007). The contribution of corporate social responsibility to organizational commitment. *The International Journal of Human Resource Management*, 18(10), 1701-1719.
- Carroll, A. B. (1979). A three-dimensional conceptual model of corporate performance. *Academy of management review*, 4(4), 497-505.
- Cherapanukorn, V., & Focken, K. (2014). Corporate social responsibility (CSR) and sustainability in Asian luxury hotels: Policies, practices and standards. *Asian Social Science*, 10(8), 198.
- Chung, L. H., & Parker, L. D. (2010, March). Managing social and environmental action and accountability in the hospitality industry: A Singapore perspective. In *Accounting Forum* (Vol. 34, No. 1, pp. 46-53). Taylor & Francis.
- Clarkson, P. M., Li, Y., Richardson, G. D., & Vasvari, F. P. (2008). Revisiting the relation between environmental performance and environmental disclosure: An empirical analysis. *Accounting, organizations and society*, 33(4-5), 303-327.
- Commission of the European Communities (2001). *Promoting a European framework for Corporate Social Responsibilities*. Brussels: CEC.
- Cyr, D. (2008). Modeling web site design across cultures: relationships to trust, satisfaction, and e-loyalty. *Journal of Management Information Systems*, 24(4), 47-72.
- De Grosbois, D. (2012). Corporate social responsibility reporting by the global hotel industry: Commitment, initiatives and performance. *International Journal of Hospitality Management*, 31(3), 896-905.
- Font, X., Walmsley, A., Cogotti, S., McCombes, L., & Häusler, N. (2012). Corporate social responsibility: The disclosure–performance gap. *Tourism Management*, 33(6), 1544-1553.
- Frankental, P. (2001). Corporate social responsibility—a PR invention?. *Corporate Communications: An International Journal*, 6(1), 18-23.
- Friedman, M. (2007). *The social responsibility of business is to increase its profits*. Corporate Ethics and Corporate Governance. W. C. Zimmerli, M. Holzinger, & K. Richter, eds, New York City: Springer. 173 – 178.
- Gomez, L., & Chalmeta, R. (2011). *Corporate responsibility in US corporate websites: A pilot study*. Public Relations Review, 37 (1), 93 – 95.
- Holcomb, J. L., Okumus, F. & Bilgihan, A. (2010). *Corporate social responsibility: What are the top three Orlando theme parks reporting?* Worldwide Hospitality and Tourism Themes, 2 (3), 316 – 337.
- Holcomb, J. L., Upchurch, R. S. & Okumus, F. (2007). Corporate social responsibility: What are top hotel companies reporting? *International Journal of Contemporary Hospitality Management*, 19(6), 461 – 475.

- Hsieh, Y. C. (2012). Hotel companies' environmental policies and practices: A content analysis of their webpages. *International Journal of Contemporary Hospitality Management*, 24(1), 97 – 121.
- Jose, A., & Lee, S. M. (2007). Environmental reporting of global corporations: A content analysis based on website disclosures. *Journal of Business Ethics*, 72(4), 307-321.
- Joseph, C., Lin, V. C. S., Nichol, E. O., & Jussem, P. M. (2014). Sustainability disclosure on Malaysian hotel websites. In *Proceedings Conference: International Conference on Governance (ICG 2014)*, Universiti Utara, Malaysia (Vol. 29).
- Kasim, A. (2009). Managerial attitudes towards environmental management among small and medium hotels in Kuala Lumpur. *Journal of Sustainable Tourism*, 17(6), 709-725.
- Kasim, A. (2007). Towards a wider adoption of environmental responsibility in the hotel sector. *International Journal of Hospitality & Tourism Administration*, 8(2), 25-49.
- Kim, C. H., & Scullion, H. (2013). The effect of Corporate Social Responsibility (CSR) on employee motivation: A cross-national study. *Poznan university of economics review*, 13(2).
- Kramer, M., & Porter, M.E. (2011). Strategy and society: The link between competitive advantage and corporate social responsibility. *Harvard Business Review*, 84 (12), 78 -92.
- Levy, S. E., & Park, S. Y. (2011). An analysis of CSR activities in the lodging industry. *Journal of Hospitality and Tourism management*, 18(1), 147-154.
- Li, D. (2018, September). *Bright outlook for Singapore's hotel industry*. The New Paper, [www.tnp.sg/news/views/bright-outlook-singapores-hotel-industry](http://www.tnp.sg/news/views/bright-outlook-singapores-hotel-industry). (24 September 2018).
- Lyon, T. P., & Maxwell, J. W. (2011). Greenwash: Corporate environmental disclosure under threat of audit. *Journal of Economics & Management Strategy*, 20(1), 3-41.
- Martínez, P., & Del Bosque, I. R. (2013). CSR and customer loyalty: The roles of trust, customer identification with the company and satisfaction. *International Journal of Hospitality Management*, 35, 89-99.
- Neuman, L. W. (2007). *Social Research Methods: Qualitative and Quantitative Approaches*. India: Pearson.
- Petersen, H. L., & Vredenburg, H. (2009). Morals or economics? Institutional investor preferences for corporate social responsibility. *Journal of Business Ethics*, 90(1), 1.
- Robbins, S. P., & Coulter, M. (2012). *Management 7th Ed*. Upper Saddle River, New Jersey: Prentice Hall.
- Scanlon, L. N. (2007). An analysis and assessment of environmental operating practices in hotel and resort properties. *International Journal of Hospitality Management*, 26 (3), 711 – 723.
- Schmidt, S., Cantallops, A. S., & dos Santos, C. P. (2008). The characteristics of hotel websites and their implications for website effectiveness. *International Journal of hospitality management*, 27(4), 504-516.
- Shin, W., Pang, A., & Kim, H. J. (2015). Building relationships through integrated online media: Global organizations' use of brand web sites, Facebook, and Twitter. *Journal of Business and Technical Communication*, 29(2), 184-220.
- Singapore Tourism Board, (2009). *Overview*. Singapore Tourism Board. [www.stb.gov.sg/content/stb/en/about-stb/overview.html](http://www.stb.gov.sg/content/stb/en/about-stb/overview.html).
- Sinha, P., Dev, C. S., & Salas, T. (2002). *The relationship between corporate social responsibility and profitability of hospitality firms: do firms that do good also do well?* (pp. 1-21). Cornell University, Center for Hospitality Research.
- Sprinkle, G. B., & Maines, L. A. (2010). The benefits and costs of corporate social responsibility. *Business Horizons*, 53(5), 445-453.
- The Brand Company. (2012). *Asian Hospitality Brand Survey 2012: Summary of Results*. The Brand Company: [http://www.thebrandco.com/the-fount-of-wisdom/FINAL\\_TBC\\_Research\\_2011\\_05\\_18\\_V6.pdf](http://www.thebrandco.com/the-fount-of-wisdom/FINAL_TBC_Research_2011_05_18_V6.pdf).

- Tsai, H., Tsang, N. K., & Cheng, S. K. (2012). Hotel employees' perception on corporate social responsibility: The case of Hong Kong. *International Journal of Hospitality Management*, 31(4), 1143 – 1154.
- Tsang, E. (1998). A longitudinal study of corporate social reporting in Singapore: The case of banking, food and beverages and hotel industries. *Accounting, Auditing & Accountability Journal*, 11(5), 624 – 635.
- Vassilikopoulou, A. I., Siomkos, G. J., & Mylonakis, J. (2005). Clustering consumers according to their attitudes on corporate social responsibility. *International Journal of Business Governance and Ethics*, 1(4), 317-328.
- Wee, A. T., & Ross-Smith, P. M. (2018). CSR reporting in locally owned hotel chains in Malaysian. *Asian Social Science*, 14(8), 16 – 26.
- Welford, R. (2005). Corporate social responsibility in Europe, North America and Asia: 2004 survey results. *Journal of Corporate Citizenship*, 17, 33 – 52.
- World Business Council for Sustainable Development. (1999). *Corporate Social Responsibility: Meeting Changing Expectations*. Switzerland.



See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/254257177>

# Corporate Governance Practices, Transparency and Performance of Indian Companies

Article · July 2013

---

CITATIONS

8

READS

4,463

1 author:



**Pankaj Madan**

Gurukula Kangri Vishwavidyalaya

69 PUBLICATIONS 359 CITATIONS

SEE PROFILE

## Author's Copy

# Corporate Governance Practices, Transparency and Performance of Indian Companies

*Jyotsna Ghildiyal Bijalwan\* and Pankaj Madan\*\**

---

*The purpose of this paper is to examine the impact of corporate governance on firm's financial performance in the Indian context. The study is based on the 121 companies listed on the Bombay Stock Exchange (BSE), India, for the period 2010-2011. It is based on a self-designed structured questionnaire. The study highlights the significance of transparency disclosure and good governance policies of the firm and the relative advantage thereof to the firm in the Indian context for the first time to the best of our knowledge. Distinct from previous empirical research, it develops its own index to measure the transparency and level of disclosure. Tamhane T2 post hoc test is also applied for the first time in the study related to corporate governance. The study finds a positive and significant relationship between the level of transparency and firm's financial performance. Similarly, corporate governance policies and practices of the firm are also found to be positively related to firm performance. The results also suggest that corporate governance policies and transparency and disclosure are positively and significantly correlated.*

---

## Introduction

Corporate governance can be viewed as a mechanism that ensures external investors receive proper returns on their investments. Effective corporate governance provides an assurance on the safety of the invested funds and the returns on investment (Shleifer and Vishny, 1997). The corporate governance framework should ensure that timely and accurate disclosure is made of all material matters regarding the corporation, including the financial situation, performance, ownership, and governance of the company (OECD, 2004).

The study primarily focuses on investigating the relationship between corporate governance and the firm performance of 121 firms listed on Bombay Stock Exchange (BSE), India. The study is an attempt to find answers to two basic questions; Firstly, do firms with greater transparency and higher level of disclosure have better corporate governance? And do such firms perform well financially? Secondly, do the firms with better corporate governance policies and practices have good financial performance in the Indian context?

---

\* Research Scholar, Department of Management Studies, Uttarakhand Technical University, Siddhowala, Dehradun 248007, India; and is the corresponding author. E-mail: jyotsnaghildiyal@yahoo.com

\*\* Associate Professor, Faculty of Management Studies, Gurukul Kangri Vishwavidyalaya, Haridwar 249404, India. E-mail: pankaj.madan@ymail.com

## Author's Copy

Based on the previous studies and review of literature on corporate governance and firm performance, we have taken transparency, disclosure, shareholders' rights and firm's corporate governance policies and practices as the factors of corporate governance. Generally, most of the previous studies have utilized market-based performance measure, i.e., Tobin's Q or accounting-based measures wherein they have utilized Return on the Equity (ROE) or Return on Capital Employed (ROCE) or some studies have used both. We also use accounting-based measures wherein we use the financial ratios—ROCE and ROE. In addition to this, we also use utilized Profit After Tax (PAT) and Return on Assets (ROA) to strengthen the validity of our outcomes. The study is based on the 121 small cap, mid cap and large cap companies listed on the BSE, India, for the period 2010-2011.

### Theoretical Framework and Hypotheses Development

Generally research on corporate governance and performance is based on the principal-agent theory in which principal or owners and agents or managers have opposing preferences regarding disclosure. Since Berle and Means (1932) first proposed the characteristics of the modern corporation, i.e., the ownership and control power separation, mostly corporate governance and performance is researched from internal control and supervisory mechanisms that constitute the specific forms of corporate governance. Therefore our study is also formulated on the grounds of the 'agency theory' of corporate governance, where the management or board acts as agent and owners, i.e., equity share holders, are principal. Some studies suggest a positive and significant relation between corporate governance and firm performance, whereas some researchers disagree on the point. There is no unanimous consent on the results of the studies (Patterson, 2000).

Transparency and disclosure, as significant components of corporate governance, are studied worldwide. Such studies are mainly from the developed countries like USA, Canada, and Russian and European countries. Developed countries have higher levels of adherence to the corporate governance norms as compared to the developing countries. Compared to the developed markets, the quality of accounting information in the emerging markets is lower (Ball *et al.*, 2003). Very few studies have focused on this issue in the Indian context. Therefore, we decided to focus on the corporate governance practices of the Indian firms. Ownership structure of the Indian firms is characterized with family ownership, block holdings and business groups. Poor law enforcement, corruption, weak legislative and regulatory framework and poor implementation of the property rights are the main causes for the concentrated ownership in India, which further results in agency problems. Weak legal protection of property rights in emerging markets discourages informed arbitrageurs to capitalize on firm-specific information (Morck *et al.*, 2000). Agency problems and information asymmetries between owners and managers can be overcome with the help of enhanced corporate transparency (Jensen and Meckling, 1976). Some other studies also point out that the firms' voluntary disclosures are associated with improved stock liquidity (e.g., Healy *et al.*, 1999; and Leuz and Verrecchia, 2000).

In the absence of transparency measurement index in India, we develop a self-generated index for measuring the level of transparency, disclosure and level of adherence related to

## Author's Copy

corporate governance norms, in the light of Clause 49 of Indian Companies Act. Our ranking provides a first time, objective assessment of the level of transparency, disclosure and corporate governance policy of the firms listed on the BSE and categorizes them into very less transparent, adequately transparent, very transparent and totally transparent. Similarly in the case of corporate governance policies and practices, the firms are categorized into substandard CG practices, standard CG practices, good CG practices, and outstanding CG practices. We focus on the level of transparency and disclosure that a firm has in its accounting and financial matters related to shareholders and other investors. We further emphasize on investigating the corporate governance policies of the firm and impact thereof on the financial performance of the firm.

The present study extends previous research efforts and analyzes the role of transparency, level of disclosure and governance policies of the firms in the context of Indian firms for the first time.

### **Transparency, Disclosure, Shareholders' Rights and Corporate Performance**

Increased pace of entrepreneurship and globalization has increased the value of reliable information in capital markets (Healy and Palepu, 2001). Verrecchia (2001) provides a comprehensive review of theoretical research on disclosure-related issues over the last two decades. Many surveys and empirical studies are evident to the fact that making the disclosures and adhering to all the mandatory requirements in line with the legislative and regulatory guidelines and voluntary disclosures help in reducing the agency cost or contracting cost. It helps in evaluating the actual market value of the firm's securities, which further helps in reducing the cost of the capital (Botosan, 1997). It further provides additional information over the mandatory reporting, which results in lowering the transaction costs of the investors (King *et al.*, 1990), and last but not the least, it also helps in reducing litigation costs. (Skinner, 1997).

Botosan (1997) states that "Although the annual report is only one means of corporate reporting, it should serve as a good proxy for the level of voluntary disclosure provided by a firm across all disclosure avenues. This is because annual report disclosure levels are positively correlated with the amount of disclosure provided via other media (Lang and Lundholm, 1993). The annual report is the focus of my disclosure index because the annual report is generally considered to be one of the most important sources of corporate information." The annual report to shareholders is at the top of every analyst's list because it is the major reporting document and every other financial report is in some respect subsidiary or supplementary to it (Knutson, 1990).

While the importance of transparency and disclosure is recognized in theory, Botosan (1997) argues that the empirical link between asset pricing and disclosure is weak, fueling an ongoing debate among practitioners regarding the benefits of enhanced disclosure. Healy and Palepu (2001) identify the difficulty in measuring the extent of voluntary disclosure and the lack of reliability of the few measures developed by academics as major limitations in the empirical analysis of the impact of transparency and disclosure on asset prices and hence on capital markets.

## Author's Copy

Shelton and General (1999) in his study mentions that the governance and disclosures both facilitate better allocation of resources within the firms and between the firms. By ensuring the rational allocation of the resources, it makes both the firm as well as market efficient. He suggests that disclosures play a critical role in categorizing the firms as per their risk profiles. Levine *et al.* (2000) in their study conclude that the transparency in the financial disclosure led to the financial market efficiency which further contributes to better economic performance of the firm. Bushman and Smith (2001) also acknowledge the significance of the financial accounting information and propound that such data can be used for improving the efficiency of the corporate governance.

Further Ball (2001) also advocates that timely publication of the economic losses in the financial statements increases the effectiveness of the corporate governance. Gupta (2006), in his study on 30 companies listed on the BSE finds that the reporting practices of the company under observation vary to a large extent. He further mentions that some of the companies were not adhering to the mandatory requirements of Clause 49. According to Cohen *et al.* (2004), ensuring the quality of the financial reporting process is the main function of corporate governance.

A study by Hassan *et al.* (2008) aims at investigating the relationship between corporate governance, transparency and firm performance. The study focuses on examining the effect of good corporate governance practices on the corporate transparency and performance of the 142 companies listed on the Malaysian Stock Exchange. For the empirical analysis, Tobin's Q represents the dependent variable, while seven corporate governance characteristics, viz., board independence, board leadership or role duality, quality of directors, insider ownership, foreign ownership, debt financing and audit quality, are the independent variables. The result of the study reveals that corporate governance components have strong predicting power on the company's performance. The relationship between audit quality and performance of the firm was found to be negative. The findings further suggest that firm performance is insignificant and not related to the components of transparency, viz., level of disclosure and timely reporting. It further propounds that disclosure and timely reporting are not significant contributing factors in the relationship between corporate governance and firm's market performance. Despite considerable regulatory effort and theoretical and empirical research on fair disclosure, it is still a debatable question of: to disclose or not to disclose. For instance, the effect of disclosure on the cost of capital can be observed in two ways. Firstly, the greater the disclosure, the lower will be the cost of equity capital. Secondly, increased disclosure will enhance the share price volatility, which will further result in higher risk and cost of capital (Botosan, 1997).

After reviewing the subject from both empirical and theoretical perspectives extensively, we form the argument: Does the level of transparency and disclosure affect the corporate performance in the context of Indian firms? And in order to find the answer to this question, we frame the first hypothesis:

*H<sub>01</sub>: There is no significant impact of transparency and shareholders' rights on the firm's performance.*

## Author's Copy

### Corporate Governance Policies, Practices and Corporate Performance

Many researchers have been investigating the relationship between corporate governance and firm performance by using the empirical data. There is no unanimous consent on the results of the studies. Some of the studies show a positive and significant relationship between corporate governance and firm performance, some reveal a negative and insignificant relationship, and some even show a mixed result for the link between corporate governance and firm performance (Carlin and Mayer, 2000).

Another study Kim and Lee (2003) showed that corporate governance had a strong impact on firm performance during the 1997-98 East Asian Financial Crisis. It further revealed that independent directors have traditionally been hailed as a way of improving and monitoring the management.

An empirical study on the Indian firms by Dwivedi and Jain (2005), with a sample size of 340 large listed Indian firms for the period of 1997-2001, found a positive and significant relationship between corporate governance and performance of Indian firms, using a simultaneous equation regression model, wherein they used Tobin's Q as the measure of firm performance, and board size and ownership as the components of corporate governance.

Gupta (2006) in his study traced the difference in the corporate governance practices of three automobile companies in India, namely, Hero Honda Ltd., Maruti Udyog Ltd., and Escorts Ltd. The companies were randomly selected on the basis of their size and goodwill in the market. The study focused on the compliance of the selected sample companies' corporate governance practices with Clause 49. The results revealed that Hero Honda with 90%, Maruti with 80% and Escorts with 70% were in line with the corporate governance norms as per Clause 49.

A study by Lee (2008) on Korean firms examines the relationship between corporate governance and firm's financial performance. In this study, the effect on Korean firms is empirically tested. The study is based on the agency theory of corporate governance. Ownership concentration and ownership identity are taken as two components of corporate governance, and Net Income to Total Assets (NIA) ratio and Ordinary Income to Total Assets (OIA) ratio are taken as performance variables. The study with the multivariable regression analysis reveals the significant linear lump-shaped relationship between ownership concentration and firm performance and insignificant relationship between ownership identity and firm performance. In a nutshell, the study shows a positive and significant relationship between corporate governance and firm's financial performance.

In another study based on Chinese firms, Zhen *et al.* (2010) tried to find the relationship between corporate governance and corporate performance of 106 high-tech small and medium-size enterprises in China. The study, through empirical analysis, finds that the relationship between ownership concentration and corporate performance follows a positive correlation. It further states that the relationship between shareholding ratio of the 2<sup>nd</sup> to 10<sup>th</sup> shareholders, number of board and shareholders meetings and executive remuneration shows a positive and significant relationship with corporate performance.

## Author's Copy

There are some other studies which deny any relationship between corporate governance and firm performance, and many other studies show weak or insignificant relationship between corporate governance and firm's performance. A study by Daily and Dalton (1992) shows no relationship between corporate governance and firm's performance. Further, Bhagat and Black (2002) in their study found no correlation between board independence and long-term firm performance. Similarly, another study by Bauer *et al.* (2004) on European firms finds a negative relationship between corporate governance standards and firm's performance. For better learning and clear understanding, a brief classification of the previous research outcomes along with their authors is mentioned in Table 1.

<b>Table 1: Brief Classification of Related Literature</b>			
S. No.	Factors	Condition	Previous Studies/Authors
1.	Transparency, Shareholders' Rights and Firm Performance	a. Transparency and shareholders' rights have positive and significant effect on the firm's performance.	Shelton and General (1999); Levine <i>et al.</i> (2000); Bushman and Smith (2001); Ball (2001); Gupta <i>et al.</i> (2003); Aksu and Kosedag (2006); Hassan <i>et al.</i> (2008); Benjamin and Michael (2012); and Sabri <i>et al.</i> (2013).
		b. Transparency and shareholders' rights have no effect on the firm's performance.	Kevin <i>et al.</i> (2009); and Viral <i>et al.</i> (2012).
2.	Corporate governance codes and initiatives and the firm's performance	a. Corporate governance codes and initiatives have positive and significant effect on the firm's performance.	Kim and Lee (2003); Dwivedi and Jain (2005); Lee (2008); Zhen <i>et al.</i> (2010); Niels and Vasiliki (2011); and Wendy <i>et al.</i> (2012)
		b. Corporate governance codes and initiatives have no effect on the firm's performance.	Daily and Dalton (1992); Bhagat and Black (2002); and Bauer <i>et al.</i> (2004).

The previous studies on the topic give us ground for arguing that firms with better corporate governance policies and practices have good corporate performance. In order to examine our assumption we further hypothesize that:

$H_{02}$ : *There is no significant impact of corporate governance policies and practices on the firm's performance.*

### Methodology

#### Data

The sample is selected on basis of stratified random sampling, which involves two stages. At the first stage, companies listed on the stock exchange are identified on the basis of their capital base as small cap, mid cap, and large cap companies.

The second phase involves qualified corporate governance report and financial reports by way of modification, qualification or adverse opinion. Initially, the sample size was 200

## Author's Copy

companies listed on the BSE; due to unavailability of appropriate data, the sample size shrunk to 121 companies, out of which 40 companies are from large cap, 40 are from mid cap and 41 companies are from the small cap category. The companies belong to different industrial sectors such as power, fuel, cement sugar, textile, telecommunication, petroleum, automobile, entertainment, mining, iron, steel, pharmaceutical, Fast Moving Consumer Goods (FMCG), etc., for the period 2010-2011. The data was drawn from Prowess database of Centre for Monitoring Indian Economy (CMIE).

### Variable Selection

For the study purpose, corporate governance is considered as the independent variable which comprises factors of corporate governance such as transparency, disclosure, shareholders' rights and corporate governance policies and practices of the firm, whereas firm's performance is considered as the dependent variable. Other factors affecting the firm's performance are taken as control variables.

### Independent Variables

Based on the various theoretical and empirical studies, a few independent variables were selected, the definition and description of which are given in Table 2. Description of the control variables is given in Table 3.

