The 2nd International Conference

on Business, Economics, and Hospitality 2024

(ICBEH 2024)

Reinvention of Research and Innovation to Drive Sustainable Economy

PROCEEDINGS

ICBEH 2024

At Prem Auditorium, Thaksin University,
from May 23nd to 25th, 2024.

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Greetings from Key Stakeholders of ICBEH 2024

Message from the President of Thaksin University

On behalf of Thaksin University, it is my great pleasure to welcome you all to the 2nd International Conference on Business, Economics, and Hospitality 2024 (ICBEH 2024). This prestigious event serves as a platform for researchers, academics, and industry professionals to converge and engage in thought-provoking discussions, fostering knowledge exchange and driving sustainable economic growth through reinvention and innovation.

Our university takes immense pride in hosting this conference, which aligns with our commitment to advancing academic excellence and promoting collaborative efforts towards addressing global challenges. The diverse range of topics encompassed within the conference tracks - Economics, Finance and Accounting, Logistics and Business Administration, and Tourism and Hospitality - highlights the interdisciplinary nature of our endeavors and the significance of integrating multifaceted perspectives.

I am confident that the insightful presentations, engaging discussions, and invaluable networking opportunities afforded by this conference will catalyze new ideas, forge collaborative partnerships, and ultimately contribute to the betterment of our societies. As we navigate through the complexities of the modern world, events like ICBEH 2024 serve as a beacon, illuminating the path towards a more sustainable and prosperous future.

I extend my sincere appreciation to the organizing committee, esteemed speakers, and all participants for their steadfast dedication and contributions to the success of this event. Your presence and active engagement are vital to nurturing an environment conducive to intellectual discourse and the exchange of innovative ideas.

On behalf of Thaksin University, I wish you all a productive and enriching experience at the 2nd International Conference on Business, Economics, and Hospitality 2024. May this conference inspire us all to embrace reinvention and innovation as key drivers of a sustainable economy.

N. Chitniratna

(Assoc. Prof. Dr. Natthapong Chitniratna)
President of Thaksin University

Message from the Vice President for Research and Innovation, Thaksin University

On behalf of Thaksin University, I am delighted to welcome you to the 2nd International Conference on Business, Economics, and Hospitality (ICBEH). This conference is a unique platform for researchers, academics, and students from all over the world to come together and share their latest research findings on a wide range of topics in business, economics, and hospitality.

The theme of this year's conference is "Reinvention of Research and Innovation to Drive Sustainable Economy". This theme is particularly relevant in today's world, as we face a number of challenges, such as climate change, inequality, and resource scarcity. Business, economics, and hospitality research has a vital role to play in addressing these challenges and creating a more sustainable future.

I am confident that the ICBEH 2024 will be a stimulating and productive event. I encourage all participants to actively participate in the conference sessions, workshops, and networking events. I am sure that you will find the conference to be a valuable learning experience.

Samak K.

(Assoc. Prof. Dr. Samak Kaewsuksaeng)
Vice President for Research and Innovation

Message from Dean of Faculty of Economics and Business Administration, Thaksin University

It is with great pleasure that I extend my warmest greetings to each of you. As the Dean of Faculty of Economics and Business Administration, I am delighted to announce the upcoming International Conference on Business Economic and Hospitality 2024. An international conference (known as ICBEH) is a premier this year's theme, "Reinvention of Research and Innovation to Drive Sustainable Economy" and has been, scheduled to take place from 23 to 24 May 2024.

The conference will feature keynote speeches, panel discussions, paper presentations, and interactive sessions covering a wide range of topics, including but not limited to:

- Economic Development and Policy
- Tourism and Hospitality management
- Sustainable Practices in Business and Tourism
- Gobal Market Trends and Challenges

We are excited to host distinguished speakers and thought leaders who will share their expertise and contribute to the advancement of knowledge in these vital areas. Additionally, participants will have the opportunity to network with peers, explore new research avenues, and forge lasting connections with colleagues from diverse backgrounds.

As the host institution, we are committed to providing a stimulating and enriching environment for all attendees. Whether you are a seasoned academic or graduate student, your participation is integral to the success of this conference.

Together, let us seize this opportunity to explore innovative solutions, address pressing challenges, and shape the future of business, economics, and hospitality on a global scale. In addition to, while the scientific program promises to be an outstanding experience, we hope that you will also enjoy all that the city of Songkhla, Thailand has to offer in the days before or after the conference.

Warm regards,

P. Duangchinda.

(Dr. Pinit Duangchinda)
Dean of Faculty of Economics and Business Administration, Thaksin University

Message from the President of Myanmar Creative University

It is with great pleasure and honor that I extend my warmest greetings to the organizing committee and all distinguished participants of the 2nd International Conference at Thaksin University. This conference serves as a beacon of knowledge, innovation, and collaboration in the fields of business, economics, and hospitality, bringing together brilliant minds from around the world. The theme of "Reinventing Research and Innovation to Drive a Sustainable Economy" encapsulates the essence of our collective mission to pave the way for a more sustainable and prosperous future. We are laying the foundation for transformative change and progress as we gather here to exchange ideas, engage in insightful discussions, and forge new partnerships. I commend the organizing committee of Thaksin University, the Research and Development Institute, and the Faculty of Economics and Business Administration for their dedication and hard work in orchestrating this exceptional event.

Since this conference is a platform for intellectual growth and meaningful interactions. we must seize this opportunity to learn, share our experiences, and network with fellow scholars and professionals. Let us leverage our collective knowledge and experiences to drive innovation, foster sustainable practices, and shape a brighter future for generations to come. I extend my deepest gratitude to Thaksin University for hosting this remarkable conference and for providing a space where ideas flourish and collaborations thrive. I wish you all a fruitful and inspiring conference experience filled with enriching discussions and valuable insights. Together, let us embark on this journey of exploration and discovery, united in our pursuit of excellence and positive change.

(Prof. Dr. Saw Htay Myint)
President of Myanmar Creative University, Myanmar

Message from Dean of School of Technology Management & Logistics (STML), University Utara Malaysia

As the co-host of the 2nd International Conference on Business, Economics, and Sustainable Economy (ICBEH 2024), I extend a warm welcome to all participants. This prestigious event, hosted in collaboration with Thaksin University, promises to be a platform for insightful discussions, knowledge sharing, and collaborative endeavors.

Our theme underscores the critical role of innovation in shaping a sustainable global economy. Over the next three days, we will explore cutting-edge research, practical solutions, and thought-provoking ideas across various tracks, including Digital Economy and Sustainable Tourism.

I encourage each participant to actively engage in the sessions and networking opportunities. Let us leverage this platform to forge connections, spark creativity, and collectively contribute to a better future. Your insights matter, and together, we can drive positive change.

I extend my gratitude to Thaksin University for co-hosting this conference. Their commitment to academic excellence and sustainable practices aligns perfectly with our mission. Take a moment to appreciate the rich heritage of Thaksin University and the vibrant academic community it represents.

Assoc. Prof. Dr. Mohamed Najib bin Salleh
Dean of School of Technology Management & Logistics (STML), University Utara Malaysia

Message from Dean of Faculty of Economics and Business Administration, Syiah Kuala University

It is with great pleasure that I welcome you to the 2nd International Conference on Business, Economics, and Hospitality (ICBEH 2024), hosted by Thaksin University in Songkhla, Thailand, and co-hosted by Syiah Kuala University from Indonesia. This prestigious event brings together distinguished scholars, researchers, and professionals to share their expertise, exchange ideas, and explore the latest advancements in the fields of business, economics, and hospitality.

The conference's overarching theme, "Reinvention of Research and Innovation to Drive Sustainable Economy," underscores the critical importance of fostering innovative approaches and fostering collaborative efforts to address the complex challenges facing our global community. Through stimulating discussions, research presentations, and invaluable networking opportunities, the conference provides to forge a path toward a more sustainable and prosperous future.

As the host institution, Thaksin University takes immense pride in organizing this remarkable gathering, which will take place from May 23rd to 25th, 2024, at the PREM Auditorium on our Songkhla Campus. In collaboration with our esteemed co-host, Syiah Kuala University, we have curated a rich program that encompasses various sub-themes, including Economics, Logistics, Management, Marketing, and Tourism and Hospitality. The collaboration between Faculty of Economics and Business Syiah Kuala University and Thaksin University has been established since 2014 in various activities such as research, visiting lecturers, student exchange, community service.

Last but not least, my greatest appreciation goes to the Advisory Board, Organizing Committee, International Scientific Committee, institutions, companies, and volunteers who have directly and indirectly supported and contributed to the success of this conference. Finally, I wish you all a very productive conference, and lively discussions.

May God bless us all with good health to make this event a successful and enjoyable one!

(Prof. Dr. Faisal, S.E., M.Si, MA)
Dean of Faculty of Economics and Business, Universitas Syiah Kuala

Message from Dean of Faculty of Economics and Business, Sebelas Maret University (UNS)

Dear Keynote Speakers, Honored Speakers, and Esteemed Participants, it is with great pleasure that I welcome to each and every one of you for this prestigious the 2nd International Conference on Business, Economics, and Hospitality 2024: Reinvention of Research and Innovation to Drive Sustainable Economy in Thaksin University. As the Dean of Faculty of Economics and Business Universitas Sebelas Maret (UNS) Surakarta-Indonesia, I am delighted to be your co-host for this significant event.

This conference brings together a diverse and distinguished group of professionals, researchers, and academics, all of whom are experts in their respective fields. It is through such gatherings that we can collectively address the challenges and opportunities that lie ahead, paving the way for advancements and breakthroughs that benefit society at large.

The theme of this year's conference, the 2'd International Conference on Business, Economics, and Hospitality 2024, is particularly timely and relevant. In an era where Reinvention of Research and Innovation to Drive Sustainable Economy, it is crucial that we engage in thoughtful discussions, share insights, and explore new avenues for growth and development. I hope this message finds you well. I am thrilled to share some highlights from our recent participation in the International Conference on Reinvention of Research and Innovation to Drive Sustainable Economy. The conference is an inspiring gathering of minds from around the globe, all dedicated to exploring innovative approaches to research and innovation that not only advance knowledge but also contribute to building a sustainable economy for future generations.

Overall, the conference provides a valuable opportunity to exchange ideas, forge new partnerships, and chart a course for the future of research and innovation in driving sustainable economic development. I am exciting to continue our work together in advancing these important goals and look forward to the many opportunities that lie ahead.

Thank you, and once again, I extend my warmest welcome to the 2nd International Conference on Business, Economics, and Hospitality 2024 to all of you. Let us embark on this journey of knowledge and discovery together. Enjoy the conference!

(Prof. Drs. Djoko Suhardjanto, M.Com.(Hons)., Ph.D., Ak.)
Dean of Faculty of Economics and Business, UNS

Message from Associate Professor of the Institute of Economics and Management, Head of master's programs in the direction of "Finance and Banking", President of the Tomsk Institute of Professional Accountants and Auditors, National Research Tomsk State University

With a feeling of deep respect and gratitude to the organizers of the 2nd International Conference on Business, Economics and Hospitality of Thaksin University, I would like to express my sincere gratitude for the invitation to such a significant and large-scale forum dedicated to the issues of sustainable development of the economies of various countries, regions, the planet as a whole and the analysis of factors contributing to their sustainable development. The problem of sustainable development has been the major concern of the humanity since the end of the last century and remains quite relevant to the present day. The study of this issue is becoming especially relevant at the present stage of global economic shifts and turbulence. In these conditions, scientists from many countries are conducting research to identify the factors of sustainable development and search for drivers of economic growth. The solution of these issues will make it possible to tackle global environmental problems, overcome poverty and improve the quality of life of the population not only in a single country, but also in the entire planet.