S. No.	Variables	Sub-Components	Explanation to Variables	Symbol
1.	Transparency, disclosure and shareholders' rights	a. Transparency and disclosure. b. Shareholders' rights.	a. Transparency and disclosure norms followed by the company. b. Rights to shareholders.	<i>TSR</i>
2.	Corporate governance codes and initiatives	Corporate governance codes and initiatives.	Corporate governance codes and initiatives taken by the company.	<i>CGP</i>

S. No.	Control Variables	Description	Symbol
1.	Size of the firm	Total assets	<i>TA</i>
2.	Leverage	Debt/Equity	<i>LEV</i>
3.	Liquidity	Current assets/Current Liabilities	<i>COR</i>

### Dependent Variables

Review of the literature on corporate governance and firm performance suggests that firm performance can be measured in two ways; firstly, market-based performance, and secondly, accounting-based performance. Both the performance measures differ in two main aspects; first is time-based, in which the market value is forward looking and accounting value is backward looking, whereas market-based measure is what the management will accomplish, while accounting-based measure is an estimate of what management has accomplished (Demsetz and



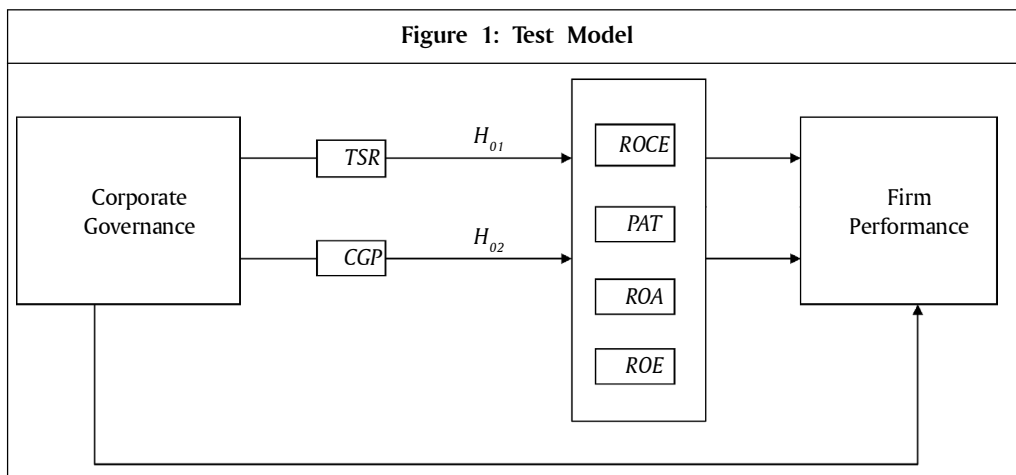
## Author's Copy

Villalonga, 2001). Many researchers have utilized Tobin's Q as a market-based performance measure for firm performance.

Though the accounting value is constrained by the standards set by the accountant, accounting policies opted for by his firm and the accounting norms and standards prevailing in the country, still the accounting rates can be better as they are free from investor bias and speculations to a large extent. Secondly, the capital market in India is not as developed as that of Western and European countries and debt is not openly traded in the Indian markets, therefore we prefer the accounting-based method to measure the firm performance. Various financial ratios such as ROCE, ROE, Profit After Tax (PAT), and ROA are utilized in the study.

### Model Construction

The model utilized to test the relationship between corporate governance and firm performance of small, mid and large cap firms in India is presented in Figure 1.



### Measurement of Corporate Governance Scores (CGS)

The study is based on a structured questionnaire (see Appendix). The CGS reflect the scores obtained by an individual company on a particular corporate governance factor or component. The corporate scores are based on the information provided by the firms in their annual reports. The annual corporate governance reports were carefully and extensively reviewed for the study. The CGS was developed on the basis of Standards & Poor's (S&P) Governance, Management, Accountability Metrics and Analysis (GAMMA). GAMMA scores attempt to assess the effectiveness of individual company's governance practices as a system of interaction among a company's management, board, shareholders and other stakeholders aimed at building company value and ensuring fair distribution of its earnings.

### Transparency, Disclosure, Shareholders' Rights and Firm Performance

Transparency and shareholders' rights in the study refer to the level of transparency and the degree of disclosure in the financial reports and the accounting practices showed by the firms. It also reveals the rights available to the shareholders of the firm. Further, in order to study

## Author's Copy

the transparency and shareholders' rights of the different firms in India, it was divided into four categories: Totally transparent firms, firms with high transparency, firms with adequate transparency and firms with very less transparency.

- a. **Totally transparent firms:** The firms which show the highest level of transparency and disclosure and in which the shareholders enjoy the maximum rights were included in this category. The firms scoring between 95 to 100 points in the respective segment of the questionnaire were included in this category.
- b. **Firms with high transparency:** The firms which show good level of transparency and where the shareholders enjoy their rights a little more than mandatory provisions given in Clause 49 were covered in this category. The firms scoring between 91 to 94 points in the given segment of the questionnaire were included in this category.
- c. **Firms with adequate transparency:** This category includes the firms which just fulfill the mandatory requirements related to transparency, disclosure and shareholders' rights. The firms scoring between 70 to 90 points in the respective segment of the questionnaire were included in this category.
- d. **Firms with very less transparency:** The firms which fail to fulfill the mandatory provisions related to transparency, disclosure and shareholders' rights were included in this category. Further the firms scoring up to 69 points in the respective segment of the questionnaire were included in this category. Transparency, disclosure and shareholders' rights scores for categorization are mentioned in Table 4.

Category	Scores
Totally transparent firms	95-100
Firms with high transparency	91-94
Firms with adequate transparency	70-90
Firms with very less transparency	0-69

### **Corporate Governance Policies and Practices**

Corporate governance policies and practices here refer to the corporate governance practices followed and initiatives taken by the firms. For the study purpose based on their scores in the questionnaire, the corporate governance policies and practices of the firms were classified into four categories, viz., outstanding, good, standard and substandard practices.

- a. **Outstanding corporate governance practices:** The firms which fulfill maximum of the provisions given under Clause 49 and Voluntary Regulation Act, 2009 were included in the best practicing firm's category. This category includes the firms which score between 95 to 100 points in the respective segment of the questionnaire.
- b. **Good corporate governance practices:** In this category the firms which fulfill a little more than mandatory provisions given in Clause 49 were covered. The firms scoring

## Author's Copy

between 80 to 94 points in the given segment of the questionnaire were included in this category.

- c. Standard corporate governance practices: This category includes the firms which follow just mandatory requirements or provisions as stipulated by the legal and regulatory framework in India. The firms scoring between 71 to 79 points in the respective segment of the questionnaire were included in this category.
- d. Substandard corporate governance practices: The firms which fail to follow their minimum obligations were covered under this category. They are the firms which do not follow even the mandatory requirements as mentioned in the legal regulatory framework in India. The firms scoring 70 or below were included in this category. Corporate governance policies and practices scores for categorization are mentioned in Table 5.

Category	Scores
Outstanding corporate governance practices	95-100
Good corporate governance practices	80-94
Standard corporate governance practices	71-79
Substandard corporate governance practices	0-70

### Results

#### Transparency and Shareholders' Rights

To find out the effect of transparency and shareholders' rights on the firm's financial performance hypothesis 1 was developed. For the study purpose, the transparency and shareholders' rights was further classified into (a) firms with very less transparency; (b) firms with adequate transparency; (c) firms with high transparency; and (d) and totally transparent firms. In order to check the degree of association and nature of relationship between the independent variable, transparency and shareholders' rights (TSR) and dependent variable, firm's performance and to test the significance level of the hypothesis 1, some statistical tools and techniques were applied; results and interpretation thereof are presented as under.

Table 6 displays the descriptive statistics for each group and for the entire dataset, with *N* indicating the size of each group. The standard deviation and standard error statistics confirm that as ROCE Percentage, PAT, ROA, and ROE increase, variation in performance decreases. One-way ANOVA compares these sample estimates to determine if the population means differ. The standard deviation indicates the amount of variability of the scores in each group. These values should be similar to each other for ANOVA to be appropriate. Equality can be inspected via the Levene test. The 95% confidence interval for the mean indicates the upper and lower bounds which contain the true value of the population mean 95% of the time. The Levene statistic in Table 7 rejects the null hypothesis that the group variances are equal in the case of ROCE, PAT, ROA and ROE. ANOVA is robust to this violation when the groups are of equal or near equal size. However, we decide to continue to use *F*-test for other parameters too.

**Table 6: Descriptive Statistics – Transparency and Shareholders' Rights**

	ROCE Percentage	N	Mean	SD	Std. Error	95% Confidence Interval for Mean	
						Lower Bound	Upper Bound
	Very Less Transparency	62	15.6515	10.73877	1.36382	12.9243	18.3786
	Adequate Transparency	15	22.6040	28.54437	7.37012	6.7967	38.4113
	Very Transparent	10	23.9320	23.79787	7.52555	6.9080	40.9560
	Totally Transparent	34	18.0841	14.74281	2.52837	12.9401	23.2281
	<b>Total</b>	<b>121</b>	<b>17.8812</b>	<b>16.25871</b>	<b>1.47806</b>	<b>14.9548</b>	<b>20.8077</b>
PAT	Very Less Transparency	62	4.5143E2	939.04016	1.19258E2	212.9573	689.9004
	Adequate Transparency	15	3.0875E3	5.643.53728	1.45716E3	-37.7888	6212.7848
	Very Transparent	10	1.9786E3	2,734.61950	8.64763E2	22.3931	3934.8509
	Totally Transparent	34	2.7982E3	4,153.44746	7.12310E2	1349.0081	4247.4207
	<b>Total</b>	<b>121</b>	<b>1.5639E3</b>	<b>3,293.10417</b>	<b>2.99373E2</b>	<b>971.1180</b>	<b>2156.5939</b>
ROA	Very Less Transparency	62	1.36123E1	50.823601	6.454604	.70551	26.51907
	Adequate Transparency	15	3.55581E1	59.042702	1.524476E1	2.86135	68.25486
	Very Transparent	10	1.18330E1	28.351748	8.965610	-8.44866	32.11457
	Totally Transparent	34	1.16459E1	12.148342	2.083424	7.40710	15.88462
	<b>Total</b>	<b>121</b>	<b>1.56332E1</b>	<b>43.336642</b>	<b>3.939695</b>	<b>7.83292</b>	<b>23.43356</b>

Table 6 (Cont.)

	N	Mean	SD	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
ROE	Very Less Transparency	1.07337E1	17.395930	2.209285	6.31597	15.15145
	Adequate Transparency	1.85867E1	24.631444	6.359811	4.94623	32.22711
	Very Transparent	6.35400	42.193346	1.334271E1	-23.82930	36.53730
	Totally Transparent	1.24835E1	14.385437	2.467082	7.46421	17.50285
	<b>Total</b>	<b>121</b>	<b>1.18369E1</b>	<b>20.591031</b>	<b>1.871912</b>	<b>8.13069</b>

As per data of corporate governance parameters in the research instrument, we are interested in finding out if financial parameters vary depending on the level of transparency or not and for that ANOVA test is applied. The total variation is partitioned into two components. Between groups represents the variation of the group means around the overall mean. Within groups represents variation of the individual scores around their respective group means. If desired, the between groups variation can be partitioned into trend components. According to Table 8, the significance value of the *F*-statistic in the ANOVA table is 0.284 for ROCE Percentage, 0.302 for ROA, 0.474 for ROE, and 0.001 for PAT. Small significance value of 0.001 (<0.05) indicates group differences. The difference in financial parameters across different levels of transparency is significant only for PAT. Thus, we reject the hypothesis  $H_{01}$ . Average financial parameters vary equally across different board compositions.

The test between-subjects effect helps us to determine the significance of a factor. However, they do not indicate how the levels of a factor differ. The post hoc tests show the differences in model-predicted means for each pair of factor levels. For a more detailed analysis, we use Tukey HSD post hoc test for pair-wise comparisons in one-way ANOVA whose results are shown in different tables, i.e., Tables 9 to 13.

Now that as we know the groups differ in some way, we need to learn more about the structure of the differences. The means plot helped us to 'see' this structure. In Figure 2, the firms with adequate transparency and very high transparency show higher mean ROCE than their counterparts. Further, Figure 5 shows that means of ROE of adequate transparency and total transparency firms are higher than very less transparent and very transparent firms. Again, Figure 4 shows that mean of ROA of adequate transparency firms are very high as compared to the means of very less transparent,

## Author's Copy

Table 7: Test of Homogeneity of Variances				
	Levene Statistic	df1	df2	Sig.
ROCE Percentage	4.645	3	117	0.004
PAT	13.078	3	117	0.000
ROA	2.570	3	117	0.058
ROE	5.257	3	117	0.002

Table 8: ANOVA Results						
		Sum of Squares	df	Mean Square	F	Sig.
ROCE Percentage	Between Groups	1010.345	3	336.782	1.283	0.284
	Within Groups	30711.135	117	262.488		
	<b>Total</b>	<b>31721.479</b>	<b>120</b>			
PAT	Between Groups	1.651E8	3	5.502E7	5.666	0.001
	Within Groups	1.136E9	117	9711736.835		
	<b>Total</b>	<b>1.301E9</b>	<b>120</b>			
ROA	Between Groups	6893.222	3	2297.741	1.231	0.302
	Within Groups	218474.521	117	1867.304		
	<b>Total</b>	<b>225367.743</b>	<b>120</b>			
ROE	Between Groups	1073.684	3	357.895	0.841	0.474
	Within Groups	49805.185	117	425.685		
	<b>Total</b>	<b>50878.869</b>	<b>120</b>			

very transparent and totally transparent firms. It is further noticed that very transparent and totally transparent firms show approximately the same level of means of ROA.

Whereas means of PAT and level of transparency categorization show that the firms with very less transparency have the lowest mean of PAT, while the firms with adequate transparency and total transparency show higher means of PAT (Figure 3).

On the basis of the results of Levene statistic, one-way ANOVA, *F*-test, and Tukey HSD post hoc test, the null hypothesis  $H_{01}$  is rejected, and it can be concluded that the firms with adequate and higher level of transparency perform better.

**Table 9: Tukey HSD Test – Multiple Comparisons**

Dependent Variable	(I) TSR Category	(J) TSR Category	Mean Difference (I–J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
ROCE Percentage	Very Less Transparency	Adequate Transparency	-6.95255	4.66186	0.446	-19.1029	5.1978
		Very Transparent	-8.28055	5.52110	0.441	-22.6704	6.1093
		<b>Totally Transparent</b>	<b>-2.43267</b>	<b>3.45745</b>	<b>0.895</b>	<b>-11.4439</b>	<b>6.5786</b>
	Adequate Transparency	Very Less Transparency	6.95255	4.66186	0.446	-5.1978	19.1029
		Very Transparent	-1.32800	6.61423	0.997	-18.5669	15.9109
	Very Transparent	<b>Totally Transparent</b>	<b>4.51988</b>	<b>5.02190</b>	<b>0.805</b>	<b>-8.5689</b>	<b>17.6087</b>
		Very Less Transparency	8.28055	5.52110	0.441	-6.1093	22.6704
		Adequate Transparency	1.32800	6.61423	0.997	-15.9109	18.5669
	Totally Transparent	<b>Totally Transparent</b>	<b>5.84788</b>	<b>5.82830</b>	<b>0.748</b>	<b>-9.3426</b>	<b>21.0384</b>
		Very Less Transparency	2.43267	3.45745	0.895	-6.5786	11.4439
Adequate Transparency		-4.51988	5.02190	0.805	-17.6087	8.5689	
Very Transparent		-5.84788	5.82830	0.748	-21.0384	9.3426	
PAT	Very Less Transparency	Adequate Transparency	-2636.06913 <sup>*</sup>	8.96711E2	0.020	-4,973.2019	-298.9363
		Very Transparent	-1527.19313	1.06199E3	0.478	-4,295.0900	1240.7038
		<b>Totally Transparent</b>	<b>-2346.78554<sup>*</sup></b>	<b>6.65042E2</b>	<b>0.003</b>	<b>-4,080.1098</b>	<b>-613.4613</b>
	Adequate Transparency	Very Less Transparency	2636.06913 <sup>*</sup>	8.96711E2	0.020	298.9363	4973.2019
		Very Transparent	1108.87600	1.27225E3	0.820	-2207.0427	4424.7947
		<b>Totally Transparent</b>	<b>289.28359</b>	<b>9.65965E2</b>	<b>0.991</b>	<b>-2,228.3496</b>	<b>2,806.9168</b>

Table 9 (Cont.)

Dependent Variable	(I) TSR Category	(J) TSR Category	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
ROA	Very Transparent	Very Less Transparent	1,527.19313	1.06199E3	0.478	-1,240.7038	4,295.0900
		Adequate Transparency	-1,108.87600	1.27225E3	0.820	-4,424.7947	2,207.0427
		Totally Transparent	-819.59241	1.12108E3	0.884	-3,741.4994	2,102.3146
	Totally Transparent	Very Less Transparent	2,346.78554*	6.65042E2	0.003	613.4613	4,080.1098
		Adequate Transparency	-289.28359	9.65965E2	0.991	-2,806.9168	2228.3496
		Very Transparent	819.59241	1.12108E3	0.884	-2,102.3146	3,741.4994
	Very Less Transparent	Adequate Transparency	-21.945817	1.243401E1	0.295	-54.35308	10.46145
		Very Transparent	1.779333	1.472577E1	0.999	-36.60102	40.15968
		Totally Transparent	1.966429	9.221632	0.997	-22.06828	26.00114
	Adequate Transparency	Very Less Transparent	21.945817	1.243401E1	0.295	-10.46145	54.35308
		Very Transparent	23.725150	1.764135E1	0.536	-22.25421	69.70451
		Totally Transparent	23.912246	1.339431E1	0.286	-10.99788	58.82238
Very Transparent	Very Less Transparent	-1.779333	1.472577E1	0.999	-40.15968	36.60102	
	Adequate Transparency	-23.725150	1.764135E1	0.536	-69.70451	22.25421	
	Totally Transparent	.187096	1.554513E1	1.000	-40.32880	40.70299	



Table 9 (Cont.)

Dependent Variable	(I) TSR Category	(J) TSR Category	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
ROE	Totally Transparent	Very Less Transparent	-1.966429	9.221632	0.997	-26.00114	22.06828
		Adequate Transparent	-23.912246	1.339431E1	.286	-58.82238	10.99788
		Very Transparent	-.187096	1.554513E1	1.000	-40.70299	40.32880
	Very Less Transparent	Adequate Transparent	-7.852957	5.936743	0.550	-23.32613	7.62021
		Very Transparent	4.379710	7.030962	0.925	-13.94537	22.70479
		Totally Transparent	-1.749820	4.402959	0.979	-13.22543	9.72579
	Adequate Transparency	Very Less Transparent	7.852957	5.936743	0.550	-7.62021	23.32613
		Very Transparent	12.232667	8.423037	0.470	-9.72063	34.18596
		Totally Transparent	6.103137	6.395247	0.775	-10.56505	22.77132
	Very Transparent	Very Less Transparent	-4.379710	7.030962	0.925	-22.70479	13.94537
		Adequate Transparent	-12.232667	8.423037	0.470	-34.18596	9.72063
		Totally Transparent	-6.129529	7.422176	0.842	-25.47424	13.21518
Totally Transparent	Very Less Transparent	1.749820	4.402959	0.979	-9.72579	13.22543	
	Adequate Transparent	-6.103137	6.395247	0.775	-22.77132	10.56505	
	Very Transparent	6.129529	7.422176	0.842	-13.21518	25.47424	

Note: \* The mean difference is significant at 0.05 level.

## Author's Copy

<b>Table 10: Tukey HSD Test – ROCE Percentage</b>		
TSR Category	N	Subset for Alpha = 0.05
		1
Very Less Transparency	62	15.6515
Totally Transparent	34	18.0841
Adequate Transparency	15	22.6040
Very Transparent	10	23.9320
Sig.		0.400
<b>Note:</b> Means for groups in homogeneous subsets are displayed.		

<b>Table 11: Tukey HSD Test – PAT</b>		
TSR Category	N	Subset for Alpha = 0.05
		1
Very Less Transparency	62	451.4289
Very Transparent	10	1,978.6220
Totally Transparent	34	2,798.2144
Adequate Transparency	15	3,087.4980
Sig.		0.051
<b>Note:</b> Means for groups in homogeneous subsets are displayed.		

<b>Table 12: Tukey HSD Test – ROA</b>		
TSR Category	N	Subset for Alpha = 0.05
		1
Totally Transparent	34	11.64586
Very Transparent	10	11.83295
Very Less Transparency	62	13.61229
Adequate Transparency	15	35.55810
Sig.		0.329
<b>Note:</b> Means for groups in homogeneous subsets are displayed.		

<b>Table 13: Tukey HSD Test – ROE</b>		
TSR Category	N	Subset for Alpha = 0.05
		1
Very Transparent	10	6.35400
Very Less Transparency	62	10.73371
Totally Transparent	34	12.48353
Adequate Transparency	15	18.58667
Sig.		0.269
<b>Note:</b> Means for groups in homogeneous subsets are displayed.		

# Author's Copy

Figure 2: Means Plot – ROCE Percentage (Transparency)

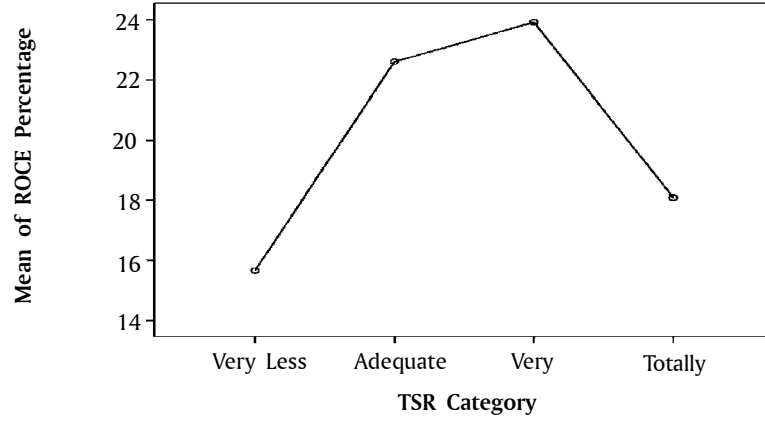


Figure 3: Means Plot – PAT (Transparency)

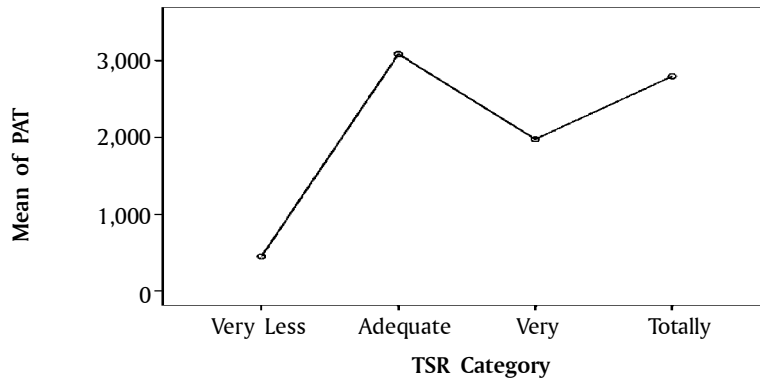
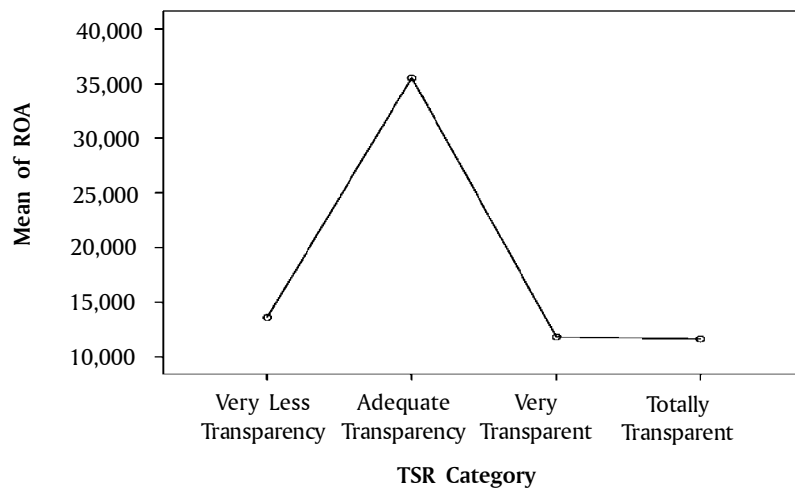
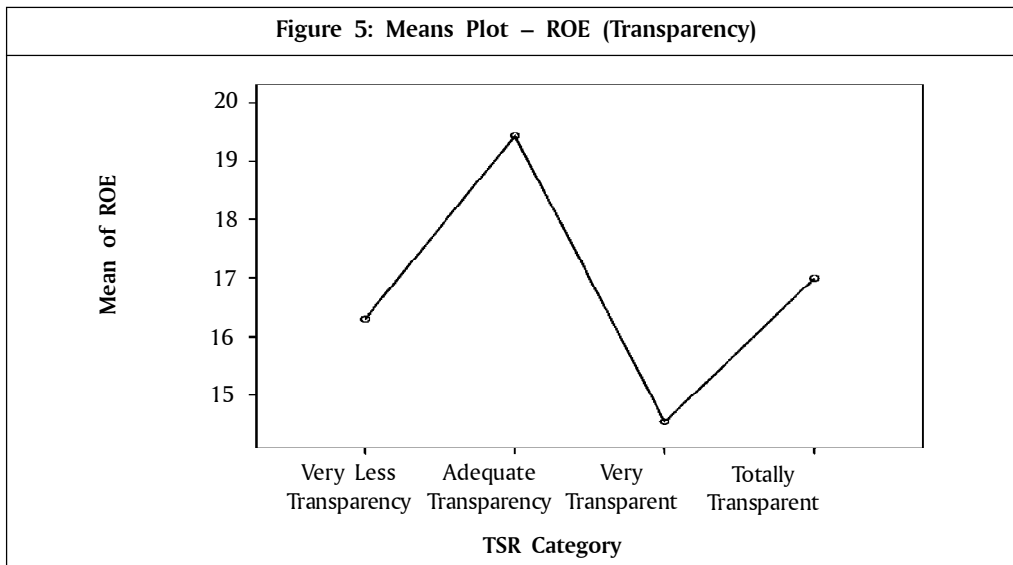


Figure 4: Means Plot – ROA (Transparency)



## Author's Copy



### Corporate Governance Policies and Practices

To investigate the effect of the corporate governance codes and initiatives (CGP) on the financial performance of the firm, hypothesis 2 was developed. For the study purpose, the corporate governance practices of Indian firms were categorized into: (a) Substandard corporate governance practices; (b) Standard corporate governance practices; (c) Good corporate governance practices; and (d) Outstanding corporate governance practices. Further in order to test the level of significance of hypothesis and to find the degree of dependence between the two variables, a few statistical tools and tests were applied, and the results thereof are discussed as under.