Such a large-scale scientific event that will foster a scientific discussion on the above issues required magnificent organizational, intellectual, managerial and communication competencies and efforts from the members of the organizing committee, which, without any doubt, should be translated into interesting and effective scientific reports and presentations.

I would like to wish the respected organizers and all participants of the 2nd International Conference on Business, Economics and Hospitality of Thaksin University interesting reports and fruitful scientific discussions, which will inevitably lead to further cooperation between the research teams of different universities and countries. I wish all researchers and staff of Thaksin University prosperity and future scientific discoveries!

Assoc. Prof. Dr. Liudmila Tkachenko
President of the Tomsk Institute of Professional Accountants and Auditors,
National Research Tomsk State University

Keynote Speaker: Prof. Dr. Serkan Gurluk

Professor Serkan Gürlük is an environmental economics expert and head of the agricultural policy and extension department at Uludag University-Turkey. He conducted his postdoctoral research in Agricultural Economics and Business at New Mexico State University-USA. In recent years, he has also focused on Asian studies through his studies with MSc and PhD students coming to Turkey from various parts of the world. Recently, climate change adaptation-mitigation and its economic consequences, environmental valuation and development studies have become among his areas of interest. He also serves as the regional representative of the EUROASIA Agricultural Economics Association. He has nearly 100 research articles, 20 of which are in SCI and SSCI journals, 5 published books, two of which are in English, and research reports.

Innovation has been/is an important part of the economic literature and the driving force of countries' economic development efforts. Countries with qualified socio-economic power and natural resources have entered the path of significant economic growth by supporting these efforts with R&D and innovation studies. R&D and Innovation have an impact on development efforts especially in the countries that are just at the beginning of their growth path. In other words, the widespread impact of R&D and Innovation will be much greater in developing or underdeveloped countries. We can understand this with the inverse-logarithmic yield curve that appears in many scientific studies. The widespread impact and thus the GDP contribution will be greater in low per capita income countries than in high income countries. In fact, R&D and innovation investments are not a luxury but an important need. It is an inevitable reality to experience higher GDPs as R&D and innovation funds allocated from public resources increase.

Keynote Speaker: Prof. Dr. Muhammad Zahid

Muhamad Zahid is working as a Professor and Dean of the Faculty of Management Sciences at Bahria University Pakistan. Recently, he completed his Postdoctoral Fellowship in Sustainability from Universiti Malaysia Kelantan. Before joining Bahria University, he was working as a Professor and Dean Faculty of Management Sciences at the City University of Science and IT (CUSIT) Peshawar KP Pakistan. Before joining CUSIT he got his Ph.D. in Management with a fully-funded scholarship from the Universiti Teknologi PETRONAS (QS World University Rankings), Malaysia. Moreover, during his Ph.D. fellowship, he served University Teknologi PETRONAS, as a graduate assistant from Jan 2014 to Sep 2017.

Earlier, he got his MS in Management, Master of Commerce, and a Bachelor of Commerce (Hons) degree from Pakistan. After completing a master's degree, he served United Bank Limited for about 08 years as a branch manager and customer services operation manager. Besides the vast experience in industry and academia, he is equipped with a sound research background and has published numerous research papers in top-tier indexed journals such as Journal of Cleaner Production, Business Strategy and the Environment, Sustainability, Gender in Management: An International Journal, Total Quality Management & Business Excellence, Current Issues in Tourism, International Journal of Social Ecology and Sustainable Development, Journal of Management and Organization, World Journal of Science, Technology and Sustainability Development and Environment, Development and Sustainability. Apart from that, he has published books and book chapters as a co-author with well-reputed publishers. Moreover, he has also attended several international conferences. He was also a member of the conference organizing committees at several national and international conferences.

Apart from research experience, he was a member of the course development team for BBA students of the M&H department at University Teknologi PETRONAS, and Secretary of the National Course Review Committee (NCRC) Higher Education Commission (HEC) of Pakistan for Commerce discipline 2018-19. Moreover, he has developed two courses on corporate sustainability and performance for under and postgraduate students. He has also designed sustainability reports for CUSIT and ranked in the Times Higher Education Impact Rankings. He worked with regulatory bodies such as the Pakistan Stock Exchange (PSX) in designing sustainability guidelines and reports in the business and academic domains (Impact Ranking). He is also certified with SPSS, STATA, and SmartPLS from recognized universities and arranged several workshops as a resource person.

Last but not least, in his research career, he has a distinction with two best research paper awards (Emerald Outstanding Paper Award of the Year 2016 and Conference Best Paper) and several research grants.

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Dr. Pinit Duangchinda

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Abstract and proceedings:

Dr. Sanit Srichookiat
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Mr. Phurithat Thanyaros

Conference Program

The 2nd International Conference on Business, Economics, and Hospitality 2024 (ICBEH 2024)
23-24 May 2024
PREM Auditorium, Songkhla, Thailand

Thursday, 23 May 2024 @ PREM Auditorium

Link for live streaming: https://www.facebook.com/we.tsu.ac.th

Time	Agenda
08.30 - 09.00	Registration
09.00 - 09.20	Conference Inauguration • Welcoming by Assoc. Prof. Dr. Samak Kaewsuksaeng Vice President for Research and Innovation, Thaksin University • Reporting by Dr. Pinit Duangchinda Dean of Faculty of Economics and Business Administration • Opening by Assoc. Prof. Dr. Natthapong Chitniratna The President of Thaksin University
09.20 - 09.30	Art Performance by the Faculty of Fine and Applied Arts, Thaksin University
09.30 - 09.40	The ceremony to conference collaboration plaques on universities for their contributions to organizing the international academic conference
09.40 - 10.15	Keynote Speaker 1: Assoc. **Prof. Dr. Pattamawadee Pochnukul**.(Online) The Executive Director of the Office of Thailand Science Research and Innovation (TSRI) Topic: Transforming Research and Innovation to Drive the Thai Economy
10.15 - 10.50	Keynote Speaker 2: **Dr. Kitti Satjawattana** (Online) The Executive Director of Program Management Unit on Area Based Development (PMU A) Topic: Orienting National and International Research to the SDGs
10.50 - 11.00	Morning Refreshment
11.00 - 11.35	Keynote Speaker 3: **Prof. Dr. Chi Chuan Wang** Fellow ASME, Fellow ASHRAE, Chair Professor, Department of Mechanical Engineering, National Yang Ming Chiao Tung University Topic: Reinvention of Research and Innovation to Private Sector with Commercialization in Taiwan – From the Perspective of Electronic Cooling
11.35 - 11.55	Keynote Speaker 4: **Prof. Dr. Serkan Gürlük** Faculty of Agriculture, Department of Agricultural Economics, Bursa Uludağ University Topic: Reinvention of Research and Innovation in Sustainable Economy: The Case of Turkey
11.55 – 12.15	Keynote Speaker 5: **Prof. Dr. Muhammad Zahid** (Online) Dean Management Sciences, Principal Bahria Business School (Karachi), Bahria University, Pakistan Topic: Education for Sustainable Development: A Case of Business School
12.15 – 13.30	Lunch
13.30 – 16.30	Room 1: 18310 Building 18 Onsite Presentation Theme: Economics [7 Presenters]
	Room 2: 18311 Building 18 Onsite Presentation Theme: Economics [7 Presenters]
	Room 3: 18425 Building 18 Onsite Presentation Theme: Management [7 Presenters]
	Room 4: 18426 Building 18 Onsite Presentation Theme: Logistics and Supply Chains, Marketing, and Tourism and Hospitality [7 Presenters]

Friday, 24 May 2024

Time	Agenda
8.20 – 12.00	Room 1: 18310 Building 18 Online Presentation Theme: Economics [9 Presenters]
	Room 2: 18311 Building 18 Online Presentation Theme: Management [8 Presenters]
	Room 3: 18425 Building 18 Online Presentation Theme: Management [8 Presenters]
	Room 4: 18426 Building 18 Online Presentation Theme: Marketing and Tourism and Hospitality [11 Presenters]
12.00 - 13.30	Lunch

Presentation Program

Room 1: 18310 Building 18
Date: 23 May 2024 (Afternoon) Onsite Presentation
Theme: Economics

Zoom Link: https://zoom.us/j/91780339196?pwd=am9FcHdzeWNmSGFXVnI5cUtaRjNvdz09
Meeting ID: 917 8033 9196
Passcode: 202401

Chair Person : Prof. Dr. Serkan Gurluk
Co-chair : Assoc. Prof. Dr. Aliasuddin
Co-chair : Dr. Taufiq C. Dawood

23 May 2024	ID	Title / *Presenter*
13:30 - 13:50	167	**The Relationship Between Inflation, Exchange Rate, CO2 Emissions and Tourism in ASEAN** *Taufiq Carnegie Dawood (Syiah Kuala University) Indonesia*
13:50 - 14:10	197	**Local People Preferences toward Electric Vehicles: The Case of Banda Aceh, Indonesia** *Aliasuddin (Syiah Kuala University) Indonesia*
14:10 - 14:30	181	**The Development of Biodegradable Plastics to Reduce Plastic Waste in Indonesia** *Ridho Alfitrah (Syiah Kuala University) Indonesia*
14:30 - 14:50	185	**The Influence of the Inflation Rate on Poverty in Indonesia** *Syarifah Nawwar Nasywa (Syiah Kuala University) Indonesia*
14:50 - 15:10	180	**The Impact of Poverty on Dropout Rates in Indonesia During 2002-2022** *Cut Meisya Salsabila (Syiah Kuala University) Indonesia*
15:10 - 15:30	172	**The Influence of School Enrollment Rate (APS) and Poverty on Human Development Index (HDI) in Aceh** *Aliya Syahira (Syiah Kuala University) Indonesia*
15:30 - 15:50	177	**The Influence of Literacy in Population Ten Years and Over on Education and Poverty in Indonesia** *Dila Rahmawati (Syiah Kuala University) Indonesia*

Note: Bangkok time zone (UTC+7:00)

Room 2: 18311 Building 18
Date: 23 May 2024 (Afternoon) Onsite Presentation
Theme: Economics

Zoom Link: https://zoom.us/j/98038244041?pwd=RnlNQXJ6Rk84U281bTdQdFRnMzk5Zz09
Meeting ID: 980 3824 4041
Passcode: 202402

Chair Person : Prof. Dr. Saw Htay Myint
Co-chair : Assoc. Prof. Dr. Lyudmila Tkachenko
Co-chair : Asst. Prof. Talbani Farlian

23 May 2024	ID	Title / *Presenter*
13:30 - 13:50	195	**The Influence of Life Expectancy At Birth Of Human Development Index In Aceh** *Miftahul Jannah (Syiah Kuala University) Indonesia*
13:50 - 14:10	209	**Analysis Impact of GDP per Capita and Demand of Basic Community Needs on Inflation Level in Indonesia** *Cut Debi Risqa Aprilianti (Syiah Kuala University) Indonesia*
14:10 - 14:30	201	**End Hunger and Quality Health Development in Indonesia: An Analysis of the SDGs** *Sarah Shafura Saragih (Syiah Kuala University) Indonesia*
14:30 - 14:50	202	*Absents*
14:50 - 15:10	179	**The Impact of Export Value and Import Value in the Change of Trade Balance Value and its Impact on Indonesia's Sustainable Economic Growth** *Annisa Aulia Zahra Harahap (Syiah Kuala University) Indonesia*
15:10 - 15:30	204	**A Study of Factors Affecting Open Unemployment in Indonesia** *Ismah Arifa (Syiah Kuala University) Indonesia*
15:30 - 15:50	207	**The Influence of Foreign Investment on the Development of Indonesia Tourism** *Malika Humaira (Syiah Kuala University) Indonesia*

Note: Bangkok time zone (UTC+7:00)

Room 3: 18425 Building 18
Date: 23 May 2024 (Afternoon) Onsite Presentation
Theme: Management

Zoom Link: https://zoom.us/j/99017211423?pwd=TzJhV2M5dmVjNE9zU0ZoU3FibktWdz09
Meeting ID: 990 1721 1423
Passcode: 202403

Chair Person : Prof. Dr. Doddy Setiawan
Co-chair : Prof. Dr. Muhammad Zahid - Online
Co-chair : Asst. Prof. Dr. Muhammad Imran
Co-chair : Dr. Fifi Yusmita

23 May 2024	ID	Title / *Presenter*
13:30 - 13:50	161	**Whistle Blowing: Employee's Perceptions towards Whistleblowing in Case Study in Nigeria** *Muhammad Imran (University Utara Malaysia (Malaysia)) Malaysia*
13:50 - 14:10	32	**Predictive Model for Faculty Selection among Students in Southern Thailand Using Gradient Boosted Trees Machines Algorithm** *Prajak Chertchom (Thaksin University) Thailand*
14:10 - 14:30	70	**Propose a Hierarchical Structure and a Gamified Prototype for Studying an Information System for Modern Trade Business Management: "TradeQuest"** *Prajak Chertchom (Thaksin University) Thailand*
14:30 - 14:50	156	**Personal Factors of the Elderly that Affect the Potential of the Elderly as Entrepreneurs in the Next Normal: A Case Study of 4 Municipalities in Hatyai District** *Farida Sasha (Hatyai University) Thailand*
14:50 - 15:10	169	**Enhancing Organic Agriculture through Digital Platforms: A Case Study of Ban Jod Organic Learning Center at Kalasin Province** *Suksun Promboonruang (Kalasin University) Thailand*
15:10 - 15:30	314	**The Influence Of The Ability And Experience Of Investigative Auditors On The Effectiveness Of The Implementation Of Investigative Audit Procedures In Proving Fraud At The BPKP Aceh Representative Office** *Afdhal Sabila (Syiah Kuala University) Indonesia*
15:30 - 15:50	315	**The Influence of Company Size, Ownership Concentration, Auditor Reputation and Risk Management Committee on Enterprise Risk Management Disclosure 2011-2021** *Bintang Yosaria (Syiah Kuala University) Indonesia*

Note: Bangkok time zone (UTC+7:00)

Room 4: 18426 Building 18
Date: 23 May 2024 (Afternoon) Onsite Presentation
Theme: Logistics & Supply Chains, Marketing, and Tourism & Hospitality

Zoom Link: https://zoom.us/j/97461188135?pwd=SUFNVUFSNWpteXNRSjYzeGhDUGRpQT09
Meeting ID: 974 6118 8135
Passcode: 202404

Chair Person : Assoc. Prof. Dr. Mohamad Ghozali Bin Hassan CMILT
Co-chair : Assoc. Prof. Dr. Muhammad Mutasim Billah Tufail - Online
Co-chair : Dr. Halimatussakdiah

23 May 2024	ID	Title / *Presenter*
13:30 - 13:50	30	**Optimizing Depot: Efficiency and Productivity for Enhanced Sustainability Operations at Port Klang: A Comprehensive Research Investigation** *Mohamad Ghozali Hassan (University Utara Malaysia (Malaysia)) Malaysia*
13:50 - 14:10	31	**Technology Acceptance Model in Port and Haulage Operations towards Sustainability: A Case Study on Cargomove System Implementation in Port Klang** *Mohamad Ghozali Hassan (University Utara Malaysia (Malaysia)) Malaysia*
14:10 - 14:30	200	**Perceived Value, Trust, and Repurchase Intention In The Cosmetics Industry: Insights From Indonesia** *Halimatussakdiah Halimatussakdiah (Syiah Kuala University) Indonesia*
14:30 - 14:50	208	**Impacts of Brand Equity and Customer Satisfaction on EWOM and Repurchase Intentions: A Case Study of Nigerian Cosmetics and Beauty Industry** *Taiwo Bolanle Busari (Kasem Bundit University) Thailand*
14:50 - 15:10	20	**Cultural Landscape Preservation and Sustainable Environmental Development in the Agricultural Communities of Nagaland, India** *Aumpika Amloy (Chiang Mai University) Thailand*
15:10 - 15:30	178	**The Impact of Foreign Tourist Visits, Tourism Sector Foreign Exchange, and Star-Rated Hotel Room Occupancy Rate on Foreign Exchange Reserve and Its Effect on Indonesia's Economic Growth** *Salsa Zahra Nafisa (Syiah Kuala University) Indonesia*
15:30 - 15:50	183	**The Influence of the Number of Foreign Tourists from ASEAN Countries on the Number of Airplane Passengers at Soekarno-Hatta International Airport** *Teuku Hanief Rayyan Abira (Syiah Kuala University) Indonesia*

Note: Bangkok time zone (UTC+7:00)

Room 1: 18310 Building 18
Date: 24 May 2024 (Morning) Online Presentation
Theme: Economics

Zoom Link: https://zoom.us/j/91780339196?pwd=am9FcHdzeWNmSGFXVnI5cUtaRjNvdz09
Meeting ID: 917 8033 9196
Passcode: 202401

Chair Person : Prof. Dr. Serkan Gurluk
Co-chair : Assoc. Prof. Dr. Aliasuddin
Co-chair : Asst. Prof. Talbani Farlian
Co-chair : Dr. Taufiq C. Dawood

24 May 2024	ID	Title / *Presenter*
8:20 - 8:40	171	**Unlocking Economic Growth: The Relationship of ICT, FDI, Trade Openness and Population in ASEAN** *Bee Wah Tan (University Utara Malaysia (Malaysia)) Malaysia*
8:40 - 9:00	313	**Analysis on Fisheries Sector Growth in Myanmar** *Kyi Kyi Win (Monywa University of Economics) Myanmar*
9:00 - 9:20	166	**The Determinants of Corruption: New Insights from National Leadership and Telecommunication Technology** *Chor Foon Tang (Universiti Sains Malaysia) Malaysia*
9:20 - 9:40	189	**Reintegration of the Elderly into the Workforce through the Elder Job Application** *Numfon Senangkanikorn (Rajamangala University of Technology Rattanakosin) Thailand*
9:40 - 10:00	157	*Absent*
10:00 - 10:20	306	**Relationship between Inflation and Budget Deficit in Myanmar (1988-2021)** *Aung Myo Htun (Monywa University of Economics) Myanmar*
10:20 - 10:40	186	**The Influence of Sharia Shares, Islamic Bonds, and Sharia Mutual Funds on National Economic Growth from 2018-2022** *Yasmin Afifi (Syiah Kuala University) Indonesia*
10:40 - 11:00	151	*Absent*
11:00 - 11:20	159	*Absent*

Note: Bangkok time zone (UTC+7:00)

Room 2: 18311 Building 18
Date: 24 May 2024 (Morning) Online Presentation
Theme: Management

Zoom Link: https://zoom.us/j/98038244041?pwd=RnlNQXJ6Rk84U281bTdQdFRnMzk5Zz09
Meeting ID: 980 3824 4041
Passcode: 202402

Chair Person : Prof. Dr. Saw Htay Myint
Co-chair : Assoc. Prof. Dr. Lyudmila Tkachenko
Co-chair : Assoc. Prof. Dr. Muhammad Mutasim Billah Tufail - Online

24 May 2024	ID	Title / *Presenter*
8:20 - 8:40	21	**How to Be a Solopreneur** *Muenjit Jitsoonthornchaikul (Panyapiwat Institute of Management) Thailand*
8:40 - 9:00	143	**Assessing the Performance of PNU Accounting Students in Cooperative Education Programs from the Perspective of Participating Organizations** *Afif Salaeh (Princess of Naradhiwas University) Thailand*
9:00 - 9:20	162	**The Influence of Government Support on the Competitiveness of Startup Businesses in Thailand** *Amaravadee Wongtep (Songkhla Rajabhat University) Thailand*
9:20 - 9:40	198	**Resilience of Farmers Institutions to Survive in the Low Price of Rubber: A Case Study of a Farmer Institute Operating a Rubber Business** *Khomsan Hlonglaloeng (Prince of Songkla university) Thailand*
9:40 - 10:00	142	**Financial Management Strategies for the Funding Support of a Community Business Start-Up Loan: A Case of Cho-Ai-Rong's Durian Paste** *Haida Sudinpreeda (Princess of Naradhiwas University) Thailand*
10:00 - 10:20	307	**Vigilance in Vitality: Tertiary Care Hospital's Risk Management Mastery** *Syeda Tooba Asif Zaidi (Bahria University, Karachi) Pakistan*
10:20 - 10:40	311	*Absent*
10:40 - 11:00	309	**Risk Assessment of Construction Projects Using Semi-Quantitative Analysis - A Comprehensive Approach** *Sajid Khan (Bahria University, Karachi) Pakistan*

Note: Bangkok time zone (UTC+7:00)

Room 3: 18425 Building 18
Date: 24 May 2024 (Morning) Online Presentation
Theme: Management

Zoom Link: https://zoom.us/j/99017211423?pwd=TzJhV2M5dmVjNE9zU0ZoU3FibktWdz09
Meeting ID: 990 1721 1423
Passcode: 202403

Chair Person : Prof. Dr. Doddy Setiawan
Co-chair : Prof. Dr. Samina Riaz - Online
Co-chair : Asst. Prof. Dr. Muhammad Imran
Co-chair : Dr. Fifi Yusmita

24 May 2024	ID	Title / *Presenter*
8:20 - 8:40	300	**Determinants of Students Satisfaction in Online Learning: A Case Study at Monywa University of Economics** *May Thu Khaing (Monywa University of Economics) Myanmar*
8:40 - 9:00	301	**Leadership Styles and Organizational Commitment at Selected Hotels in Naypyitaw, Myanmar** *Thin Thin Aye (Monywa University of Economics) Myanmar*
9:00 - 9:20	303	**Extending Technological Acceptance Model for Adoption of Mobile Wallet: The Role of Perceived Risk and Trust** *Pyae Phyo Aung (Monywa University of Economics) Myanmar*
9:20 - 9:40	174	*Absent*
9:40 - 10:00	152	*Absent*
10:00 - 10:20	308	**Nexes Between Risk Factors and Financial Performance: The Moderating Role of Bank Size** *Samina Riaz (Bahria University, Karachi) Pakistan*
10:20 - 10:40	310	**Unlocking Organizational Resilience in Turbulent Times: The Role of Intellectual Capital Dimensions and Dynamic Capability** *Samreen Tunio (Bahria University, Karachi) Pakistan*
10:40 - 11:00	312	*Absent*