Table 14 presents the descriptive statistics for each group and for the entire dataset, with  $N$  indicating the size of each group. The standard deviation and standard error statistics confirm that as ROCE Percentage, PAT, ROA, and ROE increase, variation in performance decreases. One-way ANOVA compares these sample estimates to determine if the population means differ. The standard deviation indicates the amount of variability of the scores in each group. These values should be similar to each other for ANOVA to be appropriate. Equality can be inspected via the Levene test. The 95% confidence interval for the mean indicates the upper and lower bounds which contain the true value of the population mean 95% of the time. The Levene statistic in Table 15 rejects the null hypothesis. ANOVA is robust to this violation when the groups are of equal or near equal size. However, we decide to continue to use  $F$ -test for other parameters too.

As per data of corporate governance parameters in the research instrument, we are interested in finding out if financial parameters vary depending on the level of corporate governance policies and practices or not, and for that ANOVA test is applied. The total variation is partitioned into two components—Between Groups and Within Groups. According to Table 16, the significance value of the  $F$ -statistic in the ANOVA table is 0.893 for ROCE

**Table 14: Descriptive Statistics – Corporate Governance Policies and Practices**

	N	Mean	SD	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
ROCE Percentage	Substd. CG Practices	16.8956	13.45796	1.63202	13.6381	20.1531	-1.09	75.38
	Std. CG Practices	18.4683	11.92794	2.81144	12.5367	24.4000	1.74	49.83
	Good CG Practices	19.7893	28.64420	7.39590	3.9267	35.6520	-0.60	112.62
	Outstanding CG Practices	19.2730	17.03786	3.80978	11.2990	27.2470	0.66	59.31
	<b>Total</b>	<b>121</b>	<b>17.8812</b>	<b>16.25871</b>	<b>1.47806</b>	<b>14.9548</b>	<b>20.8077</b>	<b>-1.09</b>
PAT	Substd. CG Practices	8.1259E2	2611.71101	3.16716E2	180.4235	1,444.7609	-3052.05	2,0040.00
	Std. CG Practices	2.1686E3	3127.04913	7.37053E2	613.5778	3,723.6677	13.87	12,896.91
	Good CG Practices	1.0994E3	1416.92876	3.65849E2	314.7263	1,884.0643	-757.99	4,696.10
	Outstanding CG Practices	3.9222E3	5081.23040	1.13620E3	1,544.1190	6,300.2970	12.38	18924.00
	<b>Total</b>	<b>121</b>	<b>1.5639E3</b>	<b>3293.10417</b>	<b>2.99373E2</b>	<b>971.1180</b>	<b>2,156.5939</b>	<b>-3,052.05</b>
ROA	Substd. CG Practices	1.64861E1	55.229021	6.697503	3.11782	29.85436	-91.762	390.464
	Std. CG Practices	1.75757E1	23.858698	5.623549	5.71104	29.44034	.256	107.611
	Good CG Practices	1.36195E1	22.231762	5.740216	1.30798	25.93106	-.952	87.549
	Outstanding CG Practices	1.24956E1	14.563283	3.256449	5.67982	19.31147	.162	59.862
	<b>Total</b>	<b>121</b>	<b>1.56332E1</b>	<b>43.336642</b>	<b>3.939695</b>	<b>7.83292</b>	<b>23.43356</b>	<b>-91.762</b>

Table 14 (Cont.)

	N	Mean	SD	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
ROE	Substd. CG Practices	1.06772E1	22.143788	2.685329	5.31727	16.03714	-95.300	64.400
	Std. CG Practices	1.34894E1	7.747900	1.826198	9.63650	17.34238	0.800	30.900
	Good CG Practices	1.29940E1	27.536238	7.109826	-2.25506	28.24306	-45.500	87.200
	Outstanding CG Practices	1.34250E1	18.032911	4.032282	4.98534	21.86466	-39.700	49.500
	<b>Total</b>	<b>121</b>	<b>1.18369E1</b>	<b>20.591031</b>	<b>1.871912</b>	<b>8.13069</b>	<b>15.54320</b>	<b>-95.300</b>

Percentage, 0.978 for ROA, 0.921 for ROE and 0.002 for PAT. The significance value of financial performance parameters, except PAT, indicates no group differences. Thus, we reject hypothesis  $H_{02}$ . The difference in financial parameters across different levels of corporate governance practice categories is significant for PAT, as the significance value of this parameter is less than 0.005.

The post hoc tests show the differences in model-predicted means for each pair of factor levels. For a more detailed analysis, we use Tamhane T2 post hoc test, whose results are mentioned in Tables 17 to 21. The means plot presented in Figures 6 to 9, helps us to 'see' the structure of the differences. It shows graphical representation of the relationship between different categories of corporate governance practices of the firms and the financial performance parameters of the firm. The corporate governance practices of the firms are categorized into substandard, standard, good and outstanding corporate governance practices, whereas the means of different financial ratios such as ROCE, ROA, PAT and ROE are used as the components of the performance of the firms.

Figure 6 showing the relationship between corporate governance practice categories of the firm and mean of ROCE reveals that the firms with substandard corporate governance practices have the lowest mean of ROCE, whereas the firms with good corporate governance practices show the highest mean of ROCE, followed by the firms with outstanding corporate governance practices.

Figure 7 showing the relationship between means of PAT and corporate governance categories of the firms present a zig-zag shaped curve. It reveals that the firms with outstanding corporate governance practices have the highest mean of PAT, whereas the firms with substandard corporate governance practices show the lowest mean of PAT.

But Figure 8 showing the relationship between mean of ROA and corporate governance practice

## Author's Copy

	Levene Statistic	df1	df2	Sig.
ROCE Percentage	2.954	3	117	0.035
PAT	8.721	3	117	0.000
ROA	0.445	3	117	0.721
ROE	1.033	3	117	0.381

		Sum of Squares	df	Mean Square	F	Sig.
ROCE Percentage	Between Groups	165.619	3	55.206	0.205	0.893
	Within Groups	31,555.860	117	269.708		
	<b>Total</b>	<b>31,721.479</b>	<b>120</b>			
PAT	Between Groups	1.594E8	3	5.314E7	5.445	0.002
	Within Groups	1.142E9	117	9759910.130		
	<b>Total</b>	<b>1.301E9</b>	<b>120</b>			
ROA	Between Groups	375.093	3	125.031	0.065	0.978
	Within Groups	224,992.650	117	1923.014		
	<b>Total</b>	<b>225,367.743</b>	<b>120</b>			
ROE	Between Groups	211.133	3	70.378	0.163	0.921
	Within Groups	50,667.736	117	433.058		
	<b>Total</b>	<b>50,878.869</b>	<b>120</b>			

categories of the firms presents a different result. Here the firms with outstanding corporate governance category show the lowest mean of the ROA, while the firms with standard corporate governance practices show the highest mean of ROA, followed by the firms with substandard corporate governance practices.

Further, the graph related to mean of ROE and corporate governance practice category (Figure 9) shows that the firms with outstanding corporate governance practices show the highest mean of ROE, whereas the firms with the substandard corporate governance practices show the lowest mean of ROE.

**Table 17: Tamhane T2 Test – Multiple Comparisons**

Dependent Variable	(I) Corporate Governance Category	(J) Corporate Governance Category	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
ROCE Percentage	Substd. CG Practices	Std. CG Practices	-1.57275	4.35317	0.984	-12.9186	9.7731
		Good CG Practices	-2.89375	4.68475	0.926	-15.1038	9.3163
		Outstanding CG Practices	-2.37741	4.17752	0.941	-13.2655	8.5106
	Std. CG Practices	Substd. CG Practices	1.57275	4.35317	0.984	-9.7731	12.9186
		Good CG Practices	-1.32100	5.74146	0.996	-16.2852	13.6432
		Outstanding CG Practices	-.80467	5.33565	0.999	-14.7112	13.1019
	Good CG Practices	Substd. CG Practices	2.89375	4.68475	0.926	-9.3163	15.1038
		Std. CG Practices	1.32100	5.74146	0.996	-13.6432	16.2852
		Outstanding CG Practices	0.51633	5.60945	1.000	-14.1038	15.1365
	Outstanding CG Practices	Substd. CG Practices	2.37741	4.17752	0.941	-8.5106	13.2655
		Std. CG Practices	0.80467	5.33565	0.999	-13.1019	14.7112
		Good CG Practices	-5.1633	5.60945	1.000	-15.1365	14.1038
PAT	Substd. CG Practices	Std. CG Practices	-1.356.03057	8.28097E2	0.362	-3,514.3339	802.2727
		Good CG Practices	-286.80313	8.91173E2	0.988	-2,609.5021	2,035.8958
		Outstanding CG Practices	-3109.61579*	7.94685E2	0.001	-5,180.8339	-1,038.3976
	Std. CG Practices	Substd. CG Practices	1,356.03057	8.28097E2	0.362	-802.2727	3,514.3339
		Good CG Practices	1,069.22744	1.09219E3	0.762	-1,777.3896	3,915.8445
		Outstanding CG Practices	-1,753.58522	1.01499E3	0.314	-4,399.0045	891.8340



Table 17 (Cont.)

Dependent Variable	(I) Corporate Governance Category	(J) Corporate Governance Category	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
ROA	Good CG Practices	Substd. CG Practices	286.80313	8.91173E2	0.988	-2,035.8958	2,609.5021
		Std. CG Practices	-1,069.22744	1.09219E3	0.762	-3,915.8445	1,777.3896
	Outstanding CG Practices	Outstanding CG Practices	-2,822.81267	1.06708E3	0.045	-5,603.9815	-41.6438
		Substd. CG Practices	3,109.61579*	7.94685E2	0.001	1,038.3976	5,180.8339
	Substd. CG Practices	Std. CG Practices	1,753.58522	1.01499E3	0.314	-891.8340	4,399.0045
		Good CG Practices	2,822.81267*	1.06708E3	0.045	41.6438	5,603.9815
	Substd. CG Practices	Std. CG Practices	-1.089604	1.162384E1	1.000	-31.38529	29.20608
		Good CG Practices	2.866570	1.250922E1	0.996	-29.73671	35.46985
	Std. CG Practices	Outstanding CG Practices	3.990447	1.115483E1	0.984	-25.08284	33.06374
		Substd. CG Practices	1.089604	1.162384E1	1.000	-29.20608	31.38529
	Good CG Practices	Good CG Practices	3.956174	1.533085E1	0.994	-36.00124	43.91359
		Outstanding CG Practices	5.080052	1.424727E1	0.984	-32.05319	42.21329
Good CG Practices	Substd. CG Practices	-2.866570	1.250922E1	0.996	-35.46985	29.73671	
	Std. CG Practices	-3.956174	1.533085E1	0.994	-43.91359	36.00124	
Outstanding CG Practices	Outstanding CG Practices	1.123878	1.497837E1	1.000	-37.91485	40.16261	

Table 17 (Cont.)

Dependent Variable	(I) Corporate Governance Category	(J) Corporate Governance Category	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
ROE	Outstanding CG Practices	Substd. CG Practices	-3.990447	1.115483E1	0.984	-33.06374	25.08284
		Std. CG Practices	-5.080052	1.424727E1	0.984	-42.21329	32.05319
		Good CG Practices	-1.123878	1.497837E1	1.000	-40.16261	37.91485
	Substd. CG Practices	Std. CG Practices	-2.812239	5.516090	0.957	-17.18904	11.56457
		Good CG Practices	-2.316794	5.936244	0.980	-17.78866	13.15508
		Outstanding CG Practices	-2.747794	5.293522	0.954	-16.54451	11.04892
	Std. CG Practices	Substd. CG Practices	2.812239	5.516090	0.957	-11.56457	17.18904
		Good CG Practices	0.495444	7.275250	1.000	-18.46633	19.45722
		Outstanding CG Practices	0.064444	6.761038	1.000	-17.55712	17.68601
	Good CG Practices	Substd. CG Practices	2.316794	5.936244	0.980	-13.15508	17.78866
		Std. CG Practices	-0.495444	7.275250	1.000	-19.45722	18.46633
		Outstanding CG Practices	-0.431000	7.107980	1.000	-18.95681	18.09481
Outstanding CG Practices	Substd. CG Practices	2.747794	5.293522	0.954	-11.04892	16.54451	
	Std. CG Practices	-0.064444	6.761038	1.000	-17.68601	17.55712	
	Good CG Practices	0.431000	7.107980	1.000	-18.09481	18.95681	

Note: \* The mean difference is significant at 0.05 level.

## Author's Copy

Table 18: Tamhane T2 Test – ROCE Percentage		
Corporate Governance Category	N	Subset for Alpha = 0.05
		1
Substd. CG Practices	68	16.8956
Std. CG Practices	18	18.4683
Outstanding CG Practices	20	19.2730
Good CG Practices	15	19.7893
Sig.		0.939
<b>Note:</b> Means for groups in homogeneous subsets are displayed.		

Table 19: Tamhane T2 Test – PAT			
Corporate Governance Category	N	Subset for Alpha = 0.05	
		1	2
Substd. CG Practices	68	812.5922	
Good CG Practices	15	1.0994E3	
Std. CG Practices	18	2.1686E3	2.1686E3
Outstanding CG Practices	20		3.9222E3
Sig.		0.490	0.262
<b>Note:</b> Means for groups in homogeneous subsets are displayed; 1 – Between Groups; and 2 – Within Groups.			

Table 20: Tamhane T2 Test – ROA		
Corporate Governance Category	N	Subset for Alpha = 0.05
		1
Outstanding CG Practices	20	12.49564
Good CG Practices	15	13.61952
Substd. CG Practices	68	16.48609
Std. CG Practices	18	17.57569
Sig.		0.981
<b>Note:</b> Means for groups in homogeneous subsets are displayed.		

Table 21: Tamhane T2 Test – ROE		
Corporate Governance Category	N	Subset for Alpha = 0.05
		1
Substd. CG Practices	68	10.67721
Good CG Practices	15	12.99400
Outstanding CG Practices	20	13.42500
Std. CG Practices	18	13.48944
Sig.		0.971
<b>Note:</b> Means for groups in homogeneous subsets are displayed.		

# Author's Copy

Figure 6: Means Plot – ROCE Percentage (CG Practices)

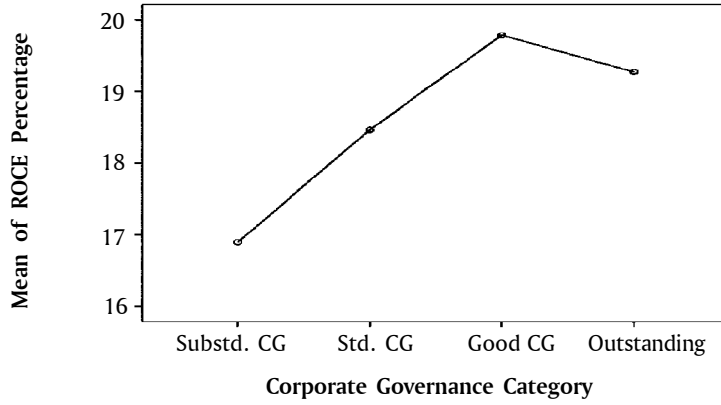


Figure 7: Means Plot – PAT (CG Practices)

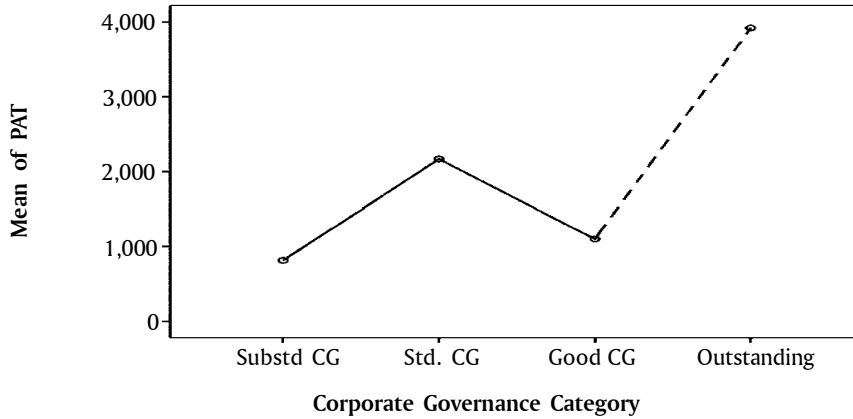
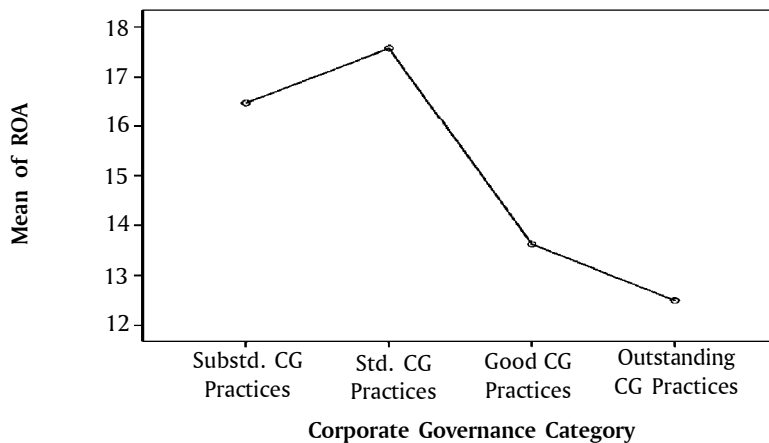
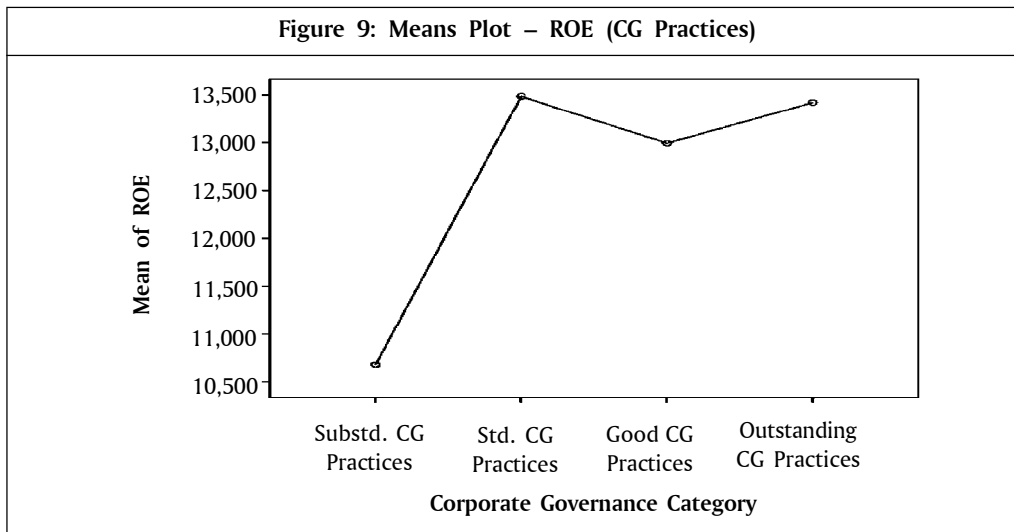


Figure 8: Means Plot – ROA (CG Practices)



## Author's Copy



All the graphs related to the means of different parameters of firm performance and the corporate governance categories reveal that the firms with substandard corporate governance practices show the lowest mean of ROCE, PAT and ROE as compared to its other counterparts. Only ROA is a parameter where the firms with substandard corporate governance practices show the high mean. Most of the financial parameters show higher means for the firms with good corporate governance practices and outstanding corporate governance practices.

In a nutshell, on the basis of statistical observation and analysis, the hypothesis can be rejected. And it can be further concluded that the firms with outstanding and good corporate governance practices perform better as there is a positive and significant relationship between corporate governance practices and firm performance.

### Conclusion

Primarily, the study results indicate that relationship of significant nature exists between transparency and shareholders' rights and firm performance. Hence, in simple words, it can be concluded that these factors are correlated and do have an impact on each other as well and the strength of the relationship is strong. It can be further said that transparency and shareholders' rights affect the firm's performance. Shelton and General (1999); Levine *et al.* (2000); Bushman and Smith (2001); Ball (2001); Gupta *et al.* (2003); Hassan *et al.* (2008) and many other researchers in their study related to transparency, disclosure and firm performance have found positive relationship between the variables.

Secondly, the observations of the study show that the firms which show more transparency in their accounting and financial matters and disclose all the material facts and information to shareholders have better financial performance as compared to the firms with poor transparency.

Thirdly, the firms in which the minority shareholders are not overlooked gain the confidence of the existing investors/shareholders, and they prefer to retain the company shares, so in the long run the market value of the firm increases.

## Author's Copy

Fourthly, the firms with transparency in their operations successfully win the faith of the shareholders and it becomes easy from them to raise the funds through capital market. In the long run, such firms enjoy the benefits of low cost of capital. It was also noticed that the large cap firms were more transparent in their accounting practices and disclosure of policies as compared to the small cap firms.

Fifthly, on the other hand, investigating the relationship between corporate governance and firm performance and analyzing the correlation among the independent variables as per the proposed model, the study found that a relationship of significant nature exists between corporate governance practices and firm performance. Hence, it can be said that these factors are correlated and do have an impact on each other as well but the strength of relationship is very strong. It can be further concluded that the corporate governance practices affect the firm's performance. The results are also supported by the findings of earlier studies, e.g., Kim and Lee (2003), Dwivedi and Jain (2005), Lee (2008), and Zhen *et al.* (2010).

Sixthly, Indian economy is going through phases of changes post liberalization. These changes in the operating environment have compelled the governing bodies to bring a change in the legal and regulatory framework for safeguarding the investors' money. Observations of the study reveal that the large cap and mid cap firms with their good corporate governance practices have shown better financial results, but the scenario in the case of small cap firms is different. In some of the cases, the firms with poor corporate governance practices are also performing well. During the study, it was also observed that the large cap firms and the public sector firms had higher level of adherence to the voluntary regulations as compared to private sector small and mid cap firms in India.

The study results also suggest that the corporate governance policies and transparency and disclosure are positively correlated. It means, we can say that the firms with good corporate governance policies and practices have greater transparency and disclosure as compared to the firms with poor corporate governance practices.

In a nutshell, it can be said that the mindset of the Indian entrepreneurs towards corporate governance is changing due to tough competition at international level, and the level of awareness among the investors also has increased. India is gradually moving towards a more structured corporate governance framework. □

### References

1. Aksu Mine and Kösedag Arman (2006), "Transparency and disclosure scores and their determinants in the Istanbul Stock Exchange", in *Corporate Governance: An International Review*, Vol. 14, No. 4, pp. 277-296.
2. Ball R (2001), "Infrastructure Requirements for an Economically Efficient System of Public Financial Reporting and Disclosure", *Brookings-Wharton Papers on Financial Services*, pp. 127-169.
3. Ball R, Robin A and Wu J (2003), "Incentives Versus Standards: Properties of Accounting Income in Four East Asian Countries", *Journal of Accounting and Economics*, Vol. 36, No. 1, pp. 235-270.