Note: Bangkok time zone (UTC+7:00)

Room 4: 18426 Building 18
Date: 24 May 2024 (Morning) Online Presentation
Theme: Marketing and Tourism & Hospitality

Zoom Link: https://zoom.us/j/97461188135?pwd=SUFNVUFSNWpteXNRSjYzeGhDUGRpQT09
Meeting ID: 974 6118 8135
Passcode: 202404

Chair Person : Assoc. Prof. Dr. Mohamad Ghozali Bin Hassan CMILT
Co-chair : Asst. Prof. Dr. Sana Aroos Khattak - Online
Co-chair : Dr. Halimatussakdiah

24 May 2024	ID	Title / *Presenter*
8:20 - 8:40	154	**The Marketing Factors that Influence Consumer Behavior in the Municipality of Narathiwat, Narathiwat Province** *Roihan Saaree (Princess of Naradhiwas University) Thailand*
8:40 - 9:00	144	**The Inluence of 7P'S Marketing Mix on Decision to Order Food Via Delivery Application of Princess Narathiwas University' Staffs** *Rungsiri Padungrat (Princess of Naradhiwas University) Thailand*
9:00 - 9:20	302	**Corporate Social Responsibility and Customer Loyalty: The Role of Customer Trust** *Daw Yu Mon Aung (Monywa University of Economics) Myanmar*
9:20 - 9:40	145	**The Marketing Mix Affecting Narathiwas Province Purchase Decisions** *Rungsiri Padungrat (Princess of Naradhiwas University) Thailand*
9:40 - 10:00	304	**Green Attitude and Green Purchase Intention towards Environmentally Friendly Products of City Marts in Yangon** *Shoon Lae Wai (Monywa University of Economics) Myanmar*
10:00 - 10:20	305	**Customer Satisfaction and Loyalty of Private Banks in Monywa** *Ye Wint Aung (Monywa University of Economics) Myanmar*
10:20 - 10:40	137	**Marketing Mix Affects Food Tourism Behavior in Mueang District, Narathiwat Province** *Nurfadla Yunu (Princess of Naradhiwas University) Thailand*
10:40 - 11:00	149	**Development of a Mobile Application to Promote Community-Based Innovative Tourism in Ao Manao Bay, Kaloi Nuea Sub-District, Mueang District, Narathiwat Province** *Surachet Sangkhapan (Princess of Naradhiwas University) Thailand*
11:00 - 11:20	163	**Sustainable Tourism Management: A Case Study of Ban Thon Community Narathiwat Province** *Pornthip Manopkham (Princess of Naradhiwas University) Thailand*
11:20 - 11:40	155	**Mobile Application Development for Cultural Tourism in Narathiwat Province** *Surachet Sangkhapan (Princess of Naradhiwas University) Thailand*
11:40 - 12:00	164	**Guidelines for Promoting Historical and Cultural Tourism: A Case Study of the Talo Manoh Mosque or the 300-Year-Old Mosque, Lubo Sao Subdistrict, Ba Cho District, Narathiwat Province** *Pornthip Manopkham (Princess of Naradhiwas University) Thailand*

Note: Bangkok time zone (UTC+7:00)

Room 1: 18310 Building 18
Date: 23 May 2024 (Afternoon) Onsite Presentation
Theme: Economics

ID 167 [Abstract]
The Relationship Between Inflation, Exchange Rate, CO2 Emissions and Tourism in ASEAN

Fadhillaturrahmi[1], Taufiq Carnegie Dawood[2]* and Talbani Farlian[2]

[1] Economic Development Department, Economics and Business Faculty, Syiah Kuala University, Banda Aceh, Aceh, Indonesia: fadhillaturrahmi19@gmail.com
[2] Fakultas Ekonomi dan Bisnis Universitas Syiah Kuala, Banda Aceh, Indonesia: taufiq.dawood@usk.ac.id
[2] Fakultas Ekonomi dan Bisnis Universitas Syiah Kuala, Banda Aceh, Indonesia: t_farlian@usk.ac.id

* Correspondence: taufiq.dawood@usk.ac.id (TCD)

Abstract

This study aims to analyse the relationship among inflation, exchange rate, CO2 emissions and tourism in ASEAN Countries. The data in this study uses secondary data in the form of annual data from 1960 to 2020 obtained from the World Bank and FRED. The type of data used in this research is panel data, which is a combination of Time Series and Cross Section data. Where the Time Series data used are annual data from 1960-2020 and Cross Section data are ASEAN countries (Brunei Darussalam, Cambodia, Lao PDR, Myanmar, Viet Nam, Indonesia, Malaysia, Philippines, Singapore, and Thailand). Based on model selection procedure, the statistical analysis method used in this analysis is the panel random effect model. In estimating panel data analysis model, the disturbance variables may be affiliated with each other between individuals and over time. In using the random effect model, the difference in intercept is accommodated by the error terms. While the estimator for estimating the selected random effect model uses the Generalized Least Square (GLS) method. The conclusion of this study is that the inflation has negative effect on tourism, while exchange rate has positive and significant effect on tourism. Meanwhile CO2 emissions have negative and significant effect on tourism. So that it is expected for the government can make any policies to reduce carbon gas emissions especially during tourism activities in order to avoid the adverse effects caused by the gas and monetary authorities in ASEAN countries is expected to control inflation variables and maintain exchange rate stability.

Keywords: Inflation, Exchange rate, CO2 Emissions, ASEAN

ID 197
Local People Preferences toward Electric Vehicles: The Case of Banda Aceh, Indonesia

Aliasuddin[1]*, Nanda Rahmi[2], Hazman Samsudin[3] and Nizam Ahmat[4]

[1] Faculty of Economics and Business, Universitas Syiah Kuala, Darussalam, Banda Aceh, Indonesia; aliasuddin@usk.ac.id
[2] Faculty of Economics and Business, Universitas Syiah Kuala, Darussalam, Banda Aceh, Indonesia; nanda_rahmi84@usk.ac.id
[3] Faculty of Business, Economics, and Social Development, Universiti Malaysia Terengganu, Malaysia; hazman.s@umt.edu.my
[4] Faculty of Business, Economics, and Social Development, Universiti Malaysia Terengganu, Malaysia; nizamahmat@umt.edu.my

* Correspondence: aliasuddin@usk.ac.id

Abstract

The Indonesian government is implementing regulations regarding restrictions on sales of fossil fuel for vehicles in 2030 for motorbikes and 2040 for cars. This study analyzes the preferences of local people toward electric vehicles in Banda Aceh when dealing with these regulatory restrictions. The logistic regression model estimates the primary data from 200 respondents. The logistic model is estimated by using the maximum likelihood approach. The study results show that education has a positive and significant effect on the demand for electric vehicles. The same results are shown by income, gender, and distance, which positively and significantly affect the demand for electric vehicles. Meanwhile, age has a negative and significant effect on electricity preference. Given the urgency of the situation, it is crucial to disseminate electric vehicle programs to reduce exhaust emissions and increase electric vehicle use.

Keywords: Preference, Electric vehicle, Banda Aceh

Introduction

The number of motorbikes continues to rise in line with the population growth and increased purchasing power of the local people in Banda Aceh. In 2020, the number of motorbikes in Aceh Province was 1,978,138 units (BPS, 2023), and the number in Banda Aceh Municipality was 219,532 units or 11.09 percent (BPS, 2023). There was an increase in motorbikes in 2022 by 2,199,349 units (BPS, 2023), or 5.44 percent per year. Using the distribution percentage of motorbikes in Banda Aceh Municipality of 11.09 percent, the number of motorbikes in Banda Aceh Municipality is 243,028. The population of Banda Aceh Municipality in 2022 is 257,635, so almost everyone in this local context has a motorbike (BPS, 2023). With the projected number of cars in Banda Aceh Municipality set to exceed 174,357 in 2022, the number of vehicles per person will surpass one unit (BPS, 2023). This vehicle surge translates to a corresponding increase in emissions, with the total emission per capita in 2021 at 2.271 tons per year. The implications are stark: a continuous rise in emissions will lead to a decline in environmental quality, directly impacting the quality of human life. This underscores the pressing need for our mission to promote electric vehicle use and reduce emissions.

One of the policies carried out by the Indonesian government is to encourage the use of electric vehicles, which will come into force in 2030 for motorbikes and in 2040 for cars. This policy is very important so emissions can be reduced and the quality of human life will improve. Although this policy is relatively late compared to some developed countries, this policy has been very good at reducing environmental pollution.

A good policy will be more effective if it is supported by increased public demand for electric vehicles. In theory, the demand for goods and services is determined by economic factors such as income, own price, prices of other goods, tastes, population, and expectations. Another variable that determines demand is education because this type of good is high-tech. Education is one of the important variables in the demand for electric vehicles.

Butt and Singh (2023) examine the public acceptance of electric vehicles in Pakistan. They used gender, age, education, income, vehicle ownership, and daily transport demand. The model they used in this research is structural equation modeling. The results of the study show that all variables have a significant effect on the acceptance of electric vehicles.

The results of this study show that socioeconomic factors influence the acceptance of electric vehicles in Pakistan. A study on the demand for electric vehicles in Banda Aceh Municipality still needs to be studied, so it is an interesting research object. Based on these considerations, this research is exciting considering that electric vehicles need to be more familiar in Banda Aceh Municipality, so the results of this study can be a reference for policymakers or business people in facing the increasing demand for electric vehicles in Banda Aceh Municipality.

Literature review

Butt and Singh (2023) researched various factors influencing public acceptance of electric vehicles in Pakistan. The study results show that financial policy is the main factor influencing the acceptance of these electric vehicles. Financial assistance in the form of subsidies is a determinant of public revenue because the selling price of electric vehicles is still relatively high, so people cannot afford to buy them at their current income level. The second variable that plays a role is the community's concern for environmental quality. Good environmental awareness will encourage people to buy electric vehicles to reduce emissions from fossil fuel-based vehicles. There is also the issue of supporting facilities, which significantly affect the acceptance of electric vehicles because they facilitate the use of electric vehicles. The current condition of no supporting facilities will reduce people's interest in buying electric vehicles. The final variable is the ease of use of electric vehicles, which is the final determinant of public acceptance of the use of electric vehicles.

Other research related to this issue concerns the acceptance of electric vehicles, with the primary variable being monetary incentives for purchasing electric vehicles. Sa et al. (2023) found that monetary incentives are critical for consumers to buy electric vehicles. Furthermore, supporting facilities are the second determinant of the demand for electric vehicles. These two studies are relatively the same because there are financial incentives and supporting facilities.