## Author's Copy

4. Bauer R, Guenster N and Otten R (2004), "Empirical Evidence on Corporate Governance in Europe: The Effect on Stock Returns, Firm Value and Performance", *Journal of Asset Management*, Vol. 5, pp. 91-104.
5. Benjamin E Hermalin and Michael S Weisbach (2012), "Information Disclosure and Corporate Governance", *Journal of Finance, American Finance Association*, Vol. 67, No. 1, pp. 195-234.
6. Berle A and Means Q (1932), *The Modern Corporation and Private Property*, MacMillan, New York, USA.
7. Bhagat S and Black Bernard S (2002), "Board Independence and Long-Term Performance", *Journal of Corporation Law*, Vol. 27.
8. Botosan C (1997), "Disclosure Level and the Cost-of-Equity-Capital", *The Accounting Review*, Vol. 72, pp. 323-349.
9. Bushman R M and Smith A J (2001), "Financial Accounting Information and Corporate Governance", *Journal of Accounting and Economics*, Vol. 32, pp. 237-333.
10. Carlin W and Mayer C (2000), "How do Financial Systems Affect Economic Performance", in Vives X (Ed.), *Corporate Governance: Theoretical and Empirical Perspectives*, pp. 137-159, CUP, New York.
11. Cohen J, Krishnamoorthy G and Wright A (2004), "The Corporate Governance Mosaic and Financial Reporting Quality", *Journal of Accounting Literature*, Vol. 23, pp. 87-152.
12. Daily C M and Dalton D R (1992), "The Relationship Between Governance Structure and Corporate Performance in Entrepreneurial Firms", *Journal of Business Venturing*, Vol. 7, pp. 375-386.
13. Demsetz Harold and Villalonga B (2001), "Ownership Structure & Corporate Performance", *Journal of Corporate Finance*, Vol. 7, No. 3, pp. 209-233.
14. Dwivedi N and Jain A K (2005), "Corporate Governance and Performance of Indian Firms: The Effect of Board Size and Ownership", *Employee Responsibilities and Rights Journal*, Vol. 17, pp. 161-172.
15. Gupta A, Nair A P and Gogula R (2003) , "Corporate Governance Reporting by Indian Companies: A Content Analysis Study", *The IUP Journal of Corporate Governance*, Vol. 2, No. 4, pp. 7-18.
16. *GAMMA: Governance, Accountability, Management Metrics and Analysis*, Standard & Poor's, available at <http://www.standardandpoors.com/about-sp/gamma/en/eu>. Accessed on April 2, 2008.
17. Gupta C D (2006), "Globalization, Corporate Legal Liability and Big Business Houses in India", *Cambridge Journal of Economics*, Vol. 34, pp. 895-913.

## Author's Copy

18. Hassan Che Haat Mohd, Rashidah Abdul Rahman and Sakthi Mahenthiran (2008), "Corporate Governance, Transparency and Performance of Malaysian Companies", *Managerial Auditing Journal*, Vol. 23, No. 8, pp. 744-778.
19. Healy P, Hutton A and Palepu K (1999), "Stock Performance and Intermediation Changes Surrounding Sustained Increases in Disclosure", *Contemporary Accounting Research*, Vol. 16, No. 3, pp. 485-520.
20. Healy Paul M and Palepu Krishna G (2001), "Information Asymmetry, Corporate Disclosure and the Capital Markets: A Review of the Empirical Disclosure Literature", *Journal of Accounting & Economics*, Vol. 31, pp. 405-440.
21. Jensen M C and Meckling W H (1976), "Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure", *Journal of Financial Economics*, Vol. 3, pp. 305-360.
22. Kevin Chen C W, Zhihong Chen and John Wei K C (2009), "Legal Protection of Investors, Corporate Governance, and the Cost of Equity Capital?", *Journal of Corporate Finance*, Vol. 15, June, pp. 273-289.
23. Kim B and Lee I (2003), "Agency Problems and Performance of Korean Companies During the Asian Financial Crisis: Chaebol vs. Non-Chaebol Firms", *Pacific-Basin Finance Journal*, Vol. 11, pp. 327-348.
24. King R, Pownall G and Waymire G (1990), "Expectation Adjustment via Timely Management Forecasts: Review Synthesis and Suggestions for Future Research", *Journal of Accounting Literature*, Vol. 9, pp. 113-144.
25. Knutson P (1990), "Financial Reporting in the 1990's and Beyond", Association for Investment Management Research, New York.
26. Lang M and Lundholm R (1993), "Cross-Sectional Determinants of Analyst Ratings of Corporate Disclosures", *Journal of Accounting Research*, Vol. 31, pp. 246-271.
27. Lee Sanghoon (2008), "Ownership Structure and Financial Performance: Evidence from Panel Data of South Korea", *Corporate Ownership and Control*, Vol. 6, No. 2, pp. 254-267.
28. Leuz C and Verrecchia R (2000), "The Economic Consequences of Increased Disclosure", *Journal of Accounting Research*, Vol. 38, pp. 91-124.
29. Levine R, Loayza N and Beck T (2000), "Financial Intermediation and Growth: Causality and Causes", *Journal of Monetary Economics*, Vol. 46, pp. 31-77.
30. Morck R, Yeung B and Yu W (2000), "The Information Content of Stock Markets: Why Do Emerging Markets have Synchronous Stock Price Movements?", *Journal of Financial Economics*, Vol. 58, pp. 215-260.
31. Niels Hermes and Vasiliki Katsigianni (2011), "Corporate Governance and Company Performance: Evidence from Greece", available at SSRN: <http://ssrn.com/abstract=1980331> or <http://dx.doi.org/10.2139/ssrn.1980331>



## Author's Copy

32. OECD (2004), *OECD Principles of Corporate Governance*, Paris.
33. Patterson D J (2000), "The Link Between Corporate Governance and Performance", Conference Board, New York, USA.
34. Sabri Boubaker, Carlos P Barros and Amal Hamrouni (2013), "Corporate Governance and Voluntary Disclosure in France", *Journal of Applied Business Research*, Vol. 29, No. 2, pp. 1-17.
35. Shleifer A and Vishny R W (1997), "A Survey of Corporate Governance", *The Journal of Finance*, Vol. 52, No. 2, pp. 737-783.
36. Shelton M J R and General D S (1999), "The Importance of Corporate Governance in OECD and Non-OECD Economies", Conference on Corporate Governance in Asia: A Comparative Perspective, The Draft OECD Principles, March 3-5, Seoul, Korea.
37. Skinner D J (1997), "Earnings Disclosures and Stockholder Lawsuits", *Journal of Accounting and Economics*, Vol. 23, pp. 249-282.
38. Verrecchia Robert E (2001), "Essays on Disclosure", Working Paper, The Wharton School.
39. Viral Acharya, Hamid Mehran, Til Schuermann and Anjan Thakor (2012), "Robust Capital Regulation", *Current Issues in Economics and Finance*, May, Federal Reserve Bank of New York.
40. Wendy Beekes, Philip Brown, Wenwen Zhan and Qiyu Zhang (2012), "The Relationship Between Disclosure, Information Timeliness and Corporate Governance: A Cross Country Study", Working Paper, Lancaster University, pp. 1-48, Lancaster.
41. Zhen Yi Wang, Li S and Ying T (2010), "Corporate Governance and Corporate Performance of High-Tech Small and Medium-Sized Enterprises: Based on Analysis of the Small and Medium-Sized Listed Enterprises Empirical Data", International Conference on Information Management, Innovation Management and Industrial Engineering (ICIII), Vol. 3, pp. 378-383, Kunming, China.



# Author's Copy

## Appendix (Cont.)

13. For improving the efficiency and effectiveness, does the company provide any training to the board members?	a) Yes <input type="checkbox"/>	b) No <input type="checkbox"/>
14. Is there any mechanism for evaluating the performance of the non-executive board members?	a) Yes <input type="checkbox"/>	b) No <input type="checkbox"/>
15. Does the company disclose the significant related-party transaction having potential conflicts?	a) Yes <input type="checkbox"/>	b) No <input type="checkbox"/>
16. Does the company comply with all the capital market matter-related issues?	a) Yes <input type="checkbox"/>	b) No <input type="checkbox"/>
17. Does the company follow standard accounting policies and practices?	a) Yes <input type="checkbox"/>	b) No <input type="checkbox"/>
18. Are the directors informed about risk management issues?	a) Yes <input type="checkbox"/>	b) No <input type="checkbox"/>
19. Does the company publish risk management report?	a) Yes <input type="checkbox"/>	b) No <input type="checkbox"/>
20. Do the shareholders have the right to appoint new director/reappoint a retired director?	a) Yes <input type="checkbox"/>	b) No <input type="checkbox"/>
21. Do the shareholders get information on quarterly results?	a) Yes <input type="checkbox"/>	b) No <input type="checkbox"/>
22. Are the shareholders informed about share transfer procedures?	a) Yes <input type="checkbox"/>	b) No <input type="checkbox"/>
23. Is there any director's responsibility statement?	a) Yes <input type="checkbox"/>	b) No <input type="checkbox"/>
24. Do the shareholders get information on the half-yearly financial performance of the company?	a) Yes <input type="checkbox"/>	b) No <input type="checkbox"/>

# Author's Copy

## Appendix (Cont.)

25. Does the company disclose its policies related to EHS, HRD, CSR and IR?

a) Yes

b) No

26. Does the company annually publish its Corporate Governance Report?

a) Yes

b) No

*Reference # 04J-2013-07-02-01*



# Corporate Governance - Developments and Stumbling Blocks in India

<sup>1</sup>Jyotsna Ghildiyal Bijalwan, <sup>2</sup>Dr Pankaj Shah

<sup>1</sup>Research Scholar Uttarakhand Technical University, Dehradun, India,  
Mail-jyotsnaghildiyal@yahoo.com  
<sup>2</sup>Prof. Amrapali Institute, Uttarakhand

**Abstract-** Corporate governance in India can be evident from the Koutaliya's Arthshastra, which maintain that for good governance all administrators including king were considered as servants of the subjects. Good governance and stability goes hand in hand.

The primary objective of this paper is to study the corporate governance policies, practices and system in India. Goodness of corporate governance is checked on the basis of five basic parameters i.e. transparency, ownership structure, board procedure, investor rights and governance strategies.

During the study it was observed that, in India the legislative and regulatory framework for the corporate governance is sound but the implementation part is poor. There is a huge gap between what is de-jure and de-facto. The state is still lagging behind when it comes to particularly private sector small and medium size industries. Major part of industrial set up is just their production units. The government has also set up various committees, passed various regulations for the development of the industries in the country. There is a further need to strengthen the existing governance policies.

**Index Terms-** Corporate governance, Regulatory frame work, Transparency, Ownership Structure, Board Procedures

## I. INTRODUCTION

The root of the word corporate governance is from 'gubernate' which means to steer. Corporate governance would mean to steer an organization in the desired direction. Corporate governance is a system by which organization are directed and controlled, it is a process by which company objectives are established, achieved and monitored. So, it is concerned with relationship and responsibilities between the boards, management and stake holders within a legal and regulatory frame work. Corporate governance in India can be evident from the koutaliya's arthshastra, which maintain that for good governance all administrators including king were considered as servants of the subjects. Good governance and stability goes hand in hand.

The primary objective of this paper is to study the corporate governance policies, practices and system in India. Goodness of corporate governance can be checked on the basis of five basic parameters i.e. transparency, ownership structure, board procedure, investor rights and governance strategies. The paper further provides an insight to the concept of corporate governance, gives a brief historical development of corporate

governance in India, studies the role of corporate governance in National Development, focuses on the problem areas of corporate governance and suggests the solution to the corporate governance problems of India.

## II. CONCEPT OF CORPORATE GOVERNANCE

Many researchers have defined the corporate governance in their different ways as Monks and Minow have defined corporate governance as "Relationships among various participants in determining the direction and performance of a corporation". [1] The primary participants in a corporation are the tripod of shareholders; management-led by the CEO and the Board of Directors. There are other participants as well such as the employees, customers, suppliers, creditors and the community. Keeping in view the interests of various stakeholders in a company, corporate governance is concerned with effective management of relationships. It requires the formulation of the value framework, the ethical framework and the moral framework which will guide the decision-making process. According to James D. Wolfensohn, President of World Bank, "Corporate Governance is about promoting corporate fairness, transparency and accountability".

According to Tricker "Corporate Governance is concerned with the way corporate entities are governed, as distinct from the way business within those companies are managed. Corporate Governance addresses the issues facing Board of Directors, such as the interaction with top management and relationships with the owners and others interested in the affairs of the company". OECD has defined corporate governance as "A system by which business corporations are directed and controlled". Corporate Governance structure specifies the distribution of rights and responsibilities among different participants in the company such as board, management, shareholders and other stakeholders, and spells out the rules and procedures for corporate decision making. By doing this, it provides the structure through which the company's objectives are set along with the means of attaining these objectives as well as for monitoring performance. Confederation of Indian Industry (CII) – Desirable Corporate Governance Code defined Corporate Governance as follows:

"Corporate Governance deals with laws, procedures, practices and implicit rules that determine a company's ability to take informed managerial decisions vis-a-vis its claimants-in particular, its shareholders, creditors, customers, the State and employees. There is a global consensus about the objective of

‘good’ corporate governance: maximizing long-term shareholder value.”

### III. EVIDENCE OF CORPORATE GOVERNANCE FROM THE INDIAN HISTORY

Kautilya’s Arthashastra maintains that for good governance, all administrators, including the king were considered servants of the people. Good governance and stability were completely linked. There is stability if leaders are responsive, accountable and removable. These tenets hold good even today. Kautilya elaborates on the fourfold duty of a king as

- raksha,
- vridhi,
- palana,
- yogakshema.

The substitution of the state with the corporation, the king with the CEO or the board corporation, and the subjects with the shareholders, bring out the quintessence of corporate governance, because central to the concept of corporate governance is the belief that public should be ahead of private good and that the corporation’s resources cannot be used for personal benefit.

- (i) Raksha - literally means protection, in the corporate scenario it can be equated with the risk management aspect.
- (ii) Vriddhi - literally means growth in the present day context can be equated to stakeholder value enhancement.
- (iii) Palana - literally means maintenance/ compliance, in the present day context it can be equated to compliance to the law in letter and spirit.
- (iv) Yogakshema - literally means well being and in Kautilya’s Arthashastra it is used in context of a social security system. In the present day context it can be equated to corporate social responsibility.

Arthashastra talks self-discipline for a king and the six enemies which a king should overcome—lust, anger, greed, conceit, arrogance and foolhardiness. In the present day context, this addresses the ethics aspects of businesses and the personal ethics of the corporate leaders.

### IV. REVIEW OF THE LITERATURE

Zattoni et al, (2009) in their study on the group affiliated firms found that the Corporate governance reforms in India has resulted into the diminishing role of the business groups.[2] Li and Filer (2007) and Li and Nair (2007) in their study found that the Corporate governance environment in India is set in rule based democratic system.[3]

In the India the pre-liberalization era is remarked by the various studies focusing on the Corporate governance problems, but post-liberalization period had witnessed an advent of the new economic reforms and new governance philosophy. In this post-liberalization era corporate governance related issues in India

gained momentum. Chhibber and Mazumdar (1999)[4], Sarkar and Sarkar (1999 and 2000) and Patibandla (2006) etc have done remarkable study on the corporate governance issues of the India. Gupta (2006) in his study traced the difference in the corporate governance practices of three automobile companies in India named Hero-Honda Ltd, Maruti Udyog Ltd. and Escorts Ltd. The companies were randomly selected on the basis of their size and goodwill in the market. The study was focused on observing the compliance of the selected sample companies’ corporate governance practices with the Clause-49. The results of the study revealed that the Hero-Honda with 90%, Maruti with 80% and Escorts with 70% were in line with the Corporate governance norms as per Clause-49.[5]

The old classical socialistic Indian ideology has reflected in the closed economy of the India during the Pre-Liberalization era, where the government played a dominant role. Huang and Khanna, (2003).[6]

Khanna and Palepu (2000) further propounded that only the large size business houses which were owned by the families performed better as compare to the unaffiliated firms, where as the small and medium size firms which were owned by the families performed worse as compare to the non-affiliated firms.[7]

Further in 1999, the Chhibber and Mazumdar in their study based on the finding the relationship between the foreign shareholding and firms performance in the pre and post liberalization era found that in the post liberalization period the foreign ownership had a significant impact over the firms profitability.[8]

In another study conducted by Mazumdar in 1999, he compared the financial performance of the state owned, private owned and mixed state-private ownership firms. He found that the privately owned firms perform better as compare to the state owned firms followed by the mixed state-private ownership firms. The study further reveals that the state owned firms performed the worst.[9]

Similar were the conclusions drawn by some other researchers in their empirical study in the India (Ramaswamy, 2001; Shleifer and Vishny 1997; Shleifer, 1998).

Other studies of the similar time and type have reinforced these findings. (Chhibber and Mazumdar, 1999; Douma et al, 2003; Ramaswamy et al, 2002).

Kumar (1994) has examined the differences between the domestic and foreign firms in India. He observed that the foreign subsidiaries operating in India were more profitable as compare to the domestic companies. He further observed that foreign firms spent less on the research and development and more on the marketing and sales promotion campaigns as compare to the domestic firms.[10]

### V. COMMENTS SIGNIFICANCE OF GOOD CORPORATE GOVERNANCE

Although instituting corporate governance is clearly beneficial for firms and countries, the rapid pace of globalization has made the need urgent. Doing so requires that firms and national governments make some fundamental changes. Companies must change the way they operate, while national governments must establish and maintain the appropriate institutional framework..

Under such conditions business becomes nothing but casino capitalism where investments are simply bets: bets that people will keep their word, bets that the firms are telling the truth, bets that employees will be paid, and bets that debts will be honored. What corporate governance is all about in larger terms is how a structure can be set up that allows for a considerable amount of freedom within the rule of law. Some of the key changes involve adopting international standards of transparency, clarity, and accuracy in financial statements so that investors and creditors can easily compare potential investments.

Good corporate governance reduces the risk, stimulates performance, Improves access to capital market, Enhances the marketability of goods and services, improves leadership efficacy, and demonstrates transparency and social accountability.

**Corporate governance and the national development-** The corporate governance has a very important role to play in the national development. Its significance was ignored for many decades. The East-Asian financial crises of 1997-98 drew attention to it and the problems of “crony capitalism” in the growing economies.

**Corporate Governance and Productivity growth-** Paul Krugman predicted in 1994, by comparing East and south East Asia to soviet model that ‘it is not impossible for any country to achieve and sustain high rates of output and income growth for a long period of time even for decades by massive mobilization of factors of production. It can be achieved through various kinds of forced savings, significant and sustained investments in the education of the country’s population high rates of rural –urban migration, by more involvement of female population into modern manufacturing ,agri-business and service sectors and so on.

**Corporate Governance and Cost of capital-** Good corporate governance ensures the regular supply of funds to the investors, as the traditional resources are not enough to meet the requirements. The good governance also lowers the costs of financial resources.

## VI. CORPORATE GOVERNANCE FAILURE

The dishonest practices of the corporate s resulted into the sudden collapse of the several giant corporate houses around the world such as in 2001 Enron, in 2002 WorldCom (USA) , in 2003 Ahold(Netherlands), in 2003 Parmalat (Italy),Xerox and many more. The virtual collapse of the Russian economy in 1998 resulted in large measure from the weakness of governance mechanisms. The so called managers are said to have robbed share holders, creditors, consumers, the government, workers and all possible stake holders. The consequent distrust predictably resulted in the virtual collapse of external capital to firms, reveals that the corporate bad governance can shake the foundations of a society. Likewise, the Asian financial crisis also demonstrated that even strong economies lacking transparent control, responsible corporate boards and share holder rights can collapse due to dilution of investors’ confidence.

India was also not exception to the scenario Harshd Mehta Scam (1992), Ketan Parekh Scam, Stock Market Scam (1996), UTI Scam (2000), Fake Stamp Racket by Abdul Karim Telgi (2004), Satyam Fiasco and many more are in the list.

## REASONS FOR CORPORATE GOVERNANCE FAILURE

In terms of corporate governance issues, all suffered from questionable ethics, behavior at the top management, aggressive earnings management, weak internal control, risk management failure, poor accounting and reporting policies and loopholes in the legislative and regulatory frame work in the country. However, the lack of long-term vision is something of a rarity in many companies which further results into such scandals and frauds.

## VII. CORPORATE GOVERNANCE DEVELOPMENTS IN INDIA

The initiatives taken by the Government in 1991, aimed at economic liberalization, globalization and privatization of the domestic economy, led India to initiate reform process in order to suitably respond to the developments taking place world over. On account of the interest generated by Cadbury Committee Report, the confederation of Indian Industry (CII), the Associated Chambers of Commerce and industry (ASSOCHAM) and, the Securities and Exchange Board of India (SEBI) constituted Committees to recommend initiatives in Corporate Governance.

### CII’s Desirable Corporate Governance Code

Confederation of Indian Industry (CII) took a special initiative on Corporate Governance, the first institution initiative in Indian Industry. The objective was to develop and promote a code for Corporate Governance to be adopted and followed by the Indian companies, whether in the Private Sector, the Public Sector, Banks or Financial Institutions, all of which are corporate entities. The final draft of the said Code was widely circulated in 1997. In April 1998, the Code was released. It was called Desirable Corporate Governance Code.

### Kumar Mangalam Birla Committee

Following CII’s initiative, the Securities and Exchange Board of India (SEBI) set up a committee under the chairmanship of Kumar Mangalam Birla to promote and raise standards of corporate governance. This Report was the formal and comprehensive attempt to evolve a Code of governance in Indian companies, as well as the state of capital markets at that time.

The recommendations of the Kumar Mangalam Birla Committee, led to inclusion of clause 49 in the Listing Agreement in the year 2000. These recommendations aimed at improving the standards of Corporate Governance, are divided into mandatory and non-mandatory recommendations. The said recommendations have been made applicable to all listed companies with the paid-up capital of Rs.3 crores and above or net worth of Rs.25 crores or more at any time in the history of the company. The ultimate responsibility for putting the recommendations into practice lies directly with the Board of Directors and the management of the company.



### **Naresh Chandra Committee**

The Enron debacle of 2001 involving the hand-in-glove relationship between the auditor and the corporate client, the scams involving the fall of the corporate giants in the U.S. like the WorldCom, Qwest, Global Crossing, Xerox and the consequent enactment of the stringent Sarbanes Oxley Act in the U.S were some important factors which led the Indian Government to wake up and in the year 2002, Naresh Chandra Committee was appointed to examine and recommend inter alia amendments to the law involving the auditor-client relationships and the role of independent directors.

### **N.R.Narayana Murthy Committee**

In the year 2002, SEBI analyzed the statistics of compliance with the clause 49 by listed companies and felt that there was a need to look beyond the mere systems and procedures if corporate governance was to be made effective in protecting the interest of investors. SEBI therefore constituted a Committee under the Chairmanship of Shri N.R.Narayana Murthy, for reviewing implementation of the corporate governance code by listed companies and issue of revised clause 49 based on its recommendations.

### **Dr. J j irani Expert Committee on Company Law**

In 2004, the Government constituted a committee under the Chairmanship of Dr.J.J.Irani, Director, Tata Sons, with the task of advising the Government on the proposed revisions to the Companies Act, 1956 with the objective to have a simplified compact law that would be able to address the changes taking place in the national and international scenario, enable adoption of internationally accepted best practices as well as provide adequate flexibility for timely evolution of new arrangements in response to the requirements of ever-changing business models.

## **VIII. OBSTACLES IN IMPROVING CORPORATE GOVERNANCE IN INDIA**

Shareholding patterns in the countries like United Kingdom and United States of America is scattered in the nature. It is in such a way that no single individual investor can hold above a specific mentioned limit of stocks of a particular company. But the conditions in the rest of world are not the same. Developing countries like India are still suffering from the problems of concentrated ownership, agency problems and expropriation problems. Some of the main reasons behind poorly defined corporate governance in India are.

- a) Resistance to change.
- b) Distributional Carters.
- c) Principal-Agency Problems.
- d) Strategic Oligopolistic Rivalry.
- e) Poorly defined Corporate Governance Institutions
- f) Poor political Governance

## **SCOPE FOR THE IMPROVEMENT IN CORPORATE GOVERNANCE FRAMEWORK OF INDIA**

The whole world is facing the problem of global financial meltdown. Western and European countries are the worst hit by this economic T-sunami. The Indian economy is not that severely affected but this has slowed down the growth rate of the economy. In order to have a sustainable growth and development of the economy, India needs a quick and effective change in its corporate governance framework. Followings are some of the suggestions for improving the corporate governance system of the country.

### **1) Need for good governance for foreign investments.**

The recent trends show a significant flow of Portfolio investment to developing nations, mainly by the financial institutions and the big pension funds ect. It further necessitates the need for improvements in the corporate governance in India.

### **2) Development of basic financial infrastructure:**

A proper attention must be given to strengthen the banking sector and countries financial institutions. Institutions for corporate governance must be fair, transparent and effective in the country.

**3) Chairman and CEO:** It is considered good practice to separate the roles of the Chairman of the Board and that of the CEO. The Chairman is head of the Board and the CEO heads the management. If the same individual occupies both the positions, there is too much concentration of power, and the possibility of the board supervising the management gets diluted.

**4) Internal control system and Audit Committee:** Boards work through sub-committees and the audit committee is one of the most important. It not only oversees the work of the auditors but is also expected to independently inquire into the workings of the organization and bring lapse to the attention of the full board. There is a strong need for developing a sound internal control system in India.

**5) Independence and conflicts of interest:** Good governance requires that outside directors maintain their independence and do not benefit from their board membership other than remuneration. Otherwise, it can create conflicts of interest, by having a majority of outside directors on its Board.

**6) Flow of information:** A board needs to be provided with important information in a timely manner to enable it to perform its roles. A governance guideline of General Motors, for instance, specifically allows directors to contact individuals in the management if they feel the need to know more about operations than what they are being told.

**7) Too many directorships:** Being a director of a company takes time and effort. Although a board might meet only four or five times a year, the director needs to have the time to read and reflect over all the material provided and make informed decisions. Good governance, therefore, suggests that an

individual sitting on too many boards looks upon it only as a sinecure for he or she will not have the time to do a good job.

**8) Good governance parameters:** In order to have good corporate governance in the organization the firm must ensure:

- Transparency in the organization
- Sound board structure
- Defined board procedure
- Investor right protection
- & Good governance strategy.

## IX. CONCLUSION

In India the legislative and regulatory framework for the corporate governance are sound but the implementation part is poor. There is a huge gap between what is de-jure and de-facto. The state is still lagging behind when it comes to particularly private sector small and medium size industries. Major part of industrial set up is just their production units. The government has also set up various committees, passed various regulations for the development of the industries in the country. There is a further need to strengthen the existing governance policies.

## REFERENCES

- [1] R. Monks and N. Minow, "Watching the watchers: Corporate governance for the 21st century," *Recherche*, vol. 67, p. 02, 1996
- [2] A. Zattoni, T. Pedersen, and V. Kumar, "The Performance of Group-affiliated Firms during Institutional Transition: A Longitudinal Study of Indian Firms," *Corporate Governance: An International Review*, vol. 17, pp. 510-523, 2009.
- [3] S. Li and A. Nair, "Asian corporate governance or corporate governance in Asia?," *Corporate Governance: An International Review*, vol. 17, pp. 407-410, 2009.
- [4] P. K. Chhibber and S. K. Majumdar, "Foreign ownership and profitability: Property rights, control, and the performance of firms in Indian industry," *JL & Econ.*, vol. 42, p. 209, 1999.
- [5] C. D. Gupta, "Globalisation, corporate legal liability and big business houses in India," *Cambridge Journal of Economics*, vol. 34, pp. 895-913.
- [6] Y. Huang and T. Khanna, "Can India Overtake China?," *Foreign Policy*, vol. 137, pp. 74-81, 2003.
- [7] T. Khanna and K. Palepu, "Is group affiliation profitable in emerging markets? analysis of diversified Indian business groups," *The Journal of Finance*, vol. 55, pp. 867-891, 2000.
- [8] P. K. Chhibber and S. K. Majumdar, "Foreign ownership and profitability: Property rights, control, and the performance of firms in Indian industry," *JL & Econ.*, vol. 42, p. 209, 1999.
- [9] S. K. Majumdar and K. Sen, "5. The relationship between debt structure and firm performance in India," *Corporate governance and development: reform, financial systems and legal frameworks*, p. 65, 2009.
- [10] J. Kumar, "Does ownership structure influence firm value? Evidence from India," *SSRN Working Paper*, vol. 464521, 2003.

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/236006079>

# Board Composition, Ownership Structure and Firm Performance

Article in *Research Journal of Economics and Business Studies* · April 2013

CITATIONS

3

READS

3,361

2 authors:



**Jyotsna Ghildiyal Bijalwan**  
Arba Minch University

12 PUBLICATIONS 27 CITATIONS

[SEE PROFILE](#)



**Pankaj Madan**  
Gurukula Kangri Vishwavidyalaya

69 PUBLICATIONS 359 CITATIONS

[SEE PROFILE](#)

Some of the authors of this publication are also working on these related projects:



McGraw hill publication [View project](#)



The impact of Digital Finance on Financial Inclusion [View project](#)



## Board Composition, Ownership Structure and Firm Performance

Jyotsna Ghildiyal Bijalwan

*(Department of Management Studies,) Uttarakhand Technical University, India.*

Email-jyotsnaghildiyal@yahoo.com

Dr. Pankaj Madan

*Associate Professor, Faculty of Management Studies, Gurukul kangri vishwavidyalaya, India.*

Email- pankaj\_mad@yahoo.com

### Abstract

The study primarily focuses on investigating the relationship between corporate governance and the firm performance. Board composition and Ownership structure are primarily taken as the factors of corporate governance, where as financial performance of the firm is measured with the financial ratios viz. Return on Capital employed, Return on the equity, Profit after tax and Return on assets. For the detail study purpose we have divided the board composition into two components a) Board size b) board composition. The study is based on the 121 small cap, mid cap and large cap companies listed on the Bombay Stock Exchange (BSE) India, for the period of 2010 -2011. Our empirical analysis of the data is suggestive of the result of that a relationship of positive and significant nature exists between board size & board composition and firm's financial performance in India. We also found that there is no relationship exists between ownership structure and firm performance.

**Key words:** board size, board composition, ownership structure, corporate governance, financial performance, India.

### Introduction

Corporate governance can be viewed as a mechanism that ensures external investors receive proper returns on their investments. Effective corporate governance provides an assurance on the safety of the invested funds and the returns on investment (Shleifer and Vishny, 1997). The study primarily focuses on investigating the relationship between corporate governance and the firm performance. Many researchers have been investigating the relationship between corporate governance and firm performance by using the empirical data. There is no unanimous consent on the results of the studies (Patterson, 2000). Similarly another study shows that the corporate governance has a strong impact on the firm performance during the 1997-98 East Asian financial crises. The study further propounds that independent directors have traditionally been hailed as a way of improving, monitoring management (Kim and Lee, 2003).

In an empirical study based on the Indian firms by Dwivedi and Jain (2005) with the sample size of 340 large listed Indian firms for the period of 1997 -2001. They found a positive and significant relationship between corporate governance and performance of Indian firms, by using a simultaneous equation regression model, whereby they used Tobin Q as the measure of firm performance and board size and ownership as components of corporate governance. Gupta (2006) in his study traced the difference in the corporate governance practices of three automobile companies in India named Hero-Honda Ltd, Maruti Udhyog Ltd. and Escorts Ltd. The companies were randomly selected on the basis of their size and goodwill in the market. The study was focused on observing the compliance of the selected sample companies' corporate governance practices with the Clause-49. The results of the study revealed that the Hero-Honda with 90%, Maruti with 80% and Escorts with 70% were in line with the Corporate governance norms as per Clause-49. A study by Lee (2008) based on Korean firms tries to study the relationship between corporate governance and firm's financial performance. In this study, the effect on Korean firms is empirically tested. The study is based on the agency theory of corporate governance. Ownership concentration and Ownership identity are taken as two components of the corporate governance and net income to total assets ratio (NIA) and ordinary income to total assets



ratio (OIA) are taken as performance variables. The study with the multivariable regression analysis reveals the significant linear lump-shaped relationship between ownership concentration and firm performance and insignificant relationship between ownership identity and firm performance. In nutshell the study shows a positive and significant relationship between corporate governance and firm's financial performance. In another study based on Chinese firms tried to find the relationship between the corporate governance and corporate performance of 106 High –tech small and medium size enterprises in China. The study through empirical analysis finds the relationship between ownership concentration and corporate performance follows a positive correlation. It further states that the relationship between shareholding ratio of the 2<sup>nd</sup> to 10 shareholders, number of board and share holders meetings and executive remuneration shows a positive and significant relationship with corporate performance (Zhenyi, Li and Ying, 2010).

There are some other studies which deny any relationship between corporate governance and firm performance. And many other studies show weak or insignificant relationship between corporate governance and the firm's performance. For an e.g. study in Miami University, USA shows no relationship between corporate governance and firm's performance (Daily and Dalton, 1992). There is no correlation between board independence and long term firm performance (Bhagat & Black, 1998). Similarly in another study by Bauer et al. (2004) on European firms found a negative relationship between corporate governance standards and firm's performance.

Some of the studies show a positive and significant relationship between corporate governance and firm performance, some studies reveal a negative and insignificant relationship or some studies even show a mixed result of the link between corporate governance and the firm performance. The results may vary due to different institutional environment across the countries (Carlin & Mayer, 2000). There is no unanimous consent on the results of the studies. Some of the studies show a positive and significant relationship between corporate governance and firm performance, some studies reveal a negative and insignificant relationship or some studies even show a mixed result of the link between corporate governance and the firm performance.

Board composition (BC) and Ownership structure(OS) are primarily taken as the factors of corporate governance, where as financial performance of the firm is measured with the financial ratios i.e. Return on Capital employed (ROCE), Return on the equity (ROE), Profit after tax(PAT), Return on assets (ROA). For the detail study purpose the Board composition (BC) is further divided into two components a) Board size b) board composition. The study is based on the 121 small cap , mid cap and large cap companies listed on the Bombay Stock Exchange (BSE) India, for the period of 2010 -2011. The data are collected through Prowess database, maintained by CMIE (Center for monitoring Indian economy).

## Hypothesis development

### *Board composition (BC) and firm's performance*

Generally research on corporate governance and performance are based on principal-agent theory. Since the Berle and Means (1932) first proposed the characteristics of the modern corporation is the ownership and control power separation , mostly corporate governance and performance is researched from internal control and supervisory mechanisms that constitute by the specific forms of corporate governance the shareholders ' meeting, the board of directors and the management of the company, the results of our research focuses on the board size ,board composition and its effect on the firm performance. It further investigates the relationship between ownership structure and firm performance. Our study is also formulated on the grounds of the agency theory of corporate governance, where the management or board acts as agent and owners i.e. equity share holders are principal.

### *Board size (BZ)*

Board size refers to the total number of the directors on the board for a particular financial year. There are no specific guidelines on the number of directors a company can have and there is no ideal board



size as well. During our study it was observed that generally the public limited companies have a larger board size as compare to private limited companies in India. The board size cannot be specified at the country level also, as the countries differ in their legal, social, economic, and corporate environment. One size cannot be fit for all. The board size has a positive association with the firm's performance. Larger board size led to better decision making which further results into better performance of the firm (Dalton et al., 1998).

In another study in the University of Lagos, Nigeria, based on 30 firms listed on Nigerian stock exchange tries to study the impact of board structure on the firm's financial performance in Nigeria. It further investigates the composition of the board of directors in the firm. By using Ordinary Least Square (OLS) regression the results show the positive relationship between the board size and firm performance (U. M. Uadiale, 2007). Larmou and Vafeas (2009) in their study focused on finding a relationship between board size and firm performance of the small firms with a history of poor operating performance. Multi-variable regression model was applied to test an empirical relationship between explained and explanatory variables. The results suggest that the larger board size is positively related to the shareholders value.

### *Board composition (BC)*

Board composition is one of the most important components of corporate governance. It plays very crucial role in determining the governance strategy of any firm. Boards are composed of executive, non-executive and independent directors. Executive directors share a direct potential interest with the firm they are insiders. Non-executive directors and independent directors are outsiders. Independent directors do not have any direct or indirect interest or any relationship aligned with the firm. Board composition refers to the size of the boards i.e. the total number of the directors on the board for a particular financial year, their ratio and classification into executive, non-executive and independent directors. It also includes the independence of the board. Board composition reveals the level freedom or independence in the decision making process. In an empirical study by (Kim and Lee, 2003) it is showed that the corporate governance has a strong impact on the firm performance during the 1997-98 East Asian financial crisis. It further revealed that independent directors have traditionally been hailed as a way of improving, monitoring management. But further Bhagat and Black (2002) in their study presented the empirical evidence that challenges the previous study. The evidence shows that it is indifferent to have more independent directors on the board because the firms with more independent directors on their board do not perform better than other firms. On the basis of review of literature on the board size and board composition we formed argument that the board size and the board composition both are insignificant to the firms performance and this paved the way for development of hypothesis H01 and H02.

*H01: The board size has insignificant impact on the firm's performance.*

*H02: The Board composition has insignificant effect on the firm's performance.*

**Table no 1. Independent Variables**

Sr. no.	Factors	Indicators	Description	Symbolic
1	Board composition (BCN)	a) Board size  b) Board Independence	a) Total no. of BOD sitting on board  b) Ratios of DIRs to ID and ED to NED ect	a) BZ  b) BI
2.	Ownership Structure (OS)	Ownership Structure	Percentages of shares held by various stake holders in the company	OS

### *Ownership structure (OS)*



The ownership structure can be defined as the distribution of equity with regard to votes and capital but also by the identity of the equity owners. These structures are of major importance in corporate governance because they determine the incentives of managers and thereby the economic efficiency of the corporations they manage". - Jensen and Meckling

In a study based on 137 listed firms of Tehran Stock Exchange for the period of 2001-2006 by Fazlzadeh et.al.(2011) aimed at studying the role of ownership structure on firm performance. The study applied panel data regression analysis method. The results reveal that the ownership concentration did not have any significant effect on the firm's performance. The study further reveals that the industry factor moderates the effectiveness of the relationship between ownership structure and firm performance. Some of the researcher also found the positive and significant relationship between ownership structure and the firm performance, such as there is a relationship between the ownership structure and the operating performance of the firm (Jensen and Warner, 1988). The agency problem could be solved with the help of the ownership structure and the ownership concentration can influence the firm's performance (Shleifer and Vishny, 1997). Review of the literature on the ownership structure and firm performance gave us the basis for the argument that ownership structure is not related to firm performance and ownership structure has no effect on the corporate performance. There for to prove our point H03 was developed for the study.

*H03: The ownership structure has insignificant impact on the firm's performance.*

## **Research design and methodology**

### *Data selection*

The sample is selected on Stratified Random Sampling basis, which involved two stages in sample selection.

At the *first phase*, companies listed on the stock exchange are identified on the basis of their capital base i.e. as small cap, mid cap and large cap companies.

*Second phase* involved qualified corporate governance report and financial reports by way of modification, qualification or adverse opinion.

Initially the sample size was 200 companies listed on the Bombay Stock Exchange (BSE), India; due to unavailability of appropriate data the sample size shrink to 121 companies. Out of which forty companies are from large cap category, forty are from mid cap category and forty one companies are from the small cap category. The companies belong to different industrial sectors such as power, fuel, cement sugar, textile, telecommunication ,petroleum, automobile, entertainment, mining , iron , steel, pharmaceutical, fast moving consumer goods (FMCG) ect., for the period of 2010 -2011. The data is collected through Prowess database, maintained by CMIE (Center for Monitoring Indian Economy).

### *Variable selection and model construction*

For the study purpose corporate governance is the independent variable which comprises of the factors of corporate governance as board composition and ownership structure, whereas firm's performance is dependent variable. There are many other factors which affect the firm's performance they are taken as control variables.

### *Independent variables*

Based on the various conceptual and empirical studies in India and around the world few independent variables were selected, definition and description of which is given in the table no.1.

### *Dependent variables*

Review of the literature on the corporate governance and the firm performance suggests that the firm performance can be mainly measured in two ways first market based performance and secondly accounting based performance. Market based performance measures and Accounting based performance measures differ in two main aspects. First is time based in which the market value is forward looking and accounting value is backward looking, whereas market based measure is what management will accomplish, where as accounting based measure is an estimates of what management has accomplished (Demsetz & Villalonga ,2001). Many researchers have utilized Tobin Q as a market based performance measure for the firm performance. Though the accounting value constrained by the standards set by the accountant, accounting policies opted by his firm and the accounting norms and



standards prevailing in the country, still the accounting rates can be better as they are free from the investors bias and speculations to a large extent. Secondly the capital market in India is not as developed as of Western and European countries; therefore we preferred the accounting based method to measure the firm performance. Various financial ratios such as Return on Capital employed (ROCE), Return on the equity (ROE), Profit after tax (PAT), Return on assets (ROA) are utilized for the study.

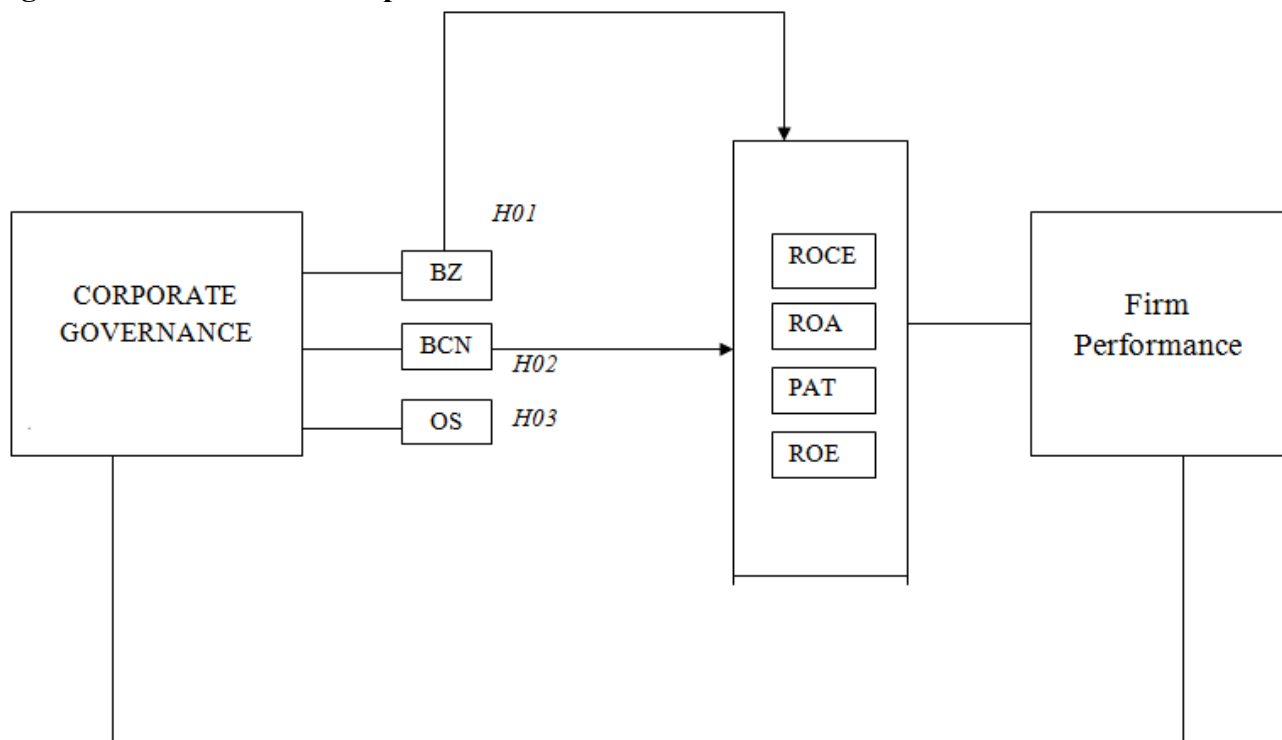
*Control variables*

Control variables are described in the Table no 2.

**Table 2**  
**Control Variable Description**

Sr.no	Control Variables	Description	Symbolic
1	Size of the firm	Total assets	TA
2.	Leverage	Debt/Equity	LEV
3.	Liquidity	Current assets /Current Liabilities	COR
4.	Inventory Ratio		IR

**Figure no 1: Test Model Corporate Governance and Firm Performance**



*Measurement of Corporate Governance Scores (CGS) and development of questionnaire*

The study is based on the structured questionnaire. The questionnaire consists of 51 questions related to the corporate governance factors. The Corporate Governance Scores (CGS) reflects the scores obtained by an individual company on a particular corporate governance factor or component. The corporate scores (CGS) are based on the information provided by the firms in their annual reports. The annual corporate governance report was carefully and extensively reviewed for the study. The corporate governance score (CGS) was developed on the bases of Standards & Poor's (S&P) – Governance, Management, Accountability Metrics and Analysis (GAMMA). GAMMA scores attempts to assess the effectiveness of individual company governance practices as a system of interaction among a company's management, board, shareholders and other stakeholders aimed at building company value and ensuring fair distribution of its earnings.





#### *Board size and firm performance*

Board size (BZ) here refers to the size of the board. It refers to the total number of board of directors sitting on the board. In order to find out the impact of board size on the firm's financial performance the board size of the companies were divided into two categories a) companies with the smaller board size i.e. having less than 10 directors sitting on the board and b) companies with the smaller board size i.e. having more than 10 directors sitting on the board for the given particular financial year.

#### *Board composition and firm performance*

Further to find out the impact of board composition on the firm's financial performance the board composition was categorized into four categories. It facilitated the evaluation of the nature of the relation, degree of dependence and the impact of the Independent variable i. e. board composition on the dependent variable i. e. firm's performance.

*Small board size with non compliance (SBSNC).* The first category has firms which have small board size but are not compliant with the provisions in the Clause 49 and Voluntary Regulation, Act 2009. (SBSNC). This category includes the firms who score up to 30 points in the board composition category.

*Small board size with compliance (SBSCL).* Second categories has the firms with the small board size but are in full compliance with the regulatory provisions in the legislative framework of corporate governance in India (SBSCL). This category covers the firms who score between 31 points to 79 points in the board composition category of the questionnaire.

*Large board size with non compliance (LBSNC).* Third category firms have larger board size but are showing the non compliance with the regulatory and legislative provisions (LBSNC). This category consists of the firms scoring between 80 points to 89 points in the board composition category of the questionnaire.

*Large board size with compliance (LBSCL).* Fourth category covers the firms with large board size and they are compliant to the corporate governance norms, regulations and provisions in India (LBSCL). The firms who score above the 89 i.e. between 90 points to 100 points do come under this category.

#### *Ownership structure and firm performance*

Ownership structure gives a fair idea about the percentages of share held by the promoters, public, directors, private companies, institutional investors, government bodies and the foreign institutional investors in a firm. It also reveals the ownership pattern of the firm. In order to know the ownership pattern of the firms the ownership structure (OS) was categorized into three different patterns which includes, which are explained as follows.

*Concentrated ownership.* The firm which has more than 50% and above shares held by an individual share holder or a particular family or group was termed as firm with concentrated ownership. The firms scoring 38 points in the ownership structure category of the questionnaire come under this category.

*Diversified ownership.* The firm in which none of the stakeholders owns more than 25% share was termed as diversified ownership structure. In the questionnaire the firms scoring 33 points are termed as diversified ownership structure.

*Block holdings ownership.* The firms with more than one individual holding above 25% or where more than one stakeholder holds between 25% to 50% shares in the firm, such firm was termed as block holding ownership pattern. The firms scoring 43, 48 and 53 points in the questionnaire were put into the block holding category.

#### **Results and Interpretation**

The group statistics of Table no.3 displays the sample size, mean, standard deviation, and standard error for both group of companies (one with board size less than 10 and another with board size larger than 10). On average the Return on Capital Employed Percentage (ROCP) of companies having larger board size is 3.53% more than the companies having smaller board size. The other financial parameters like Profit after tax (PAT), Return on Asset (ROA) and Return on Equity (ROE) showed differences in averages of 2.31%, 0.4% and 6.07%, however the difference between the means is considerable among PAT, ROA and ROE.