The application of the electric vehicle policy must be supported by planning in the field of provision of supporting facilities in accordance with the results of the previous study. The results of the study by Elkadeem and Abido (2023) suggest optimal planning related to the procurement of excellent electric vehicle testing stations with an integrated system considering several factors such as cost, emissions, and resilience. Electric charging stations can be provided through private or shared schemes. This is done to ensure continuity in providing electric charging stations for electric vehicles and to provide incentives to electric charging station providers. This is also in accordance with a study conducted by Liu et al. (2023), which stated that the incentive policy was the most critical factor in increasing the use of electric vehicles. The goal is to make electric vehicle prices more competitive.

Electric charging stations must continue to provide competitive prices to compete with fossil fuels. Liang et al. (2023) suggest two pricing levels for electric vehicle charging. The first level is the private level with the cheapest price level, which allows charging for all types of vehicles—second price determination by including uncertainty factors that may occur in the future.

Nodehi, Zafari, and Mehdi (2022) proposed a microgrid system to reduce operational costs and emissions, including the distribution of generation and electric vehicles. The simulation results show that optimal management of electric vehicles can reduce costs and, at the same time, reduce pollution from motorized vehicles. Reduced emissions follow a significant reduction in total costs.

The development of penetration of electric vehicles in Korea has increased due to policies on electric vehicles supported by adequate infrastructure. Even this infrastructure has the most significant role in the demand for electric vehicles (Ko and Shin, 2023). Furthermore, the results of this study indicate that the better access to a hydrogen fueling system, the higher market penetration will increase in the early stages, but after reaching a particular stage, market penetration will decrease. Thus, the market share does not change the demand for electric vehicles.

Chandra (2022) conducted this study using a panel model approach in 10 countries regarding the socioeconomic influence on the demand for electric vehicles. The results prove that the effect of subsidies greatly

influences the demand for electric vehicles. Other variables affecting the demand for electric vehicles are socioeconomic factors such as income, renewable energy prices, and the availability of electric charging. All of these variables positively and significantly impact the demand for electric vehicles.

In more detail, this study's results show that subsidies have a positive and significant effect on the demand for electric vehicles, and the same results are also true for the availability of electric charging stations. Meanwhile, socioeconomic variables such as income affect the demand for electric vehicles. Slightly different results are seen in age, which positively and significantly affects the demand for electric vehicles. This shows that socioeconomic variables greatly determine the demand for electric vehicles.

Methodology

This research uses a hypothetical market approach because the market for electric vehicles is not yet available. Hence, the hypothetical market approach is the most appropriate method for examining this study. Based on the hypothetical market theory, everyone could be chosen as a sample in this study.

1. Sampling Method

The role of education in purchasing electric vehicles in Banda Aceh Municipality is conducted through direct interviews with respondents using designed questionnaires. The ideal number of samples can be set at most five percent of error in the sampling frame. However, in this study, the number of errors in the sampling frame is 7.05 percent. The Slovin formula determines the number (Tejada & Punzola, 2012):

$$n = \frac{N}{1+Ne^2} \quad (1)$$

The components of equation (1) consist of *n* being the number of samples, N being the population number, and e being the error. Based on equation (1) and the total population of Aceh in 2022 (BPS, 2023), the number of samples in this study is:

$$n = \frac{5407855}{1+5407855(0.10)^2} = 200 \quad (2)$$

2. Estimation Method

The theoretical model in choosing the possibility of any outcome can be estimated by a binary model, where this model is a nonlinear model that can only be estimated by the maximum likelihood approach. The model in this study is (Stock & Watson, 2012):

$$y = x\beta + \varepsilon \quad (3)$$

Equation (3) is transformed in terms of the variables in this study as follows:

$$EV = \beta_1 + \beta_2 \mathrm{Y} + \beta_3 Edu + \beta_4 M + \beta_5 Age + \beta_6 Gender + \varepsilon \quad (4)$$

β_2, β_3, β_4, and $\beta_6 > 0$ and $\beta_5 < 0$

The dependent variable in equation (4) is an electric vehicle, with binary values of 1 for purchasing the electric vehicle and 0 otherwise. Furthermore, the independent variables are income (Y) in rupiahs, Edu is education in terms of years of schooling, M is mileage in kilometers, Age in years, and Gender is a dummy variable, 1 for males and 0 otherwise. The theoretical coefficients are stated below in equation (4).

Results and Discussion

1. Statistics of the Variables

Banda Aceh Municipality is the center of government because it is the capital of Aceh Province. This position has implications for a better concentration of human resources than other districts/cities in Aceh. The accumulation of resources also affects the economy of this region, which is relatively better than that of other districts/cities in Aceh Province. This is supported by field data in this study, as shown in Table 1.

Table 1 shows the average income in Banda Aceh Municipality of IDR 2,599,500 per month, with the highest income being IDR 8,000,000 and the lowest being IDR 2,000,000. This income is relatively good because it is more than four times higher than the minimum income in Band Aceh Municipality. This is also reflected in the deficient number of poor people in Banda Aceh Municipality, only 7.61 percent in 2023 (BPS, 2023). The education level of Banda Aceh Municipality is also very high because the mean years of schooling is 14.64 years, equivalent to the university level.

The average motorbike ownership is almost two units, illustrating that almost everyone has a motorbike in Banda Aceh Municipality. The vast number of motorized vehicles will result in the number of motorbikes being exhausted by gas pollution, which will be even more significant because population growth and income growth will increase the demand for motorbikes. This is the same with the number of cars, which is almost one unit per person. This illustrates that the number of cars is also vast because of the community's needs, as the transportation system does not yet support community activities.

Table 1: Statistics of the Selected Variables

Statistics	INCOME	Years of Schooling	MOTOR	CAR
Mean	2,599,500	14.64	1.88	0.64
Median	2,000,000	18.00	2.00	1.00
Maximum	8,000,000	23.00	4.00	3.00
Minimum	400,000	0.00	0.00	0.00
Std. Dev.	1,748,898	4.923	0.91	0.68

Source: Estimated Results, 2023.

2. Estimated Results

Before the analysis, model testing was one condition for the model to be stable because the model used was nonlinear. One of the measuring tools for model stability is the smaller gradient value, which illustrates that the model is stable because it is heading toward an equilibrium point. Table 2 shows that all variables have minimal gradients or around zero, so it can be stated that the model in this study meets the requirements to be used as an analytical tool.

Table 2: Testing for Model Stability

Variable	Sum	Mean	Weighted Grad.
YS	6.58E-10	3.29E-12	7.43E-17
DISTANCE	4.09E-09	2.04E-11	-2.42E-18
INCOME	0.000133	6.63E-07	-1.87E-24
GENDER	2.32E-11	1.16E-13	1.84E-15
AGE	1.44E-09	7.22E-12	2.72E-16
C	3.77E-11	1.88E-13	-9.70E-15

Source: Estimated Results, 2023.

Figure 1 supports the results of this model stability test, which illustrates that all variables have gradients around non-zero. This fulfills the requirements of a stable nonlinear model because it leads to convergent. Based on these two pieces of evidence, the model in this analysis meets the requirements.

After the model's stability test meets the requirements, the analysis is carried out based on the estimation results. The results of this estimate are shown in Table 3, and education has a positive and significant effect on the selection of electric vehicles in Banda Aceh Municipality. A one-time education increase will affect the choice of

electric vehicles by 1.07344 times, assuming other variables are held constant. This coefficient indicates that education is an essential variable in the choice of electric vehicles.

Furthermore, mileage also has a positive and significant effect on the choice of electric vehicles. The farther the respondent travels, the more likely the respondent is to buy an electric vehicle. This result is very reasonable considering that a long trip will affect the fuel costs that the respondents must incur. The possibility of increasing the selection of electric vehicles is slightly smaller than that of education. This condition further reinforces that people's tendency towards electric vehicles is increasing because fuel prices increased some time ago.

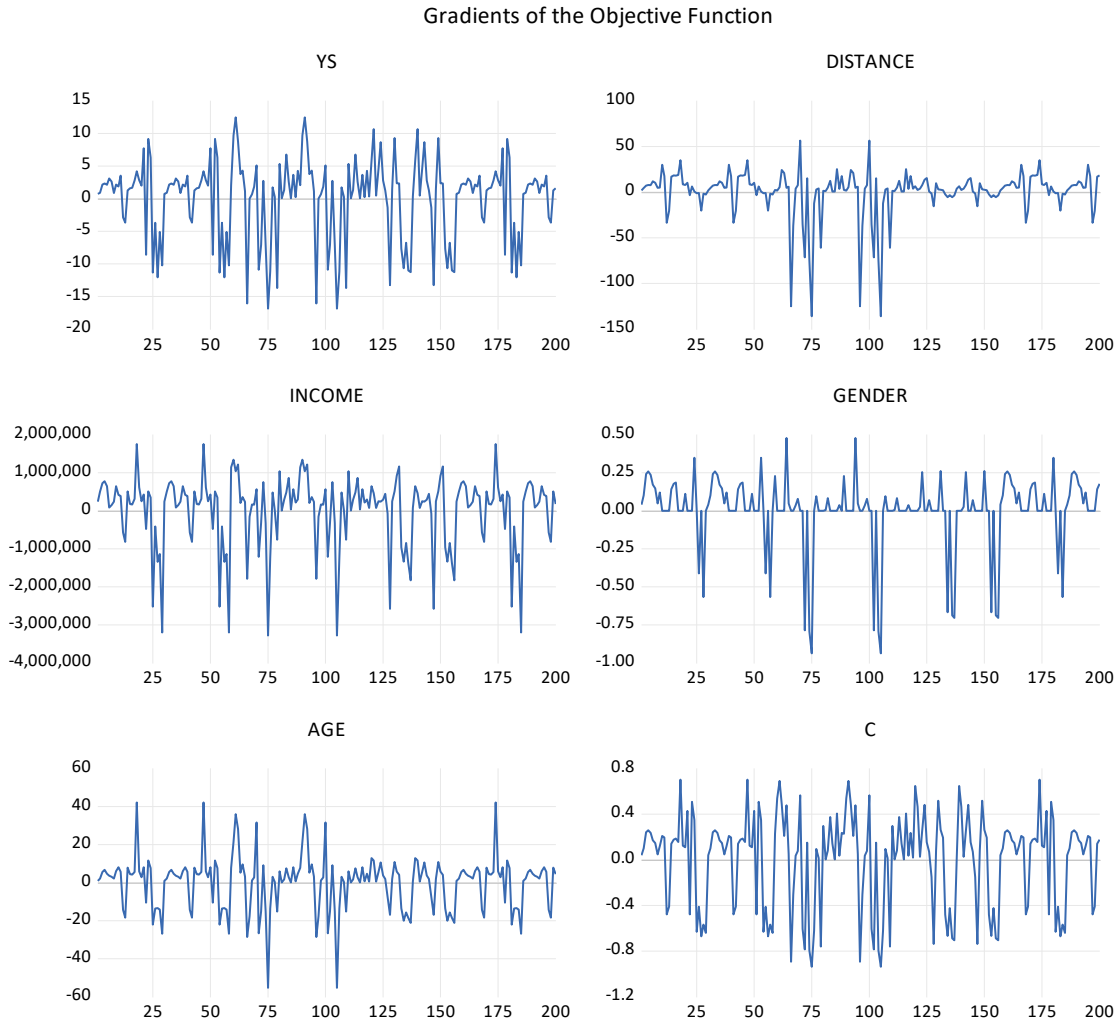

Figure 1: Model Stability Testing

Table 3: Estimated the Effect of Education on Electric Vehicle

Variable	Coefficient	Std. Error	z-Statistic	Prob.	Odd Ratio
YS	0.070866	0.038385	1.846181	0.0649	1.07344
MILEAGE	0.016244	0.004504	3.606502	0.0003	1.01638
INCOME	3.68E-07	1.32E-07	2.786685	0.0053	1.00000
GENDER	0.788956	0.392114	2.012056	0.0442	2.20110
AGE	-0.030878	0.016562	-1.864394	0.0623	0.96959
C	-1.165068	0.871390	-1.337022	0.1812	0.31190

Source: Estimated Results, 2023.