The procedure produces two tests of the difference between the two groups. One test assumes that the variances of the two groups are equal. The Levene statistic tests this assumption. In Table no. 4, the significance value of the F statistic is 0.579 (for ROCEP%), 0.000(for PAT), 0.045 (for ROA) & 0.123(for ROE), the values greater than 0.10 shows that equal variances can be assumed for those groups i.e. ROCEP, ROE and for PAT, ROA equal variances cannot be assumed and parameters having value greater than 0.10, you can assume that the groups have equal variances and ignore the second test.

The t column displays the observed t statistic for each sample, calculated as the ratio of the difference between sample means divided by the standard error of the difference. The df column displays degrees of freedom. For the independent samples t test, this equals the total number of cases in both samples minus 2. The column labeled Sig. (2-tailed) displays a probability from the t distribution with 119 degrees of freedom where equal variances are assumed. The value listed is the probability of obtaining an absolute value greater than or equal to the observed t statistic, if the difference between the sample means is purely random. The Mean Difference is obtained by subtracting the sample mean for group 2 (where board size is more than 10) from the sample mean for group 1(where board size is less than 10). The 95% Confidence Interval of the Difference provides an estimate of the boundaries between which the true mean difference lies in 95% of all possible random samples of 121 companies. Since the significance value of the test is less than 0.05 in case of PAT and ROE, we can conclude that the average difference of 2.31% PAT between two groups and 6.07% among ROE is not due to chance alone. The companies now have to reconsider their decisions about board size. The t statistic provides strong evidence of a difference in PAT and ROE between companies having board size more and less than 10. The confidence interval suggests that in repeated samplings, the difference is unlikely to be much lower than 3108 (PAT) and 15.05% ROE. The companies will look into ways to retain these returns.

Figure no. 2

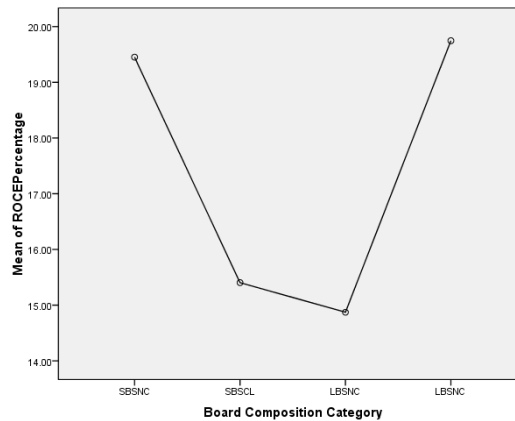


Figure no. 3

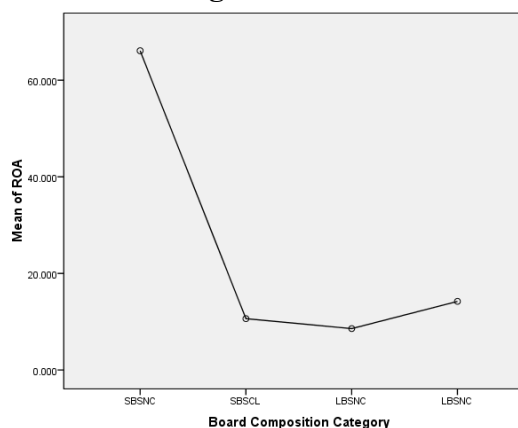




Figure no. 4

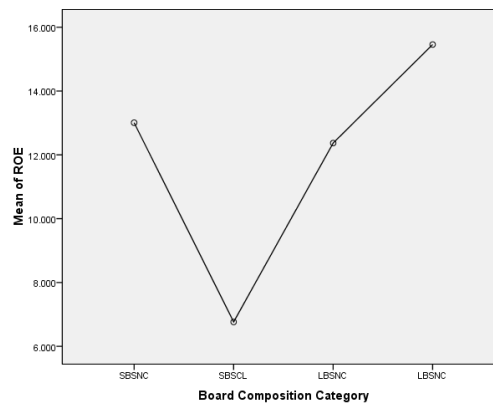
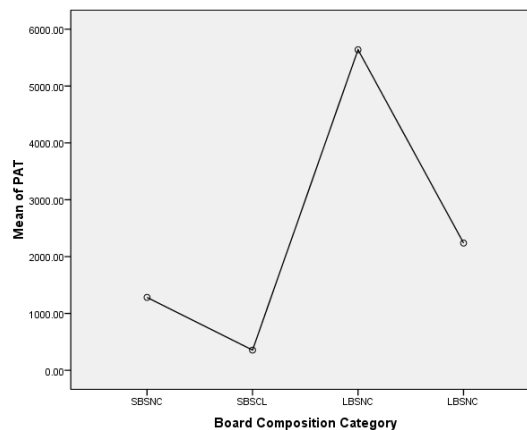


Figure no. 5



The Table no. 5 displays descriptive statistics for each group and for the entire data set with N indicating the size of each group and the standard deviation and standard error statistics confirm that as ROCEP, PAT, ROA, ROE increase, variation in performance decreases. One-Way ANOVA compares these sample estimates to determine if the population means differ. The standard deviation indicates the amount of variability of the scores in each group. These values should be similar to each other for ANOVA to be appropriate. Equality can be inspected via the Levene test. The 95% confidence interval for the mean indicates the upper and lower bounds which contain the true value of the population mean 95% of the time. The Levene statistic of Table no. 6 rejects the null hypothesis that the group variances are equal in case of ROA & PAT. ANOVA is robust to this violation when the groups are of equal or near equal size; however, we decided to continue to use F-test for other parameters too. As per data of corporate governance parameters in the research instrument, we are interested in finding out if financial parameters varied depending on different Board Compositions or not and for that ANOVA test is applied, the total variation is partitioned into two components. Between Groups represents variation of the group means around the overall mean. Within Groups represents variation of the individual scores around their respective group means. If desired, the between groups variation can be partitioned into trend components. According to Table no. 7 the significance value of the F test in the ANOVA table is 0.553 (ROCEP), 0.015(ROA), 0.185(ROE) and 0.001(PAT). Small significance value of 0.015(<.05) and 0.001 (<0.05) indicate group differences. Thus, we must reject the hypothesis that average financial parameters varied equally across different board compositions. The difference in financial parameters across different board compositions is significant for ROA and PAT only as the significance values of these parameters is less than 0.005.

The test of between-subjects effects helps us to determine the significance of a factor. However, they do not indicate how the levels of a factor differ. The post hoc tests show the differences in model-predicted means for each pair of factor levels. For more detailed analysis we used Tukey HSD Post



hoc test for pair wise comparisons in One-Way ANOVA whose results are shown in Tale no 8. The groups differ in some way. The means plot helped us to "see" and learn more about the structure of the differences in these structures. SBSNC and LBSNC showed higher mean ROCEP than their counterparts. Mean ROE of SBSNC, LBSNC & BSNC are far higher than SBSCL. Mean ROA of SBSNC is significantly higher than its other board composition categories while PAT is significantly higher of LBSNC than others. As it can be observed in figure no.2, 3, 4 and figure no.5.

Figure no. 7

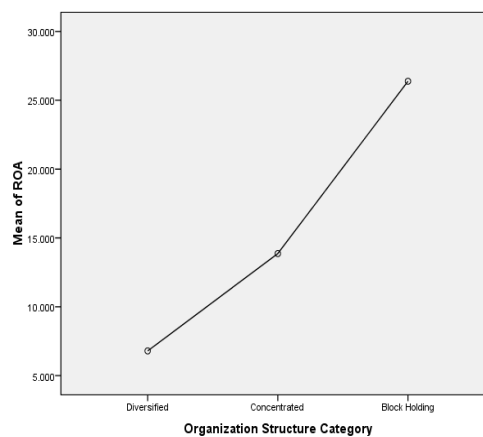


Figure no. 8

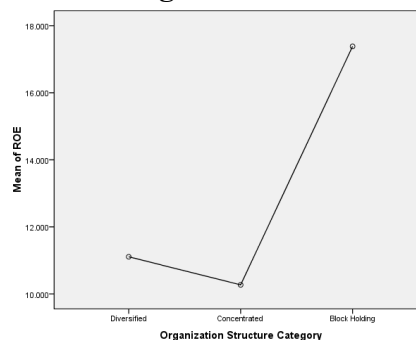
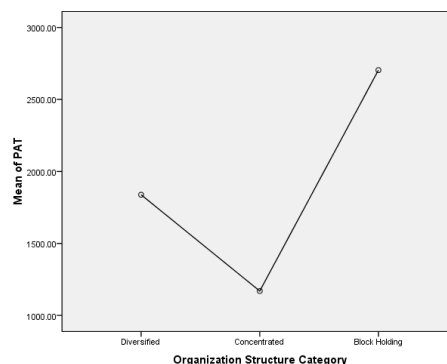


Figure no. 9



In this Table no. 13 displays descriptive statistics for each group and for the entire data set with N indicating the size of each group and the standard deviation and standard error statistics confirm that as ROCEP, PAT, ROA, ROE increase, variation in performance decreases. One-Way ANOVA compares these sample estimates to determine if the population means differ. The standard deviation indicates the amount of variability of the scores in each group. These values should be similar to each other for ANOVA to be appropriate. Equality can be inspected via the Levene test. The 95% confidence interval



for the mean indicates the upper and lower bounds which contain the true value of the population mean 95% of the time. The Levene statistic of Table no.14 accepts the null hypothesis that the group variances are not equal in case of ROCE, ROA, ROE and PAT. ANOVA is robust to this violation when the groups are of equal or near equal size; however, we decided to continue to use F-test for other parameters too.

As we are interested in finding out if financial parameters varied depending on different organization structures or not and for that ANOVA test is applied, the total variation is partitioned into two components. Between Groups represents variation of the group means around the overall mean. Within Groups represents variation of the individual scores around their respective group means. If desired, the between groups variation can be partitioned into trend components. According to Table no. 15 the significance value of the F test in the ANOVA table is 0.324(ROCEP), 0.326(ROA), 0.318(ROE) and 0.118(PAT). All the significant values are ( $>0.05$ ) indicate no group differences. Thus, it is a must to accept the hypothesis that average financial parameters varied equally across different board compositions. The difference in financial parameters across different organization structures is insignificant for ROCE, ROA, ROE and PAT only as the significance values of these parameters is more than 0.005.

The tests of between-subjects effects help us to determine the significance of a factor. However, they do not indicate how the levels of a factor differ. The post hoc tests show the differences in model-predicted means for each pair of factor levels. For more detailed analysis we used Tukey HSD Post hoc test for pair wise comparisons in One-Way ANOVA whose results are shown in Table no. 16. Now thus as we know the groups differ in some way, in order to learn more about the structure of the differences. The means plot facilitates to "see" this structure. The ownership structure is categorized into diversified ownership structure, concentrated ownership structure and block holdings structure. The graphs further reveals that the firms with the block holding have highest mean of ROCE, ROA, ROE and PAT as compare to their other counterparts.

The graph related to the ownership structure categorization and ROCE shows that the firms with the block holding organization structure have the highest mean of ROCE, followed by the firms with the concentrated ownership structure. And the firms with the diversified ownership structure show the lowest level of mean of ROCE. Figure no.6. Further the graph related to the organization structure categorization and ROA shows that the firms with the block shareholding structure have the highest level of mean of ROA whereas the firm with the diversified organization structure has the lowest mean of ROA. Figure no.7. The graph related to the organization structure categorization and ROE shows that again the firms with block holding organization structure category have the highest mean of ROE, whereas the firms with the concentrated ownership have the lowest mean of ROE. Figure no. 8. Similarly the graph related to the organization structure categorization and PAT shows that the firms with the block holding organization structure have highest mean of PAT followed by the firms having diversified organization structure, and the firms with the diversified ownership structure show the lowest mean of PAT. Figure no. 9.

Thus it can be concluded that the firms with the block holding category of organization structure have highest mean of all the financial parameters i.e. ROCE, ROA, ROE and PAT. Therefore the null hypothesis can be accepted.

### Conclusion

The post liberalization period of the Indian economy has witnessed several structural and regulatory reforms. The journey of Indian economy from a caterpillar to a beautiful butterfly has given inputs to the more complex organizational structure, operational framework failure, frauds and unethical business practices. In order to safeguard the interest of the investors there are many provisions in the legal and regulatory framework of India, in spite of that last two decades witnessed the series of the financial scams.

On establishing and analyzing the correlation among the independent variables as per the proposed model, it was found that relationship of significant nature exist between board size and firm performance. Hence, in simple words it can be concluded that *firstly* these factors are correlated and do have an impact on each other as well but the strength of relationship is not very strong. *Secondly* it can



be said that the board size affects the firm's performance. In India larger boards are less effective than smaller boards, except in the case of PSUs (Dey & Chouhan, 2007). *Thirdly* one size does not fit to all, standard board size vary from country to country and also depends on the nature of industry. In India smaller board are more successful particularly in private sector because of ease in decision making and less conflicts.

These findings that there is a relationship between board size and firm performance are in congruence with the past studies carried out by (Dalton et al., 1998; Hermalin and Weisbach, 2003; U. M. Uadiale, 2007; Balasubramanian, 2008 and Larmou & Vafeas, 2009) which have identified the effects of board size on the firm's performance, and found them to be correlated.

*Fourthly* the study results found that relationship of significant nature exist between board composition and firm performance. Hence, in simple words we can say that these factors are correlated and do have an impact on each other as well but the strength of relationship is not very strong. It can be further said that the board composition affects the firm's performance. *Fifthly* in India larger boards are less effective than smaller boards, except in the case of PSUs. Smaller board with non compliance and larger boards with compliance to standard corporate governance practices show higher levels of ROCE, ROA, and ROE the only change is in the case of PAT where the larger boards with the compliance and non compliance both are showing the higher degree of PAT. It can be possible because the firms with firms with the larger capital will show higher profits.

The results can be backed by the previous research outcomes, many researchers have found the positive and significant relationship between board composition and firms performance such as (Kim and Lee, 2003; Tvevor W. Chamberlain, 2007; Ameer et.al., 2009) and many other researchers propounds the same. The number of independent directors on the board plays a very important role. The ratio of executive to non executive directors ensures the fair decision making. *Sixthly* both the number and proportion of outside directors are positively and significantly correlated to the firm performance. In the India majority of private sector firms are owned by the individuals, or families. The promoters are the dominant shareholders and ownership is spread amongst the family members and group of friends. Therefore it becomes very significant to have more number of independent directors on the board so that the interest of minority shareholders can be protected.

*Seventhly* in the case of ownership structure and firm performance, it was found that relationship of insignificant nature exist between the dependent and independent variables. Hence, it can be said that these two variables are not correlated. It can be further said that the ownership structure does not affects the firm's performance.

In the nutshell we can say that there is a difference between the corporate governance system in UK, USA and INDIA. The corporate governance of the countries like UK and USA is based on the Anglo American model in which the ownership and management are separate, whereas in the India majority of the cases management and ownership is same. In India in case of majority of firms specially belonging to private sector ownership belongs to an individual or family or group of closely related corporate. In the case of state owned enterprises the ownership is with the government in both the cases the ownership pattern is either concentrated or is in bloc holding by government, corporate, and group of institutions. Capital market in India is not developed enough to encourage the diversified ownership structure. Therefore the study results suggest no relationship between the ownership structure and firm performance in India. The results can be backed by the previous research outcomes ,for instance in a study based on 137 listed firms of Tehran Stock Exchange for the period of 2001-2006 , (Alireza Fazlzadeh; Ali Tahbaz Hendi and Kazem Mahboubi, 2011) found that the ownership concentration did not have any significant effect on the firm's performance. There are many other studies in the western countries who find the positive relationship between the ownership structure and firm performance. The reason for that outcome could be the difference in the political governance, legal and regulatory framework and the governance system. As mentioned before in the countries like UK and USA the ownership and management are separate from each other, where as in India in majority of the cases the ownership and the management is the same and the firms where both are separate suffers from the holding and agency problem.



## References

- Ameer, R., Ramli, F., Zakaria, F. (2010). A new perspective on board composition and firm performance in an emerging market. *Corporate Governance*, 10(5), 647 – 661.
- Berle, A., Means, Q. (1932). *The modern corporation and private property*. New York, USA: Mac Millan.
- Bhagat, S. & Black, B. (1998). Uncertain relationship between board composition and firm performance. *The Business Law, Management*, 5, 91-104.
- Bhagat, S., Bernard, S. & Black, B. (2002). Board independence and long-term performance. *Journal of Corporation Law*, 27.
- Bauer, R., Guenster, N. & Otten, R. (2004). Empirical evidence on corporate governance in Europe: The effect on stock returns, firm value and performance. *Journal of Asset Management*, 5, 91-104.
- Balasubramanian, B., Black, B. & Khanna, V. (2008). Firm-level corporate governance in emerging markets: A case study of India. *ECGI-Law Working Paper*, 119, 08-011.
- Carlin, W. & Mayer, C. (2000). How do financial systems affect economic performance. *Corporate Governance: Theoretical and Empirical Perspectives*, 137-59.
- Chamberlain, T. (2007). Board composition and firm performance: some Canadian evidence. *International Advances in Economic Research*, 16, 421-422.
- Daily, C. M. & Dalton, D. R. (1992). The relationship between governance structure and corporate performance in entrepreneurial firms. *Journal of Business Venturing*, 7, 375-386.
- Dalton, D. R., Daily, C. M., Ellstrand, A. E. & Johnson, J. L. (1998). Meta analytic reviews of board composition, leadership structure, and financial performance. *Strategic Management Journal*, 19, 269-290.
- Demsetz, Harold & Villalonga, B. (2001). Ownership structure & corporate performance. *Journal of corporate finance*, 7 (3), 209-233.
- Dwivedi, N. & Jain, A. K. (2005). Corporate governance and performance of Indian firms: The effect of board size and ownership. *Employee Responsibilities and Rights Journal*, 17, 161-172.
- Dey, D.K. & Chouhan, Y. K. (2007). Board composition and performance in Indian firms: A comparison. *The IUP Journal of Corporate Governance*, April 2007.
- Fazlzadeh, A., Hendi, A.T. & Mahboubi, K. (2011). The examination of the effect of ownership structure on firm performance in listed firms of Tehran stock exchange based on the type of the industry. *International Journal of Business and Management*, 6, 3.
- Gupta, C. D. (2006). Globalization, corporate legal liability and big business houses in India. *Cambridge Journal of Economics*, 34, 895-913.
- Governance, Accountability, Management Metrics & Analysis (GAMMA) Scores [online] <http://www.standardandpoors.com/about-sp/gamma/en/eu>, (Accessed 2 April 2008).
- Hermalin, B.E. and Weisbach, M.S. (2003). Boards of directors as an endogenously determined institution: A survey of the economic evidence. *Economic Policy Review*, 9, 7-26.
- Jensen, M. C. & Warner, J. B. (1988). The distribution of power among corporate managers, shareholders, and directors. *Journal of Financial Economics*, 20, 3-24.
- Kim, B. & Lee, I. (2003). Agency problems and performance of Korean companies during the Asian financial crisis: chaebol vs. non-chaebol firms. *Pacific-Basin Finance Journal*, 11, 327-348.
- Larmou, S., and Vafeas, N. (2009). The relation between board size and firm performance in firms with a history of poor operating performance. *Journal of Management Governance*, 14(1), 61-85.
- Patterson, D. J. (2000). The link between corporate governance and performance, conference board, New York.
- Shleifer, A. & Vishny, R. W. (1997). A survey of corporate governance. *The journal of finance*, 52.
- Uadiale, O.M. (2007). The impact of board structure on corporate financial performance in Nigeria. *International Journal of Business and Management*, 5, 155.
- Zhenyi, W., Li, S. & Ying, T. (2010). Corporate governance and corporate performance of



high-tech small and medium-sized enterprises: Based on analysis of the small and medium-sized listed enterprises empirical data. *International Conference on Information Management, Innovation Management and Industrial Engineering (ICIII), 2010: Kunming, China, Vol.3, pp.378 – 383.*

## Annexure

### Tables

**Table No 3 - Group Statistics**

	Board Size	N	Mean	Std. Deviation	Std. Error Mean
ROCE Percentage	Less than 10	54	15.9287	18.05561	2.45706
	More than 10	67	19.4549	14.60148	1.78386
PAT	Less than 10	54	4.7574E2	1140.06534	155.14324
	More than 10	67	2.4408E3	4113.89345	502.59208
ROA	Less than 10	54	1.78188E1	62.327403	8.481685
	More than 10	67	1.38717E1	16.972589	2.073532
ROE	Less than 10	54	7.57333	25.774133	3.507415
	More than 10	67	1.52733E1	14.511155	1.772820

**Table no 4 - Independent Samples Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
ROCE Percentage	Equal variances assumed	.310	.579	-1.188	119	.237	-3.52622	2.96826	-9.40367	2.35122
	Equal variances not assumed			-1.161	101.052	.248	-3.52622	3.03632	-9.54944	2.49699
PAT	Equal variances assumed	22.013	.000	-3.404	119	.001	-1965.10058	577.30462	-3108.22139	-821.97977
	Equal variances not assumed			-3.736	78.292	.000	-1965.10058	525.99261	-3012.20992	-917.99124
ROA	Equal variances assumed	4.086	.045	.496	119	.620	3.947047	7.950263	-11.795268	19.689362
	Equal variances not assumed			.452	59.354	.653	3.947047	8.731467	-13.522396	21.416491
ROE	Equal variances assumed	2.415	.123	-2.073	119	.040	-7.699950	3.714946	-15.055915	-.343986
	Equal variances not assumed			-1.959	79.379	.054	-7.699950	3.929994	-15.521826	.121925





**Table no.5 - Descriptive**

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
ROCE Percentage	SBSNC	7	19.4514	12.20959	4.61479	8.1594	30.7434	2.57	41.33
	SBSCL	47	15.4040	18.81490	2.74443	9.8798	20.9283	-1.09	112.62
	LBSNC	4	14.8725	12.95788	6.47894	-5.7464	35.4914	3.49	26.71
	LBSNC	63	19.7459	14.74426	1.85760	16.0326	23.4592	.23	75.38
	Total	121	17.8812	16.25871	1.47806	14.9548	20.8077	-1.09	112.62
ROA	SBSNC	7	6.60965E1	143.189447	5.412052E1	-66.33160	198.52470	2.106	390.464
	SBSCL	47	1.06285E1	37.336588	5.446101	-33394	21.59093	-91.762	213.904
	LBSNC	4	8.57128	9.137788	4.568894	-5.96898	23.11154	.284	16.515
	LBSNC	63	1.42083E1	17.340297	2.184672	9.84119	18.57538	.067	107.611
	Total	121	1.56332E1	43.336642	3.939695	7.83292	23.43356	-91.762	390.464
ROE	SBSNC	7	1.30071E1	10.678417	4.036062	3.13125	22.88303	.530	33.200
	SBSCL	47	6.76404	27.301288	3.982302	-1.25192	14.78000	-95.300	87.200
	LBSNC	4	1.23700E1	9.592198	4.796099	-2.89333	27.63333	.780	20.500
	LBSNC	63	1.54576E1	14.802992	1.865002	11.72953	19.18570	-39.700	64.400
	Total	121	1.18369E1	20.591031	1.871912	8.13069	15.54320	-95.300	87.200
PAT	SBSNC	7	1.2823E3	1668.30978	6.30562E2	-260.5878	2825.2706	1.27	4904.74
	SBSCL	47	3.5561E2	1010.32335	1.47371E2	58.9686	652.2527	-3052.05	4904.74
	LBSNC	4	5.6386E3	9011.64567	4.50582E3	-8700.9492	19978.1292	1.13	18924.00
	LBSNC	63	2.2378E3	3658.53683	4.60932E2	1316.4209	3159.2020	.60	20040.00
	Total	121	1.5639E3	3293.10417	2.99373E2	971.1180	2156.5939	-3052.05	20040.00

**Table no.6 - Test of Homogeneity of Variances**

	Levene Statistic	df1	df2	Sig.
ROCE Percentage	.214	3	117	.887
ROA	13.244	3	117	.000
ROE	1.207	3	117	.311
PAT	13.348	3	117	.000