Furthermore, the income variable also has a positive and significant effect on the choice of electric vehicles. A one-time increase in income will result in a one-time increase in the selection of electric vehicles, assuming other variables are held constant. This result is consistent with the theory that income is crucial in all transactions, including electric vehicles.

Meanwhile, the gender variable has the most significant influence on the choice of electric vehicles. These results illustrate that males tend to own electric vehicles more than females. This gender coefficient has the most significant influence compared to this variable in the research.

In theory, a more senior age will reduce the purchase of electric vehicles because senior citizens' activity decreases. The estimation results are also in line with the theoretical statement. This result is significant in that people who are increasingly senior will be better off using public transportation to travel or hitchhiking with younger drivers.

The results of this study are consistent, both theoretically and statistically significant, so they can be used as a basis for the development of electric vehicles in Banda Aceh Municipality. The results of this study are also consistent with previous studies such as Chandra (2022) dan Sa et al. (2023). With the results of this study, it is necessary to develop electric vehicles supported by various supporting facilities, such as the research results mentioned in the previous section.

Conclusions

Based on the research results, several conclusions can be drawn. First, the study results show that education is an essential variable in supporting the choice of electric vehicles in Banda Aceh Municipality. In almost all requests for goods, buying electric vehicles is a huge consideration. In this case, education is critical to note. Second, mileage also affects the selection of electric vehicles because the farther the distance traveled, the more fuel costs will increase.

Third, the same results are shown by income, gender, and age variables. This condition indicates that the theoretical aspect has empirical support from the results of this study. The most significant influence is on the gender variable, which shows that males have a greater tendency to choose electric vehicles because males tend to travel farther than females.

It is recommended that the government should socialize the importance of electric vehicles to reduce carbon emissions. The government should encourage the private sector to provide charging stations in the main infrastructure areas.

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The Development of Biodegradable Plastics to Reduce Plastic Waste in Indonesia

Ridho Alfitrah[1], Fifi Yusmita[2]* and Talbani Farlian[3]

[1] Faculty of Economics and Business, Syiah Kuala University; ridhoalfitrah@gmail.com
[2] Faculty of Economics and Business, Syiah Kuala University; fifiyusmitaaceh@usk.ac.id
[3] Faculty of Economics and Business, Syiah Kuala University; t_farlian@usk.ac.id

* Corespondence: fifiyusmitaaceh@usk.ac.id

Abstract

One of the main environmental issues Indonesia is now dealing with is plastic garbage. The invention of biodegradable polymers has emerged as a promising remedy to this problem. The purpose of this project was to investigate how biodegradable polymers may help reduce Indonesia's plastic waste. The pros and cons of biodegradable polymers, production processes, and present plastic waste management strategies in Indonesia were examined in the literature. The best biodegradable plastic for the local market was chosen through the material selection process. PHA and PLA found to be appropriate materials overall for the development of biodegradable plastics in Indonesia by the material selection approach. To maximize these materials' qualities and provide appropriate processing methods for the creation of biodegradable polymers, more study is required. The findings suggest that the development of biodegradable polymers may offer an alternate strategy for decreasing Indonesia's plastic waste. However, there are still issues that must be resolved, such as the high cost of producing biodegradable plastic and the absence of infrastructure to enable the treatment of biodegradable plastic trash. Overall, biodegradable plastics have the potential to cut down on Indonesia's plastic waste and help create a more sustainable future.

Keywords: Biodegradable plastics, Plastic waste, Indonesia

Introduction

With a sizable population and quick economic development, Indonesia has emerged as one of the top manufacturers and generators of plastic garbage worldwide. The lack of public knowledge and the absence of stringent waste management legislation worsen this problem. As a result, plastic garbage has emerged as one of Indonesia's most concerning environmental issues, having an effect on environmental beauty, public health, and long-term economic viability (Pratiwi & Wijayanti, 2018)

Due to its widespread use and affordable production costs, plastic is currently one of the most common building materials in the world. However, the widespread use of plastic has already alleviated many environmental problems, most notably the plastic waste crisis that is fast engulfing the human body. According to research by Geyer et al. (2017), every plastic product produced in 2015 was over 8,3 million metric tons, and it is predicted that roughly 79% of the plastic scrap will be recycled in a harbor or other body of water.

Plastic and human life are inextricably linked in every aspect of life. Plastic is used to meet almost all human demands, including those for bags, food wrappers, lunchboxes, water bottles, straws, and numerous other items. The use of materials such as plastic must take into consideration the amount of waste that plastic produces because everything with a plastic base material is a substance that is largely non-biodegradable. Early in the 20th century, plastic as a material substance was widely produced and employed (Kyrikou, 2007). In this particular case, the development of biodegradable polymers offers an intriguing opportunity of dealing with the current problem of plastic waste.

Around the world, attempts have been made to manufacture biodegradable plastics, and a number of nations, including Japan and Europe, have taken aggressive steps to gradually decrease the usage of traditional plastics in preference for biodegradable alternatives (Ardhi & Hidayat, 2020). Nevertheless, there hasn't been significant progress made in Indonesia, where the invention of biodegradable plastics is still relatively new. As in many other countries of the world, plastic trash is a growing environmental issue in Indonesia. Only 10% of the 6.8 million tons of plastic garbage produced in Indonesia each year, according to the Ministry of Environment and Forestry (2018), is recycled. As a result, there are now problems like blocked waterways, dirty beaches, and harm to marine life.

In accordance with Averous and Pollet (2012), biodegradable plastics is able to be produced using a variety of components, including starch, cellulose, even protein. The creation of biodegradable plastics has emerged as an appropriate response to this problem. The materials intended to make biodegradable plastics are organic and capable of breaking down in the environment. With the goal of reducing plastic waste, this study looks into how biodegradable plastics are being developed in Indonesia as an alternative to conventional plastics. The development of biodegradable plastics in Indonesia in an effort to deal with the issue of plastic waste will be among the topics covered by researchers in this study.

Literature review

1. Definitions and Types of Plastics

Plastic is a synthetic material that is comprised of polymers that can be formed into a variety of different shapes and sizes, which renders it a material that is used extensively throughout numerous sectors, including electronics, building, and packaging. Due to the fact that plastic is not biodegradable, it does not naturally decompose, which leads to a serious environmental issue in terms of garbage buildup (Plastics Europe, 2021)

Regarding to American Chemistry Council (2021), Plastics can be found in many different kinds of varieties that are usually categorized according to their characteristics, proposed applications, and methods of production. Here are some examples of typical plastic types:

1. Polyethylene (PE) is a flexible plastic that is frequently employed in the construction and packaging sectors. It is a thin, flexible plastic that is easy to mold into several different shapes.
2. Polypropylene (PP) is a robust and stiff material that finds extensive usage in the medical and automotive sectors. Apart from that, it can be found in construction materials and packaging.
3. Due to its strength and durability, polyvinyl chloride (PVC) is a material that has been widely used in the building and construction sectors. Furthermore, packaging and medical equipment both make use of it.
4. Light-resthecheright plastic polystyrene (PS) is frequently discovered in food packaging, insulation, and only once-used utensils. Additionally, it's employed in the manufacture of electrical gadgets.
5. PET is an acronym for Polyethylene Terephthalate, and this material is a transparent, light-resthecheright plastic that is frequently discovered in the packaging of beverages. Additionally, it is utilized in textiles, electronics, and medical equipment.

2. Plastic Waste Management in Indonesia

According to Djalante et al. (2020), Indonesia generates 3.2 million metric tons of plastic garbage per year, out of which 1.29 million metric tons end up in the ocean. The handling and disposal of plastic trash in Indonesia has major obstacles due to inadequate garbage infrastructure as inadequate public awareness. Only 50% of the nation's plastic garbage is now gathered and properly disposed of (National Geographic Indonesia, 2021). The remaining plastic garbage is disposed of in landfills or the environment, which causes pollution and has a detrimental effect on ecosystem health and human health.

The Indonesian government is implementing a number of regulations and measures to solve the plastic waste problem. To lessen plastic waste and environmentally conscious waste management methods, the "Indonesia Free from Plastic Waste 2020" initiative was established (The Jakarta Post, 2021). The initiative includes a fee on plastic bags and a ban on single-use plastics in certain metropolitan areas. The government has also given recycling businesses incentives to promote the recycling of plastic garbage. Despite these initiatives, Indonesia still has a number of problems with plastic trash management. Sustainable waste management techniques face substantial challenges from inadequate waste infrastructure, a lack of financial recovery, and poor public awareness.

3. Biodegradable Plastics

According to etymology, the term "biodegradable" was derived from the three words "bio," which means "living things," "degra," which means "decomposed," and "able," which means "able to". Biodegradable plastic film can be defined by its own definition as plastic that can be broken down by microorganisms. This plastic film is commonly used in packaging. The benefit of this plastic film is that it may be used as a packing material because water does not readily evaporate it (Mahalik, 2009; Agustina Putri Serly, 2014).

As defined by Kale et al. (2017), biodegradable plastics are those that, after having been utilized, are capable of being broken down by microbes into carbon dioxide, water, methane, biomass, and inorganic chemicals, depending on the temperature, humidity, and oxygen that are available in the environment.

Per the research of Pivnenko et al. (2018), biodegradable plastics are substances that degrade in the environment and change into molecules that may interact with and become part of natural cycles. While According to the Handbook of European Bioplastics (2020), biodegradable plastics are polymers that are intended to break down or biodegrade in the natural environment through the action of naturally existing microorganisms to produce non-toxic end products.

4. The Development of Biodegradable Plastics in Indonesia

One of the nations with a plastic waste issue is Indonesia. Due to a large daily production of plastic trash and a deficient waste management infrastructure, Indonesia suffers from a particularly serious plastic waste problem (Kusumaningtyas et al., 2020). A potential to this issue is the use of biodegradable plastics, which can potentially be broken down by microorganisms into non-toxic byproducts, knowing the quantity of plastic trash that enters the environment.

Kusumaningtyas et al.'s (2020) investigation on the usage of sago starch and glycerol-based biodegradable polymers According to the study, the biodegradable plastic demonstrated strong mechanical characteristics, including tensile strength and elongation at break. The study also discovered that soil held the biodegradable plastic in place longer than water did. Moreover, Indonesian efforts to manufacture biodegradable polymers are still in their infancy and encounter a number of obstacles. The difficulties in producing and using biodegradable plastics in Indonesia, such as the high cost of production and consumers' lack of knowledge and comprehension, underlined in research by Sari et al. (2019).