**Table no.7 - ANOVA**

		Sum of Squares	Df	Mean Square	F	Sig.
ROCE Percentage	Between Groups	560.926	3	186.975	.702	.553
	Within Groups	31160.553	117	266.330		
	Total	31721.479	120			
ROA	Between Groups	19330.457	3	6443.486	3.659	.015
	Within Groups	206037.285	117	1761.002		
	Total	225367.743	120			
ROE	Between Groups	2046.121	3	682.040	1.634	.185
	Within Groups	48832.749	117	417.374		
	Total	50878.869	120			
PAT	Between Groups	1.642E8	3	5.473E7	5.631	.001
	Within Groups	1.137E9	117	9719203.026		
	Total	1.301E9	120			



**Table no.8 - Multiple Comparisons**

Tukey HSD Post hoc test							
Dependent Variable	(I) Board Composition Category	(J) Board Composition Category	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
ROCE Percentage	SBSNC	SBSCL	4.04739	6.61163	.928	-13.1848	21.2795
		LBSNC	4.57893	10.22885	.970	-22.0809	31.2388
		LBSNC	-.29444	6.50189	1.000	-17.2406	16.6517
	SBSCL	SBSNC	-4.04739	6.61163	.928	-21.2795	13.1848
		LBSNC	.53154	8.49994	1.000	-21.6222	22.6853
		LBSNC	-4.34183	3.14548	.514	-12.5400	3.8564
	LBSNC	SBSNC	-4.57893	10.22885	.970	-31.2388	22.0809
		SBSCL	-.53154	8.49994	1.000	-22.6853	21.6222
		LBSNC	-4.87337	8.41486	.938	-26.8054	17.0586
LBSNC	SBSNC	.29444	6.50189	1.000	-16.6517	17.2406	
	SBSCL	4.34183	3.14548	.514	-3.8564	12.5400	
	LBSNC	4.87337	8.41486	.938	-17.0586	26.8054	
ROA	SBSNC	SBSCL	55.468057*	1.700117E1	.008	11.15722	99.77889
		LBSNC	57.525265	2.630252E1	.133	-11.02803	126.07856
		LBSNC	51.888263*	1.671898E1	.013	8.31293	95.46360
	SBSCL	SBSNC	-55.468057*	1.700117E1	.008	-99.77889	-11.15722
		LBSNC	2.057208	2.185678E1	1.000	-54.90898	59.02340
		LBSNC	-3.579794	8.088298	.971	-24.66065	17.50106
	LBSNC	SBSNC	-57.525265	2.630252E1	.133	-126.07856	11.02803
		SBSCL	-2.057208	2.185678E1	1.000	-59.02340	54.90898
		LBSNC	-5.637002	2.163800E1	.994	-62.03298	50.75898
	LBSNC	SBSNC	-51.888263*	1.671898E1	.013	-95.46360	-8.31293
		SBSCL	3.579794	8.088298	.971	-17.50106	24.66065
		LBSNC	5.637002	2.163800E1	.994	-50.75898	62.03298
ROE	SBSNC	SBSCL	6.243100	8.276783	.875	-15.32901	27.81521
		LBSNC	.637143	1.280501E1	1.000	-32.73707	34.01136
		LBSNC	-2.450476	8.139400	.990	-23.66452	18.76357
	SBSCL	SBSNC	-6.243100	8.276783	.875	-27.81521	15.32901
		LBSNC	-5.605957	1.064067E1	.952	-33.33915	22.12724
		LBSNC	-8.693576	3.937674	.127	-18.95649	1.56934
	LBSNC	SBSNC	-.637143	1.280501E1	1.000	-34.01136	32.73707
		SBSCL	5.605957	1.064067E1	.952	-22.12724	33.33915
		LBSNC	-3.087619	1.053416E1	.991	-30.54321	24.36797
	LBSNC	SBSNC	2.450476	8.139400	.990	-18.76357	23.66452
		SBSCL	8.693576	3.937674	.127	-1.56934	18.95649
		LBSNC	3.087619	1.053416E1	.991	-24.36797	30.54321
PAT	SBSNC	SBSCL	926.73079	1.26303E3	.883	-2365.1592	4218.6208
		LBSNC	-4356.24857	1.95404E3	.121	-9449.1316	736.6345
		LBSNC	-955.47000	1.24207E3	.868	-4192.7190	2281.7790
	SBSCL	SBSNC	-926.73079	1.26303E3	.883	-4218.6208	2365.1592
		LBSNC	-5282.97936*	1.62376E3	.008	-9515.0464	-1050.9123
		LBSNC	-1882.20079*	6.00887E2	.012	-3448.3153	-316.0863
	LBSNC	SBSNC	4356.24857	1.95404E3	.121	-736.6345	9449.1316
		SBSCL	5282.97936*	1.62376E3	.008	1050.9123	9515.0464
		LBSNC	3400.77857	1.60751E3	.154	-788.9271	7590.4842
	LBSNC	SBSNC	955.47000	1.24207E3	.868	-2281.7790	4192.7190
		SBSCL	1882.20079*	6.00887E2	.012	316.0863	3448.3153
		LBSNC	-3400.77857	1.60751E3	.154	-7590.4842	788.9271

\*. The mean difference is significant at the 0.05 level.



**Table no.14 - Test of Homogeneity of Variances**

	Levene Statistic	df1	df2	Sig.
ROCEPercentage	1.638	2	118	.199
ROA	2.402	2	118	.095
ROE	.863	2	118	.425
PAT	2.582	2	118	.080

**Table no.15 - ANOVA**

		Sum of Squares	Df	Mean Square	F	Sig.
ROCEPercentage	Between Groups	600.040	2	300.020	1.138	.324
	Within Groups	31121.440	118	263.741		
	Total	31721.479	120			
ROA	Between Groups	4238.990	2	2119.495	1.131	.326
	Within Groups	221128.753	118	1873.972		
	Total	225367.743	120			
ROE	Between Groups	977.676	2	488.838	1.156	.318
	Within Groups	49901.193	118	422.891		
	Total	50878.869	120			
PAT	Between Groups	4.629E7	2	2.314E7	2.176	.118
	Within Groups	1.255E9	118	1.064E7		
	Total	1.301E9	120			

**Table No.16 - Multiple Comparisons**

**Tukey HSD Post hoc test**

Dependent Variable	(I) Organization Structure Category	(J) Organization Structure Category	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
ROCEPercentage	Diversified	Concentrated	-6.66098	4.69627	.335	-17.8083	4.4863
		Block Holding	-7.56100	5.42110	.347	-20.4288	5.3068
	Concentrated	Diversified	6.66098	4.69627	.335	-4.4863	17.8083
		Block Holding	-.90002	3.71026	.968	-9.7069	7.9068
	Block Holding	Diversified	7.56100	5.42110	.347	-5.3068	20.4288
		Concentrated	.90002	3.71026	.968	-7.9068	9.7069
ROA	Diversified	Concentrated	-7.070392	1.251833E1	.839	-36.78455	22.64377
		Block Holding	-19.588336	1.445040E1	.368	-53.88857	14.71190
	Concentrated	Diversified	7.070392	1.251833E1	.839	-22.64377	36.78455
		Block Holding	-12.517943	9.890006	.417	-35.99338	10.95750
	Block Holding	Diversified	19.588336	1.445040E1	.368	-14.71190	53.88857
		Concentrated	12.517943	9.890006	.417	-10.95750	35.99338
ROE	Diversified	Concentrated	.837369	5.946743	.989	-13.27813	14.95287
		Block Holding	-6.275343	6.864561	.632	-22.56943	10.01874
	Concentrated	Diversified	-.837369	5.946743	.989	-14.95287	13.27813
		Block Holding	-7.112712	4.698177	.288	-18.26455	4.03913
	Block Holding	Diversified	6.275343	6.864561	.632	-10.01874	22.56943
		Concentrated	7.112712	4.698177	.288	-4.03913	18.26455
PAT	Diversified	Concentrated	668.63707	9.43094E2	.759	-1569.9402	2907.2144
		Block Holding	-865.61900	1.08865E3	.707	-3449.6975	1718.4595
	Concentrated	Diversified	-668.63707	9.43094E2	.759	-2907.2144	1569.9402
		Block Holding	-1534.25607	7.45084E2	.103	-3302.8266	234.3144
	Block Holding	Diversified	865.61900	1.08865E3	.707	-1718.4595	3449.6975
		Concentrated	1534.25607	7.45084E2	.103	-234.3144	3302.8266

# **APPENDIX VII**

# FORM OF SELF-ASSESSMENT OF FULFILMENT OF ELIGIBILITY REQUIREMENTS FOR OPENING OF TRAINING MAJORS

Name of the major: Business Administration

Code: 8340101

Level: Master

No.	Statutory eligibility requirements	Conformance requirements or evidences shown in the application	Passed/failed
1	<p><b>1. Major:</b></p> <p>1.1. Proposed major matching human resource demands (based on survey results);</p> <p>1.2. Have been defined in the guideline/plan for development of the training institution;</p> <p>1.3. Proposed major must be included in the Classification of Education, Level IV - Undergraduate Education, currently in force</p> <p>1.4. Resolution of the Committee/Board of Management on opening of proposed majors;</p> <p>1.5. New majors (give a demonstration of practicality and training experience in certain countries);</p> <p>Define whether majors have been open for enrolment of students in foreign countries; are currently piloted in Vietnam or the training institution is the first place that pilots these majors;</p> <p>Reference training programs are designed by 2 foreign accredited universities;</p> <p>There must be at least 02 opinions on necessity of opening of majors which have been received from 02 entities or organizations having demands for human</p>	<p>Highly appropriate</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>No</p>	

	<p>resources graduating from such training programs.</p> <p>1.6. Undergraduate-level/master's-level majors, whether the same as or similar to the master's-level majors (if the same majors are not available), serve as the entrance requirement for master's training programs offered according to the formal education system by the training institution and have been completed by graduated students.</p>		
<p>2</p>	<p><b>2. Staff of lecturers:</b></p> <p>a) Have a staff of at least five (5) tenured lecturers who hold the title of professor, associate professor, Doctor of Philosophy and doctorate degree in majors the same as or similar to the proposed majors and are not in the list of tenured lecturers that serves as the eligibility requirement for opening of same-level sub-majors belonging to other majors; out of this staff, charge at least 01 professor or associate professor in the major the same as the proposed major with leading and taking necessary actions to carry out training programs as well as accountability for the training quality to his/her host training institution and the public;</p> <p>b) Lecturers in charge of lecturing activities must be fully qualified; other lecturers must hold at least master's degrees. Tenured lecturers must undertake at least 70% of the knowledge volume; both domestic and foreign guest lecturers who have entered into fixed-term lecturing agreements with the training institution shall take charge of the remaining knowledge volume. Tenured and guest lecturers are required to hold degrees relevant to contents of courses that they are assigned to teach;</p> <p>c) Each lecturer acting as the head for opening of majors and each lecturer giving lectures on basic theoretical and specialized knowledge must fulfill requirements concerning scientific researches in accordance with Point d, Clause 2 Article 2 and Point d, Clause 2 Article 3;</p>	<p>Yes</p>	

	<p>d) 30% of the remaining knowledge volume may be undertaken by guest lecturers who have signed lecturing agreements with the training institution;</p> <p>dd) With respect to non-public training institutions, there must be at least 40% of lecturers in the working ages;</p> <p>e) In case of opening of majors in the Classification of Education with 7-digit codes which are combined with multiple sub-majors in the Classification of Education with 8-digit codes, the staff of lecturers must comply with regulations laid down in Clause 2 Article 2 and Article 3.</p> <p>g) In case of opening of health-related majors, each minor or specialized subject must be undertaken by 01 lecturer as stipulated by Point b above; in order to give lectures on any healthcare-related course, lecturers and instructors of practice classes must obtain practicing certificates in healthcare and medical services, have been working directly for healthcare establishments that meet required conformity standards for healthcare establishments offering internship in the field of healthcare service in accordance with applicable laws and regulations;</p>		
3	<p><b>3. Basic facilities and amenities:</b></p> <p>a) Have the adequate number of classrooms and libraries providing access to diversified sources of information and materials which have been updated within a period of 5 years till the application for approval of opening of majors is filed, or electronic libraries which are granted copyright on access to the database relating to the proposed majors and meet lecturing, study and research requirements;</p> <p>b) Have the adequate number of laboratory rooms, practice or internship facilities, experimental production plants with necessary equipment to suit requirements as to teaching, learning and scientific research activities in the proposed majors and ensure</p>	<p>Yes</p> <p>Yes</p>	

	<p>that all items included in the list of required equipment and instrument must be fully provided with the aim of assisting in training in the stipulated majors or major groups (where appropriate);</p> <p>c) Build computer rooms having internet connections to enable students to access information on demand;</p> <p>d) Administer its website which is updated on a regular manner and made available to the public in accordance with Article 2 and 3 hereof.</p> <p>dd) Possess a science and technology journal (in case of opening of doctoral-level majors).</p>	<p>Yes</p> <p>Yes</p> <p>No</p>	
<p>4</p>	<p><b>4. Training program and certain other requirements for offer of the training program</b></p> <p>a) Clearly define whether the training program is research-oriented or practically-oriented;</p> <p>b) Prepare a curriculum framework for the proposed major which is established in accordance with laws and regulations, aligned with the National Qualifications Framework currently in force, and approved by the head of the training institution in accordance with applicable laws and regulations;</p> <p>c) Have publicly disseminated graduation requirements at different qualification levels with the minimum requirement that master's-degree and doctoral students upon graduation must reach the 7<sup>th</sup> level and 8<sup>th</sup> level of the National Qualifications Framework of Vietnam, respectively;</p> <p>d) Form partnership with international universities in training and science and technology activities (except for the majors that require information security in accordance with applicable laws);</p> <p>dd) Collaborate with enterprises and employers involved in the field of the</p>	<p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Meet requirement</p>	



	<p>proposed major when the training program for such major is practically-oriented;</p> <p>e) Have already submitted a request for inspection of education quality or have been recognized as conformable to education quality standards according to applicable regulations and inspection plan of the Ministry of Education and Training;</p> <p>g) Organize an in-charge entity having professional competency in administering master's-level training activities; have already adopted regulations on master's-level training offered by the training institution;</p> <p>h) Do not violate applicable laws and regulations on conformity requirements for opening of training majors, student admission, organization and administration of training activities in currently available majors, and regulations regarding higher education within the period of 3 years till the application for approval of opening of the proposed majors is filed.</p>	<p>Meet requirement</p>	
<p>5</p>	<p>* Assess the training program and conformance requirements:</p> <ul style="list-style-type: none"> <li>- Decision on establishment of the Assessment Committee that specifies members' majors, qualifications, titles and host entities.</li> <li>- Meeting minutes of the Assessment Committee and conclusions.</li> <li>- The institution's explanation for issues requested by the Assessment Committee (if any).</li> </ul> <p>* In case of use of the training programs designed by other universities/foreign countries, give names of specific countries and define whether they are accredited and the training institution is granted copyright on use of these programs.</p> <p>* Memorandum of approval of the proposal issued by the Science and Training Committee of the training institution.</p>	<p>Yes</p> <p>Yes</p> <p>Yes</p>	

6	Conditions for carrying out the training program: Other human and funding resources	Meet requirement	
---	---	------------------	--

**HEAD OF THE TRAINING INSTITUTION**

*(signature and stamp)*

A handwritten signature in blue ink, appearing to read 'Raymond Gordon', with a large, stylized flourish below the name.

**PROF. DR. RAYMOND DANIEL GORDON**

**VICE CHANCELLOR & PRESIDENT**

# APPENDIX VIII

## APPRAISAL OF A TRAINING PROGRAMME AT THE MASTER'S LEVEL

Appraiser's full name: Prof. Dr. Ray Gordon - Vice Chancellor and President, British University Vietnam

Position in the Programme Appraisal Committee: Chair

Name of the training institution offering the training programme: British University Vietnam

Discipline: **Master of Business Administration**      Code: **8340101**

Training Level: Master's level

<b>No.</b>	<b>Category</b>	<b>Comment</b>	<b>Conclusion (Satisfactory / Unsatisfactory)</b>
1	Rationale for developing the programme	Cater to market demand	<b>Satisfactory</b>
2	Programme objectives	Objectives are suitable for master's degree and manpower market demand.	<b>Satisfactory</b>
3	Programme structure: - Suitability of the modules; the arrangement of the blocks of knowledge) - Learning hours of each module - ...	The division of modules into foundation and specialised training is appropriate. Each module's credit load of 5 to 8 credits is appropriate.	<b>Satisfactory</b>
4	Academic load	Total academic load is at 60 credits is appropriate, including Vietnamese modules, national defense, and physical training. Each module covering 5 to 8 credits is also a logical ratio.	<b>Satisfactory</b>

5	Programme content (modern, suitable to the objectives, level of training, and the country's socioeconomic development; supporting transition to other levels of training and global integration)	The programme content is appropriate for the level and can cater to the market demand.	<b>Satisfactory</b>
6	Module descriptors (objectives, content, teaching methods, assessment methods, texts & references)	Module learning outcomes match with programme learning outcomes. Various teaching methods. Text references are updated.	<b>Satisfactory</b>

**Other comments**

.....

.....

.....

.....

**Overall conclusion about the training programme**

*Please choose one of the following*

- Satisfactory and no amendments required
- Conditionally satisfactory - amendment(s) required
- Unsatisfactory

*If any amendments needed, please provide more detail below*

.....

.....

.....

.....

.....

.....

*Hung Yen, Thursday, April 13, 2023*

*(Place, Date)*

**Member of the Programme Appraisal Committee**

*(Signature and Full name)*

## TRAINING PROGRAMME APPRAISAL MINUTES

Time: 15:00 to 17:00.....

Date: Thursday, April 13, 2023.....

Location: Meeting Room 2 - 1.....

Today, at the abovementioned time, date and location, the External Programme Appraising Committee (the Committee) had met to appraise the training programme at master's level in the **Business Administration** discipline (code: **8340101**) offered by the British University Vietnam (BUV). The Programme Drafting Committee for this programme included:

Order	Full name	Title
1	Ass. Prof. Dr Jason MacVaugh - Dean (Higher Education)	Chair
2	Dr Jyotsna Ghildiyal Bijalwan - Head Academic Quality	Member - Lecturer - Discipline Expert
3	Dr Prabu Mohan - Senior Lecturer	Member - Lecturer - Discipline Expert
4	Dr Mike Perkins - Head of Centre for Research and Innovation	Quality Assurance Expert
5	Ms. Ngo Thi Ngoc Lan - Regional Director of Navigos group	Employer Representative

Details of the meeting are as follows:

### I. Members of the External Programme Appraising Committee

Order	Full name	Committee Position
1	Prof. Dr. Ray Gordon - Vice Chancellor and President, British University Vietnam	Chair
2	Linh Dao - Academic Quality Officer	Member - Secretary
3	Dr. Syed Zaidi - Senior Lecturer School of Justice, Security and Sustainability, Staffordshire University	Reviewer 1
4	Dr Sionade Robinson - Vice-President (Enterprise, Engagement & Employability), University of London	Reviewer 2
5	Mr. Andree Mangels - General Manager, ManpowerGroup Vietnam	Employer Representative

## II. Content

1. A representative of the Programme Drafting Committee from the British University Vietnam briefed the development of the Detailed Scheme and Programme Content at the bachelor's level in the Computer Science discipline.

2. Feedback from the Committee

*2.1. Feedback from Reviewer 1: Dr. Syed Zaidi - Senior Lecturer - School of Justice, Security and Sustainability, Staffordshire University*

- Regarding the general objectives and specific objectives of the training programme
  - o General objectives and specific objectives are well-defined and make logical sense, given the training requirements of the disciplines (BM & economics) by Vietnam MOET.
- Regarding the expected learning outcomes
  - o Learning outcomes have been clearly defined and match with general and specific objectives. Module learning outcomes are also aligned with programme learning outcomes.
- Regarding the structure of the training programme
  - o The programme covers basic build of blocks and is enhanced by traditional learning hours like in Vietnam creating a positive approach.
- Regarding the academic load
  - o Total academic load is at 60 credits is appropriate. Each module covering 5 to 8 credits is also a logical ratio.
- Regarding the training programme content:
  - o Various teaching practices with lectures, seminars and tutorials allow for thorough teaching and learning. The use of Canvas in supporting learning is helpful and positive.

Summary: Satisfactory proposal with no major amendments needed.

*2.2. Feedback from Reviewer 2: Dr Sionade Robinson - Vice-President (Enterprise, Engagement & Employability), University of London*

- Regarding the general objectives and specific objectives of the training programme



- I am not as experienced in the local marketplace. However, these programmes are among the popular ones globally. Especially because the programme has a good mix of traditional business management plus interesting special skills in quantitative business skills that are needed in the marketplace.
- Regarding the expected learning outcomes
  - Learning outcomes have covered knowledge, skills and autonomy as regulated, Learning objectives in module descriptors are similar to each other. Wording can be more refined.
- Regarding the structure of the training programme
  - Distribution of modules across foundation and specialised learnings is viable which creates an optimal programme structure. In general, the modules selected are relevant to the training programme.
- Regarding the academic load
  - Academic load is reasonable. The teaching blocks are comparable with practices in the United Kingdom.
- Regarding the training programme content
  - The programme content is sufficiently high level that it's going to meet the needs of students who are going into middle career roles, and it certainly distinguishes itself from the undergraduate content.

Summary: Satisfactory proposal with no major amendments needed.

2.3. *Feedback from Industry Representative:* Mr. Andree Mangels - General Manager, ManpowerGroup Vietnam

- Regarding the general objectives and specific objectives of the training programme
  - The training programme's objectives are closely aligned with the overall objectives. Description of graduate skills, skills and autonomy is very detailed.
- Regarding the learning outcomes
  - Learning outcomes are aligned with training objectives.
- Regarding the structure of the training programme

- The programme structure is viable. Foundation and specialised training credit load can provide adequate knowledge and skills for graduates to enter the professional stage.
- Regarding the academic load
  - Total academic load covers requirements. Distribution of modules between foundation and specialised training is appropriate.
- Regarding the training programme content:
  - The programme content is up to date and can satisfy objectives and expected learning outcomes.

Summary: Meet the requirements.

#### 2.4. *Feedback from Committee Member: Linh Dao - Master, Marketing*

- Regarding the general objectives and specific objectives of the training programme
  - Meet the requirements and are suitable for the institution.
- Regarding the learning outcomes
  - Learning outcomes are aligned with training objectives.
- Regarding the structure of the training programme
  - Each module's academic load is relevant. It is necessary that reference materials are more up to date.
- Regarding the academic load:
  - Distribution of modules between foundation and specialised training is appropriate. Total academic load covers requirements.
- Regarding the training programme content:
  - Programme contents match objectives and learning outcomes as regulated by MOET. The syllabus is updated and relevant to the current trends and developments in the economic and social fields.

Summary: The Master of Business Administration programme content meets the requirements. Request Vice Chancellor to allow discipline opening.

#### 2.5. *Feedback from Committee Chair: Prof. Dr. Ray Gordon - Vice Chancellor and President, British University Vietnam*

- Regarding the general objectives and specific objectives of the training programme

- Objectives are suitable for bachelor's degree and manpower market demand.
- Regarding the learning outcomes
  - Learning outcomes are aligned with training objectives.
- Regarding the structure of the training programme
  - The division of modules into foundation and specialized training is appropriate. Each module's credit load of 5 to 8 credits is appropriate.
- Regarding the academic load:
  - Total academic load is at 60 credits is appropriate. Each module covering 5 to 8 credits is also a logical ratio.
- Regarding the training programme content:
  - The programme content is appropriate for the level and can cater to the market demand.

Summary: The Master of Business Administration programme content meets the requirements

3. The representative from BUV accepted the feedback and answered questions raised by the Committee.

4. The Committee discussed and the training programme was balloted.

The Ballot Counting Board included:

- |  |           |
|--|-----------|
| - Deputy University Registrar, Mr. Tran Duc Trung        | Chair     |
| - Senior Academic Compliance Officer, Ms. Hoang Linh Chi | Secretary |
| - Academic Compliance Officer, Ms. Dang Thuy Tien        | Member    |

5. The Chair of the Ballot Counting Board announced the results:

No. of approval ballot: 5

No. of disapproval ballot: 0

6. Conclusion

The training programme at the Master level in Business Administration discipline (code: 8340101) offered by BUV met all requirements for content and form.

The official inspection by the Committee found that BUV fulfilled all conditions on the lecturing staff, facilities, technology, and educational resources to open the Master's in business administration discipline.