Develop policies, technology, and infrastructure to enable the manufacturing and use of biodegradable plastics in Indonesia in order to overcome these obstacles, which will require cooperation the government, industry, and research institutes (Prasetyaningrum et al., 2020). In general, Indonesia's efforts to manufacture biodegradable polymers have the potential to lessen plastic waste generation and alleviate the nation's plastic waste issue.

5. Production Methods of Biodegradable Plastics

Overall, the processes utilized to create biodegradable plastics differ based on the kind of material employed. Biodegradable plastics made of starch and proteins are created by combining natural components, whereas those made of cellulose are created by chemically altering cellulose. Bacterial fermentation and polymerization are used to create PHAs and PLAs, respectively. As a more sustainable alternative to traditional plastics, the resultant polymers offer strong mechanical characteristics and are biodegradable.

1. To increase its mechanical qualities, starch is blended with other biodegradable substances like polycaprolactone (PCL) or polylactic acid (PLA) to create starch-based biodegradable polymers. The starch is mixed with the other ingredients in the production process before the final product is created by extrusion and injection molding (Dhakal et al., 2017).
2. Biodegradable polymers made of cellulose are created from cellulose-rich materials like cotton or wood pulp. In order to produce a polymer that can be converted into a biodegradable plastic, the cellulose must first undergo chemical modification (Iwamoto et al., 2018). The material produced is biodegradable and has high mechanical characteristics.
3. The proteins used to make protein-based biodegradable polymers come from organic such as soy, wheat, or maize. The creation method entails the extraction of the protein, chemical modification, and transformation into a plastic (Kumar et al., 2021). These polymers are biodegradable and have strong mechanical qualities.
4. Through the bacterial fermentation of renewable like sugar or vegetable oils, PHAs are biodegradable polymers that are generated. The method of making PHA begins with the cultivation of the bacteria, followed by

the extraction and purification of the plastic (Chen, 2009). PHAs are completely biodegradable and have high mechanical characteristics.

5. A biodegradable plastic known as PLA is created from renewable materials like cornstarch or sugarcane. Lactic acid, which is then polymerized into PLA, is created throughout the manufacturing process by fermenting cornstarch or sugarcane (Cerqueira et al., 2021). PLA is completely biodegradable and has strong mechanical characteristics.

6. Advantages and Disadvantages of Biodegradable Plastics

Regarding to Amiralian (2009), In comparison to conventional plastics, biodegradable plastics provide a number of benefits, such as renewability, carbon footprint reduction, and biodegradability. Biodegradable polymers do have certain drawbacks, too, such as price, supply limitations, recycling difficulties, and environmental challenges. Many of these drawbacks are anticipated to be resolved as technology develops, making biodegradable polymers a more attractive replacement for conventional plastics.

Methodology

1. Literature Reviews

A methodology literature review is a research technique that involves systematically identifying, assessing, and synthesizing existing research studies, articles, and publications related to a particular research question or topic. It offers a thorough overview of the current state of knowledge and understanding in a particular research area (Booth, 2009).

Based on Cooper (2016), The process of conducting a literature review includes a number of steps, such as defining the research question, and locating pertinent database of literature, creating search terms and criteria for inclusion and exclusion, screening and selecting articles, extracting and analyzing data, and synthesizing and reporting findings.

According to Kithenham (2004), the search technique, inclusion and exclusion standards, data extraction procedure, and evaluation of the studies' quality are all commonly included in a literature review approach. Along with offering a transparent and repeatable method for completing the review, it should also address any potential biases or limitations in the process.

2. Material Selection

An approach for material selection that combines life cycle analysis and multi-criteria decision-making methodologies is described by Ozkan & Ozkan (2019). The process entails a number of phases, such as:

1. Defining the restrictions and needs for the product's or system's design.
2. Determining the potential materials' qualities.
3. Employing life cycle assessment and cost analysis to examine each material's environmental effects and life cycle costs.

The authors contend that by taking into account not just technical needs but also economic and environmental factors, this technique can assist designers and engineers in making better informed judgments about material selection.

Result

Similar to many other developing nations, Indonesia faces huge difficulty controlling plastic trash. The growing volume of plastic garbage has had a significant influence on the environment, causing air, soil, and water pollution that may be harmful to both people and ecosystems. In response, biodegradable plastics are becoming more popular in Indonesia as a promising way to cut down on plastic waste (Kurniawan & Wulandari, 2019).

Biodegradable polymers are a form of plastic that may be broken down by microorganisms like bacteria or fungi in the environment. Although Indonesian biodegradable plastic production is still in its infancy, there have already been some attempts made to advance and market this technology. The high cost of producing biodegradable plastic in Indonesia in comparison to traditional plastic production is one of the biggest obstacles (Putri & Subagio, 2020). Several approaches have been suggested and put into practice to address this issue, including the use of less expensive raw materials and the optimization of production procedures. In Indonesia, for instance, the use of

agricultural waste as a raw material for the manufacturing of biodegradable plastic has been investigated since it can production costs and offer waste materials another use.

Regarding to Indonesian Ministry of Environment and Forestry (2018), Several businesses in Indonesia have recently begun making biodegradable polymers utilizing a variety of manufacturing techniques. Production of starch-based bioplastics, which uses starch from a variety including potato, corn, and cassava, is one of the major techniques employed. Several businesses in Indonesia have started making starch-based bioplastics, including PT. Adiyasa Abadi and PT. Arbe Starch.

The literature analysis makes it clear that the development of biodegradable polymers is gaining momentum as a substitute for reducing Indonesia's plastic waste. There are many different kinds of biodegradable plastics that have been created, each with its own special qualities and features, including PHA, PLA, starch-based, and cellulose-based polymers. As they decompose quickly and without harming the environment, these biodegradable polymers have demonstrated promising benefits in decreasing plastic waste.

Material selection is an important phase in the creation of biodegradable polymers to minimize plastic waste in Indonesia. The goal is to find appropriate materials that are not only easily accessible and affordable but also biodegradable. The outcomes of the strategy utilized in this study's material selection are shown in this section. Based on Sudaryanto, Yusuf, & Isroi (2017), several biodegradable materials identified as viable candidates for the creation of biodegradable plastics on the basis of the literature analysis and discussions with industry experts. These consist of:

1. A biodegradable polymer created from renewable materials like sugarcane and maize starch is called polylactic acid (PLA).
2. A series of biodegradable polyesters known as polyhydroxyalkanoates (PHA) are created when bacteria digest sugar or lipids.
3. Biodegradable polymers derived from starch or modified starch are known as starch-based polymers.
4. Biodegradable polymers derived from cellulose, a natural polymer found in plants, are known as cellulose-based polymers.
5. A biodegradable polymer produced from succinic acid and 1,4-butanediol is called polybutylene succinate (PBS).

It was determined to concentrate on PLA and PHA for the development of biodegradable plastics in Indonesia after taking into account the accessibility, affordability, and biodegradability of these materials. These materials discovered to be widely accessible, reasonably affordable, and highly biodegradable in the nation. Based on Sudaryanto, Yusuf, & Isroi. (2017), for a number of reasons, PLA (polylactic acid) and PHA (polyhydroxyalkanoates) are seen to be good options for handling Indonesia's waste problem.

1. Biodegradability: Because PLA and PHA are biodegradable polymers, bacteria can convert them into more basic, naturally occurring substances like carbon dioxide, water, and biomass. This characteristic is quite important when it comes to waste management, particularly in nations like Indonesia where the accumulation of plastic waste is a big environmental problem. Biodegradable polymers present a viable way to lessen the adverse environmental effects of traditional plastics. According to studies, PHA and PLA break down far more quickly than traditional polymers. For instance, under composting circumstances, PLA normally dissolves in 6–12 months but PHA might do so in 3–6 months. On the other hand, conventional polymers can withstand hundreds of years in the environment.
2. Renewable Sources: PHA is created when bacteria break down carbohydrates or lipids, whereas PLA is made from renewable resources like the starch of maize and sugarcane. By reducing reliance on scarce fossil resources, this use of renewable feedstocks promotes sustainability. Using renewable feedstocks is in line with Indonesia's sustainability objectives and resource availability, as the country's agriculture industry plays a major role in the economy. Worldwide production of PLA is estimated to be 200,000 tons per year, mostly from renewable resources like sugarcane and maize starch. Similar to this, the annual production of PHA has reached about 10,000 tons, with feedstocks derived from bacterial fermentation of lipids or carbohydrates. These numbers demonstrate how many renewable resources are used to produce PLA and PHA.
3. Accessibility and Affordability: The statement emphasizes how affordable and readily available PLA and PHA are in Indonesia. Because of their accessibility, industries can easily embrace these materials and incorporate

them into their current manufacturing processes without facing major obstacles. Moreover, their price renders them feasible choices for extensive implementation, especially in areas with restricted financial means. According to market data, PLA's cost has dropped by about 40% in the previous ten years, giving it a stronger competitive edge over conventional plastics. Similar to this, PHA prices have dropped, with a 30% reduction in production costs as a result of improvements in fermentation technology. The accessibility and affordability of PLA and PHA in the Indonesian market is facilitated by these cost reductions.

4. Mechanical Properties: Although not stated clearly in the statement that is provided, PLA and PHA often have good mechanical qualities that make them appropriate for a range of uses, such as packaging and disposable goods. These materials are environmentally benign and can perform on par with traditional polymers. Studies comparing PLA and PHA have shown that their mechanical qualities are on par with, if not better than, those of traditional plastics. PLA, for example, has tensile strengths between 50 and 70 MPa, but PHA can have tensile strengths that are either the same or greater. Furthermore, both PLA and PHA are viable substitutes for products like packaging since they can both retain their mechanical integrity in a variety of environmental settings.

formula to represent the potential impact of using PLA and PHA on reducing plastic waste accumulation in Indonesia:

$W_{conventinal}$ = Annual accumulation of conventional plastic waste in Indonesia (in tons)

W_{PLA} = Annual accumulation of PLA-based plastic waste in Indonesia (in tons)

W_{PHA} = Annual accumulation of PHA-based plastic waste in Indonesia (in tons)

R_{PLA} = Percentage reduction in plastic waste accumulation achieved by replacing conventional plastics with PLA (%)

R_{PHA} = Percentage reduction in plastic waste accumulation achieved by replacing conventional plastics with PHA (%)

Based on the methodology outlined in Sudaryanto et al. (2017), the formula to calculate the total reduction in plastic waste accumulation in Indonesia using PLA and PHA is:

$$\text{Total Reduction} = W_{conventinal} - (W_{PLA} + W_{PHA})$$

Where:

$$W_{PLA} = R_{PLA}/100 \times W_{conventinal}$$

$$W_{PHA} = R_{PHA}/100 \times W_{conventinal}$$

Now, solve the formula with hypothetical values:

$W_{conventinal}$ = 100,000 tons (Annual accumulation of conventional plastic waste in Indonesia)

R_{PLA} = 50%

R_{PHA} = 30%

Calculate W_{PLA} and W_{PHA}, and then find the total reduction in plastic waste accumulation.

Calculate W_{PLA}:

$$W_{PLA} = \frac{50}{100} \times 100{,}000 = 50{,}000 \text{ tons}$$

Calculate W_{PHA}:

$$W_{PHA} = \frac{30}{100} \times 100{,}000 = 30{,}000 \text{ tons}$$

Substitute the values into the total reduction formula:

$$\text{Total Reduction} = 100{,}000 - (50{,}000 + 30{,}000) = 20{,}000 \text{ tons}$$

So, by substituting PLA and PHA for traditional plastics, we may be able to cut Indonesia's yearly plastic waste production by 20,000 tons.