Suggestions for improvement:

There are potential problems with entrepreneurship being a separate module, while entrepreneurial behavior is an important learning outcome. Keeping in mind how to be active rather than passive is an important skill, and it's probably worth considering that for the learning outcomes, not just for the in-class materials. It may be a little bit different from what I would expect of a full time MBA, but I realised that you're doing something that works more like an executive one.

The meeting closed at 5pm, Thursday, April 13, 2023.

**Secretary of Committee**



*Dao Dieu Linh*

**Chair of Committee**

*Dr. Ray Gordon*

## APPRAISAL OF A TRAINING PROGRAMME AT THE MASTER'S LEVEL

Appraiser's full name: Mr. Andree Mangels - General Manager, ManpowerGroup Vietnam

Position in the Programme Appraisal Committee: Member – Employer Representative

Name of the training institution offering the training programme: British University Vietnam

Discipline: **Master of Business Administration**      Code: **8340101**

Training Level: Master's level

No.	Category	Comment	Conclusion (Satisfactory / Unsatisfactory)
1	Rationale for developing the programme	Suitable for market demand.	<b>Satisfactory</b>
2	Programme objectives	The training programme's objectives are closely aligned with the overall objectives. Description of graduate skills, skills and autonomy is very detailed.	<b>Satisfactory</b>
3	Programme structure: - Suitability of the modules; the arrangement of the blocks of knowledge) - Learning hours of each module - ...	The programme structure is viable. Foundation and specialised training credit load can provide adequate knowledge and skills for graduates to enter the professional stage.	<b>Satisfactory</b>
4	Academic load	Total academic load covers requirements. Distribution of modules between foundation and specialised training is appropriate.	<b>Satisfactory</b>

5	Programme content (modern, suitable to the objectives, level of training, and the country's socioeconomic development; supporting transition to other levels of training and global integration)	The programme content is up to date and can satisfy objectives and expected learning outcomes.	<b>Satisfactory</b>
6	Module descriptors (objectives, content, teaching methods, assessment methods, texts & references)	Module descriptors are very detailed. Multiple teaching methods are included.	<b>Satisfactory</b>

**Other comments**

.....

.....

.....

.....

**Overall conclusion about the training programme**

*Please choose one of the following*

- Satisfactory and no amendments required
- Conditionally satisfactory – amendment(s) required
- Unsatisfactory

*If any amendments needed, please provide more detail below*

.....

.....

.....

.....

---

---

*Hanoi, 12 April 2023*

*(Place, Date)*

**Member of the Programme Appraisal Committee**

*(Signature and Full name)*



*Andree Mangels*

## APPRAISAL OF A TRAINING PROGRAMME AT THE MASTER'S LEVEL

Appraiser's full name: Dr Sionade Robinson - Vice-President (Enterprise, Engagement & Employability), University of London

Position in the Programme Appraisal Committee: Reviewer 2

Name of the training institution offering the training programme: British University Vietnam

Discipline: **Master of Business Administration**      Code: **8340101**

Training Level: Master's level

No.	Category	Comment	Conclusion (Satisfactory / Dissatisfactory)
1	Rationale for developing the programme	I am not as experienced in the local marketplace. However, these programmes are among the popular ones globally. Especially because the programme has a good mix of traditional business management plus interesting special skills in quantitative business skills that are needed in the marketplace.	<b>Satisfactory</b>
2	Programme objectives	General objectives and specific objectives are well-defined and make logical sense, given the training requirements of the disciplines code 8340101 by Vietnam MOET.	<b>Satisfactory</b>
3	Programme structure: - Suitability of the modules; the arrangement of the blocks of knowledge) - Learning hours of each module	There are potential problems with entrepreneurship being a separate module, while the entrepreneurial behavior is an important learning outcome. Keeping in mind how to be active rather than passive is important skill, and it's probably worth	<b>Satisfactory</b>



	- ...	<p>considering that for the learning outcomes, not just for the in class materials. It maybe a little bit different from what I would expect of a full time MBA, but I realized that you're doing something that it works more like an executive one.</p> <p>Distribution of modules across foundation and specialized learnings is viable which creates an optimal programme structure. In general, the modules selected are relevant to the training programme.</p>	
4	Academic load	Academic load is reasonable. The teaching blocks are comparable with practices in the United Kingdom.	<b>Satisfactory</b>
5	Programme content (modern, suitable to the objectives, level of training, and the country's socioeconomic development; supporting transition to other levels of training and global integration)	The programme content is sufficiently high level that it's going to meet the needs of students who are going into middle career roles, and it certainly distinguishes itself from the undergraduate contents.	<b>Satisfactory</b>
6	Module descriptors (objectives, content, teaching methods, assessment methods, texts & references)	The assessment load is probably appropriate for this level.	<b>Satisfactory</b>

**Other comments**

.....

.....

.....

.....

**Overall conclusion about the training programme**

*Please choose one of the following*

- Satisfactory and no amendments required
- Conditionally satisfactory - amendment(s) required
- Unsatisfactory

*If any amendments needed, please provide more detail below*

.....

.....

.....

.....

.....

.....

**Dr Sionade Robinson, FRGS**  
**Vice President Enterprise,**  
**Engagement, Employability**  
The President's Office  
City, University of London  
Northampton Square  
London EC1V 0HB

*London, April 12, 2023*

*(Place, Date)*

**Member of the Programme Appraisal Committee**

*(Signature and Full name)*

*Sionade*

*Sionade Robinson*

## APPRAISAL OF A TRAINING PROGRAMME AT THE MASTER'S LEVEL

Appraiser's full name: Dr. Syed Zaidi - Senior Lecturer - School of Justice, Security and Sustainability, Staffordshire University

Position in the Programme Appraisal Committee: Reviewer 1

Name of the training institution offering the training programme: British University Vietnam

Discipline: **Master of Business Administration**      Code: **8340101**

Training Level: Master's level

No.	Category	Comment	Conclusion (Satisfactory / Unsatisfactory)
1	Rationale for developing the programme	I can see from the market demand from Vietnam and the fact that the programme that Staffordshire University has been offering attracted a considerable number of students can show that there are enough people in Vietnam who would like to pursue this path.	<b>Satisfactory</b>
2	Programme objectives	I am less familiar with the discipline requirements in Vietnam, but this programme has similar objectives to the one we are running in the United Kingdom. General objectives and specific objectives are well-defined and make logical sense, given the training requirements of the disciplines (BM & economics) by Vietnam MOET.	<b>Satisfactory</b>

3	<p>Programme structure:          - Suitability of the modules;          the arrangement of the blocks of knowledge)          - Learning hours of each module          - ...</p>	<p>The programme covers basic build of blocks and is enhanced by traditional earning hours like in Vietnam creating a positive approach.          The MBA program specifically has a 5 to 1 student - lecturer. So, it probably exceeds anything in the sector. The ratio of theory to practice is 50 - 50. There are 3 optional modules in the MBA that have not been run.</p>	<b>Satisfactory</b>
4	Academic load	Total academic load is at 60 credits is appropriate. Each module covering 5 to 8 credits is also a logical ratio.	<b>Satisfactory</b>
5	<p>Programme content (modern, suitable to the objectives, level of training, and the country's socioeconomic development; supporting transition to other levels of training and global integration)</p>	<p>It's interesting to see you incorporate the modified learning outcomes. The learning outcomes are suitable for the changes in the business world and 2023, including fintech and flexible modes of working.          Various teaching practices with lectures, seminars and tutorials allow for thorough teaching and learning. The use of Canvas in supporting learning is helpful and positive.</p>	<b>Satisfactory</b>
6	<p>Module descriptors (objectives, content, teaching methods, assessment methods, texts &amp; references)</p>	The assessment load is probably appropriate for this level.	<b>Satisfactory</b>

**Other comments**

.....

.....

.....

.....

**Overall conclusion about the training programme**

*Please choose one of the following*

- Satisfactory and no amendments required
- Conditionally satisfactory - amendment(s) required
- Unsatisfactory

*If any amendments needed, please provide more detail below*

.....

.....

.....

.....

.....


.....

*Stoke-on-Trent, April 12, 2023*

*(Place, Date)*

**Member of the Programme Appraisal Committee**

*(Signature and Full name)*

 *Dr. Syed MT Zaidi*

## APPRAISAL OF A TRAINING PROGRAMME AT THE MASTER'S LEVEL

Appraiser's full name: Dao Dieu Linh

Position in the Programme Appraisal Committee: Member - Secretary

Name of the training institution offering the training programme: British University Vietnam

Discipline: **Master of Business Administration**      Code: **8340101**

Training Level: Master's level

No.	Category	Comment	Conclusion (Satisfactory / Unsatisfactory)
1	Rationale for developing the programme	Cater to market demand based on research and survey.	<b>Satisfactory</b>
2	Programme objectives	Meet the requirements and are suitable for the institution.	<b>Satisfactory</b>
3	Programme structure: - Suitability of the modules; the arrangement of the blocks of knowledge) - Learning hours of each module - ...	Each module's academic load is relevant. It is necessary that reference materials are more up to date.	<b>Satisfactory</b>
4	Academic load	Distribution of modules between foundation and specialised training is appropriate. Total academic load covers requirements.	<b>Satisfactory</b>

5	Programme content (modern, suitable to the objectives, level of training, and the country's socioeconomic development; supporting transition to other levels of training and global integration)	Programme contents match objectives and learning outcomes as regulated by MOET. The syllabus is updated and relevant to the current trends and developments in the economic and social fields in Vietnam.	<b>Satisfactory</b>
6	Module descriptors (objectives, content, teaching methods, assessment methods, texts & references)	Module learning outcomes match with programme learning outcomes. Various teaching methods.	<b>Satisfactory</b>

### Other comments

.....

### Overall conclusion about the training programme

*Please choose one of the following*

- Satisfactory and no amendments required
- Conditionally satisfactory – amendment(s) required
- Unsatisfactory

*If any amendments needed, please provide more detail below*

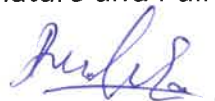
.....

*Hung Yen, 12 April 2023*

*(Place, Date)*

**Member of the Programme Appraisal Committee**

*(Signature and Full name)*



*Đào Minh Tiến*

APPRAISAL OF THE TRAINING PROGRAMME  
AT THE MASTER'S LEVEL AT THE BRITISH UNIVERSITY VIETNAM  
DISCIPLINE:  
MASTER OF BUSINESS ADMINISTRATION (CODE: 8340101)  
*For Reviewers*

Reviewer's full name: Dr Sionade Robinson

Place of work: Senior Lecturer - Vice-President (Enterprise, Engagement & Employability),  
University of London

Contact address: A102, College Building, City, University of London, Northampton Square  
London EC1V 0HB, United Kingdom

Phone number: +44 (0)20 7040 3366

Email: sionade.robinson.2@city.ac.uk

**I. General objectives, specific objectives of the training programme**

*(Comments on the objectives for knowledge, skills, and autonomy and responsibilities)*

General objectives and specific objectives are well-defined and make logical sense, given the training requirements of the disciplines code 8340101 by Vietnam MOET.

**II. Expected Learning outcomes**

*(Comments on the expected learning outcomes of the programme at the master's level)*

Learning outcomes have covered knowledge, skills and autonomy as regulated, learning objectives in module descriptors are similar to each other. Wording could more refined.

**III. Programme structure**

*(Comments on the suitability of the modules in the programme, the arrangement of the blocks of knowledge, learning hours of each module, the ratio of the common skills and knowledge to the specialised skills and knowledge, the ratio of theory to practice)*

Distribution of modules across foundation and specialized learnings is viable which creates an optimal programme structure. In general, the modules selected are relevant to the training programme.

**IV. Academic load**

*(Is the academic load reasonable?)*



Academic load is reasonable. The teaching blocks are comparable with practices in the United Kingdom.

**V. Programme content**

*(Comments if the programme content is developed based on the expected learning outcomes of the programme, is suitable for the level of training and the country's socioeconomic development, is modern, and can support the transition to other levels of training and global integration)*

The programme content is sufficiently high level that it's going to meet the needs of students who are going into middle career roles, and it certainly distinguishes itself from the undergraduate contents.

**VI. Conclusion**

*Please choose one of the following*

- Satisfactory and no amendments required
- Conditionally satisfactory - amendment(s) required
- Unsatisfactory

*If any amendments needed, please provide more detail below*

.....

.....

.....

.....

.....

.....

Dr Sionade Robinson, FRGS  
Vice President Enterprise,  
Engagement, Employability  
The President's Office

London, April 12, 2023

(Place, Date)

*Sionade*  
*Sionade Robinson*

City, University of London  
London EC1V 0HB

**Reviewer**

*(Signature and Full name)*

**APPRAISAL OF THE TRAINING PROGRAMME  
AT THE MASTER'S LEVEL AT THE BRITISH UNIVERSITY  
VIETNAM  
DISCIPLINE: MASTER OF BUSINESS ADMINISTRATION  
(CODE: 8340101)**

*For Reviewers*

Reviewer's full name: Dr. Syed Zaidi

Place of work: Senior Lecturer - School of Justice, Security and Sustainability, Staffordshire  
University

Contact address: Room LW002, Law Building, Staffordshire University, Leek Road, Stoke-on-  
Trent

Phone number: +44 (0)1782 294129

Email: [syed.zaidi@staffs.ac.uk](mailto:syed.zaidi@staffs.ac.uk)

**I. General objectives, specific objectives of the training programme**

*(Comments on the objectives for knowledge, skills, and autonomy and responsibilities)*

I am less familiar with the discipline requirements in Vietnam, but this programme has similar objectives to the one she is running in the United Kingdom.

General objectives and specific objectives are well-defined and make logical sense, given the training requirements of the disciplines (BM & economics) by Vietnam MOET.

**II. Expected Learning outcomes**

*(Comments on the expected learning outcomes of the programme at the master's level)*

Learning outcomes have been clearly defined and match with general and specific objectives. Module learning outcomes are also aligned with programme learning outcomes.

### **III. Programme structure**

*(Comments on the suitability of the modules in the programme, the arrangement of the blocks of knowledge, learning hours of each module, the ratio of the common skills and knowledge to the specialised skills and knowledge, the ratio of theory to practice)*

The programme covers basic build of blocks and is enhanced by traditional learning hours like in Vietnam creating a positive approach.

### **IV. Academic load**

*(Is the academic load reasonable?)*

Total academic load is at 60 credits is appropriate. Each module covering 5 to 8 credits is also a logical ratio.

### **V. Programme content**

*(Comments if the programme content is developed based on the expected learning outcomes of the programme, is suitable for the level of training and the country's socioeconomic development, is modern, and can support the transition to other levels of training and global integration)*

Various teaching practices with lectures, seminars and tutorials allow for thorough teaching and learning. The use of Canvas in supporting learning is helpful and positive.

### **VI. Conclusion**

*Please choose one of the following*

- Satisfactory and no amendments required**
- Conditionally satisfactory - amendment(s) required
- Unsatisfactory

*If any amendments needed, please provide more detail below*

.....

.....

.....

.....

.....

*Stoke-on-Trent, April 12, 2023*

*(Place, Date)*

**Reviewer**

*(Signature and Full name)*



*Dr. Syed MI ZAIDI*

# **APPENDIX IX**

**BRITISH UNIVERSITY VIETNAM**

**SOCIALIST REPUBLIC OF VIETNAM**

**Independence - Freedom - Happiness**

No: 1004E/2023/QD-BUV

Hung Yen, 10 April 2023

**DECISION**

**On Setting up the Programme drafting Committee of  
Master of Business Administration Programme**

**DECISION OF VICE CHANCELLOR & PRESIDENT OF  
BRITISH UNIVERSITY VIETNAM**

Pursuant to:

- Law on Higher Education No. 08/2012/QH13 dated 18 June 2012 and amendments to the Law on Higher Education No. 34/2018/QH14 dated 19 November 2018;
- Circular 17/2021/TT-BGDDT of the Ministry of Education and Training dated 22 June 2021 providing for standards and formulation, appraisal and promulgation of training programmes of higher education;
- Circular 02/2022/TT-BGDDT of the Ministry of Education and Training dated 18 January 2022 regulating conditions and procedures for opening disciplines, as well as suspending operations of disciplines at the bachelor's, master's, and doctoral levels;
- Circular 09/2022/TT-BGDDDT of the Ministry of Education and Training dated 06 June 2022 on the statistical list of educational disciplines in higher education;
- Policy on Discipline Opening and Programme Issuance attached to the Decision of 0304/2023/QD-BUV of the Vice Chancellor & President of British University Vietnam dated 03 April 2023;
- Meeting Minutes of the University Council of British University Vietnam No. 002/2023/BB-HDT dated 10 April 2023;
- Resolution of the University Council of British University Vietnam No. 1004E/2023/NQ-HDT dated 10 April 2023.



## DECIDES

**Article 1.** Approving the setting up the Programme Drafting Committee of Master of Business Administration Programme with the individuals as listed in the Appendix 1 to this Decision.

**Article 2.** The Programme Drafting Committee is responsible for drafting the Master of Business Administration programme in accordance with provisions as stipulated in Circular No. 17/2021/TT-BGDĐT. Once the committee has completed its mission, it will be dismissed.

**Article 3.** This Decision takes effect from its signing date.

**Article 4.** The Programme Drafting Committee and other relevant departments and individuals are responsible for implementing this Decision.

### **Recipients:**

-Per Article 4;

-Archived.

ON BEHALF OF

BRITISH UNIVERSITY VIETNAM



PROF. DR. RAYMOND DANIEL GORDON

**VICE CHANCELLOR & PRESIDENT**





**APPENDIX I TO THE DECISION NO. 1004E/2023/QĐ-BUV**

**LIST OF PROGRAMME DRAFTING COMMITTEE**

(issued by the Vice Chancellor & President of  
British University Vietnam on 10 April 2023)

No.	Full name	Qualifications	Current work place	Position in the Committee
1	Jason MacVaugh	Associate Professor, Doctor	British University Vietnam	Chair
2	Jyotsna Ghildiyal Bijalwan -	Doctor	British University Vietnam	Member - Lecturer - Discipline Expert
3	Prabu Mohan	Doctor	British University Vietnam	Member - Lecturer - Discipline Expert
4	Mike Perkins	Doctor	British University Vietnam	Quality Assurance Expert
5	Ngo Thi Ngoc Lan	Master	Regional Director of Navigos group	Employer Representative



**BRITISH UNIVERSITY VIETNAM**

**SOCIALIST REPUBLIC OF VIETNAM**

**Independence - Freedom - Happiness**

No: 1304E/2023/QD-BUV

Hung Yen, 13 April 2023

**DECISION**

**On Setting up the External Programme Appraisal Committee of  
Master of Business Administration Programme**

**DECISION OF VICE CHANCELLOR & PRESIDENT OF  
BRITISH UNIVERSITY VIETNAM**

Pursuant to:

- Law on Higher Education No. 08/2012/QH13 dated 18 June 2012 and amendments to the Law on Higher Education No. 34/2018/QH14 dated 19 November 2018;
- Circular 17/2021/TT-BGDĐT of the Ministry of Education and Training dated 22 June 2021 providing for standards and formulation, appraisal and promulgation of training programmes of higher education;
- Circular 02/2022/TT-BGDĐT of the Ministry of Education and Training dated 18 January 2022 regulating conditions and procedures for opening disciplines, as well as suspending operations of disciplines at the bachelor's, master's, and doctoral levels;
- Circular 09/2022/TT-BGDĐT of the Ministry of Education and Training dated 06 June 2022 on the statistical list of educational disciplines in higher education;
- Policy on Discipline Opening and Programme Issuance attached to the Decision of 0304/2023/QD-BUV of the Vice Chancellor & President of British University Vietnam dated 03 April 2023;
- Meeting Minutes of the University Council of British University Vietnam No. 002/2023/BB-HDT dated 10 April 2023;
- Resolution of the University Council of British University Vietnam No. 1004E/2023/NQ-HDT dated 10 April 2023.



## DECIDES

**Article 1.** Approving the setting up the External Programme Appraisal Committee of Master of Business Administration Programme with the individuals as listed in the Appendix 1 to this Decision.

**Article 2.** The External Programme Appraisal Committee is responsible for appraising the Master of Business Administration programme in accordance with provisions as stipulated in Article 18.2 of Circular No. 17/2021/TT-BGDĐT. Once the committee has completed its mission, it will be dismissed.

**Article 3.** This Decision takes effect from its signing date.

**Article 4.** The External Programme Appraisal Committee and other relevant departments and individuals are responsible for implementing this Decision.

### **Recipients:**

-Per Article 4;

-Archived.

ON BEHALF OF

BRITISH UNIVERSITY VIETNAM



PROF. DR. RAYMOND DANIEL GORDON

**VICE CHANCELLOR & PRESIDENT**

TRƯỜNG  
ĐẠI HỌC  
ANH QUỐC  
VIỆT NAM

**APPENDIX I TO THE DECISION NO. 1304D/2023/QĐ-BUV**

**LIST OF EXTERNAL PROGRAMME APPRAISAL COMMITTEE**

(issued by the Vice Chancellor & President of  
British University Vietnam on 13 April 2023)

No	Full name	Qualifications	Current work place	Specialized fields	Position in the Committee
1	Prof. Dr. Ray Gordon - Vice Chancellor and President, British University Vietnam	Professor, Doctor	British University Vietnam	Business Management	Chair
2	Linh Dao - Academic Quality Officer	Master	British University Vietnam	Marketing	Secretary
3	Dr. Syed Zaidi - Senior Lecturer - School of Justice, Security and Sustainability, Staffordshire University	Doctor	Staffordshire University	Finance	Reviewer 1
4	Dr Sionade Robinson - Vice-President (Enterprise, Engagement & Employability), University of London	Doctor	University of London	Systems and Management Science	Reviewer 2

3N  
1Q  
IUC  
NA

5	Mr. Andree Mangels - General Manager, ManpowerGroup Vietnam	Master	ManpowerGroup Vietnam	Business Administration & Economics	Employer Representative
---	---	--------	-----------------------	-------------------------------------	-------------------------



**BRITISH UNIVERSITY VIETNAM**

**SOCIALIST REPUBLIC OF VIETNAM**

**Independence - Freedom - Happiness**

No: 1804E/2023/QD-BUV

Hung Yen, 18 April 2023

**DECISION**

**On approving and issuing the programme curriculum of  
Master of Business Administration**

**DECISION OF VICE CHANCELLOR & PRESIDENT OF  
BRITISH UNIVERSITY VIETNAM**

Pursuant to:

- Law on Higher Education No. 08/2012/QH13 dated 18 June 2012 and amendments to the Law on Higher Education No. 34/2018/QH14 dated 19 November 2018;
- Circular 17/2021/TT-BGDDT of the Ministry of Education and Training dated 22 June 2021 providing for standards and formulation, appraisal and promulgation of training programmes of higher education;
- Circular 02/2022/TT-BGDDT of the Ministry of Education and Training dated 18 January 2022 regulating conditions and procedures for opening disciplines, as well as suspending operations of disciplines at the bachelor's, master's, and doctoral levels;
- Circular 09/2022/TT-BGDDDT of the Ministry of Education and Training dated 06 June 2022 on the statistical list of educational disciplines in higher education;
- Policy on Discipline Opening and Programme Issuance attached to the Decision of 0304/2023/QD-BUV of the Vice Chancellor & President of British University Vietnam dated 03 April 2023;
- Meeting Minutes of the University Council of British University Vietnam No. 002/2023/BB-HDT dated 10 April 2023;
- Resolution of the University Council of British University Vietnam No. 1004E/2023/NQ-HDT dated 10 April 2023;
- Meeting Minutes of the External Programme Appraisal Committee approving Master of Business Administration Discipline dated 13 April 2023;



- *Meeting Minutes of the Senate approving the programme of Master of Business Administration discipline dated 14 April 2023.*
- *Programme curriculum of Master of Business Administration discipline is enclosed with this Decision.*

## **DECIDES**

**Article 1.** Approving and issuing the programme curriculum of Master of Business Administration as attached to this Decision.

**Article 2.** This Decision takes effect from its signing date.

**Article 3.** The Dean, Registry, Discipline lead and other relevant departments and individuals are responsible for implementing this Decision.

### **Recipients:**

- Per Article 3;
- Archived.

ON BEHALF OF  
BRITISH UNIVERSITY VIETNAM

---

PROF. DR. RAYMOND DANIEL GORDON

**VICE CHANCELLOR & PRESIDENT**

TRƯỜNG  
ĐẠI  
HỌC  
VIỆT  
NAM