Discussion

Indonesia's issue with plastic waste has been linked to the development of biodegradable polymers as a potential solution. In order to determine if it would be feasible to produce and use biodegradable plastics in Indonesia, researched the literature on these topics as on how plastic waste is managed in the country. Researcher next chose appropriate raw materials for making biodegradable plastics and conducted a data analysis.

The manufacturing and use of conventional plastics clearly have a detrimental effect on the environment and human health, as shown by the literature review. As they are made to break down over time and lessen the quantity of plastic trash in the environment, biodegradable plastics have been suggested as a possible solution to this issue. Additionally, it has been shown that biodegradable polymers share mechanical and thermal characteristics with conventional plastics, making them appropriate for a variety of applications.

Researcher have found many materials, including polylactic acid (PLA), polyhydroxyalkanoates (PHAs), and starch-based polymers, that are appropriate for the production of biodegradable plastics. These materials have been proved to biodegrade under specific circumstances and are made from renewable materials. These materials are also ideal for a variety of applications since it has been discovered that they have good mechanical and thermal characteristics.

Regarding by Halim & Othman (2019), The statistical analysis demonstrates that Indonesia might produce biodegradable plastics with considerable environmental and economic benefits. To ensure the effective adoption of biodegradable plastics in Indonesia, there are a few issues that must be resolved. These difficulties include the lack of facilities for gathering and processing biodegradable plastics, the need for public education and awareness campaigns to encourage the use of biodegradable plastics, and the absence of government policies and regulations to Anchorage the creation and use of biodegradable plastics.

The absence of infrastructure for managing biodegradable plastic trash in Indonesia is one of the main problems. While using biodegradable plastics can help cut down on the quantity of plastic trash in the environment, it is still important to manage and dispose of these materials properly to protect the environment. In Indonesia, there are currently few facilities for composting and recycling biodegradable plastic, and those that do exist frequently lack the tools and materials required for effective processing. This may result in the buildup of biodegradable plastics in natural or landfill settings, where they could decompose more slowly than anticipated.

The increased expense of manufacturing biodegradable polymers in comparison to conventional plastics presents another difficulty. Specialized machinery and technology are needed to produce biodegradable polymers, which might raise production prices. This might make it challenging for producers to create biodegradable plastics at a price range that is competitive, especially in a market where customers might be hesitant to pay more for environmentally friendly items.

Conclusion

In conclusion, the introduction of biodegradable plastics in Indonesia has the potential to cut plastic waste greatly and raise the sustainability of the nation's economy and environment. The practicality of creating and utilizing biodegradable plastics in Indonesia was evaluated by the study, which also identified viable materials for this purpose. To fully exploit the promise of biodegradable plastics in Indonesia. However, there are still issues that need to be solved and further research and development is needed.

The cost and availability of raw materials, the requirement for effective waste management and the infrastructure, and potential unintended consequences of biodegradation are just a few of the obstacles and restrictions that must be addressed. Although there are still issues to be resolved, the creation of biodegradable polymers offers a viable means of Indonesia's plastic waste. With chances for government and private sector partnership to foster innovation and forge a more sustainable future, the nation has the potential to become a global leader in sustainable plastic manufacturing and waste management.

Overall, it is critical for Indonesia to maintain its investments in the study and creation of biodegradable plastics and to put into place laws and policies that environmentally friendly methods of disposing of plastic trash. To build a more sustainable future for Indonesia and the globe as a whole, industry, the government, and society will need to work together.

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ID 185
The Influence of the Inflation Rate on Poverty in Indonesia

Syarifah Nawwar Nasywa[1], Talbani Farlian[2] and Fifi Yusmita[3]* Thanawit Bunsit[4], Abdulhakim Madiyoh[5]

[1] International Accounting Program – IAP/IBEP, Faculty of Economics and Business, Universitas Syiah Kuala; syarifahnawwarnasywa@gmail.com
[2] Associate of professor IBEP, Faculty of Economics and Business, Universitas Syiah Kuala; t_farlian@usk.ac.id
[3] Coresponding Lecture, Faculty of Economics and Business, Universitas Syiah Kuala; fifiyusmitaaceh@usk.ac.id
[4] Faculty of Economics and Business Administration, Thaksin University; thanawit_dome@hotmail.com
[5] Faculty of Economics and Business Administration, Thaksin University; abdulhakim.m@tsu.ac.th

* Correspondence: fifiyusmitaaceh@usk.ac.id

Abstract

Indonesia as a developing country tends to experience inflation. High and low levels of inflation in a country will affect the economy in a country, especially the level of unemployment and poverty. The main objective of this research is to know and also to describe the effect of the inflation rate on poverty in Indonesia. This study uses a quantitative method using data obtained from Bank Indonesia and also the Central Statistics Agency in the form of a time series for a period of 20 years from 2001 to 2020 using the EViews application. To demonstrate the research hypothesis, an econometric model is used using the OLS (Ordinary Least Square) which is estimated by using the application. The results of this study conclude that the inflation rate (X) has a negative impact on the poverty rate (Y) in Indonesia.

Keywords: Inflation, Economy, Poverty

Introduction

Developing countries such as Indonesia often experience complex economic problemssuch as inflation and high poverty rates. Inflation is a disease in the macroeconomy that must pay attention to its growth rate so as not to cause instability in the country's economy. If the inflation rate soars and also occurs continuously, there will be economic chaos in the country,the poverty rate will increase drastically due to the high level of inflation. Inflation must be maintained so that the growth rate is low. Inflation has many positive and negative impacts on the country's economy. Inflation is defined as a continuous increase in all prices that is very high; if the increase occurs in only one item, it cannot be called inflation. Thehigh rate of inflation demonstrates the country's economic instability; this will undoubtedly have an impact on the level of poverty because people are increasingly unable to meet their normal needs for goods and services due to all price increases.

The poverty condition of a country is a reflection of the level of welfare of the people living in that country (Christianto, 2013). Various methods have been used by the Indonesian government to reduce the existing poverty rate, one of which is to control the growth rate of inflation. Because of low people's income, a country's high level of poverty will result in decreased purchasing power in society. At present, the problem of poverty is not only an economic problem but also related to social and political issues because high poverty is usually followed by high crime rates in the community. The inability of the community to meet their needs due to poverty will usually encourage them to do anything so that their needs are met, for example, theft or illegal trade, all of which they do solely in order to meet their needs and also get out of the cycle of poverty.

According to the report, the highest inflation rate occurred in 2005, which was caused by an increase in fuel prices of up to 3.47% contributing to inflation, followed by an increase in transportation as well as goods and services for other human needs. High inflation in 2005 had an impact on the poverty rate that year, as shown in the table number 1 about The Influence of The Inflation Rate on Poverty in Indonesia. The highest poverty rate also

occurred in 2005 and it can also be seen from the graph shows thatin several years when the inflation rate decreased so did poverty and vice versa when the inflation rate increased followed by increased poverty. This proves that one of the causes of the poverty rate is inflation, as evidenced by the high inflation rate in 2005 followed by a high poverty rate in that year. The poverty rate is influenced by several factors, one of which is the inflation rate. Based on the report, the inflation rate affects changes in the poverty rate that occur. This research was conducted to see how influential the level of inflation is on the poverty that occurs in Indonesia.

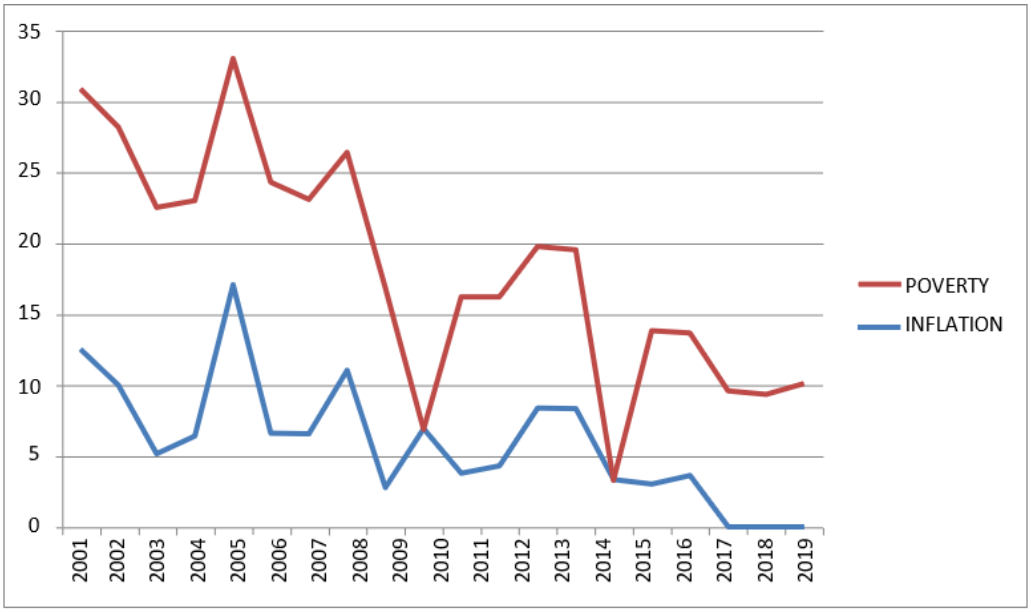

Figure 1: The graph of the influence of the inflation rate on poverty in Indonesia

Table 1: The Influence of the inflation rate on poverty in Indonesia

Inflation (%)	Poverty (%)	Years
12.55	18.41	2001
10.03	18.2	2002
5.16	17.42	2003
6.4	16.66	2004
17.11	19.50	2005
6.6	17.75	2006
6.59	16.58	2007
11.06	15.42	2008
2.78	14.15	2009
6.96	13.33	2010
3.79	12.49	2011
4.3	11.96	2012
8.38	11.47	2013
8.36	11.25	2014
3.35	11.22	2015
3.02	10.86	2016
3.61	10.12	2017
3.13	9.66	2018
2.72	9.41	2019
1.68	10.19	2020

Formulation of the problem

1. Does the inflation rate affect poverty in Indonesia?
2. How big the influence of the inflation rate on poverty in Indonesia?

Literature review

Inflation

According to Murni (2013) inflation is an event that shows an increase in the price level in general and takes place continuously. An increase in the price of just one or two goods cannot be called inflation, unless the increase extends to (or results in an increase in) most of the prices of other goods (Boediono, 2014: 161). According to other experts, inflationis an increase in commodity prices in general caused by the synchronization between programs procurement of commodities (production, pricing, printing money, and so on) with the level of income owned by the community.

The inflation rate occurs differently in each country, so it is sometimes a benchmark for whether the economic development in a country is good or not. Inflation also has levels, namely:

a) Mild inflation, that is, has no effect on the economy and is below 10 percent annually.
b) Moderate inflation, namely inflation that has a moderate impact on the people'seconomy and can reach 30%
c) Heavy inflation is inflation that causes a country's economy to become unstable and isworth 100% every year.
d) Hyperinflation is the most severe form of inflation that can damage a country's economy, this inflation is worth more than 100% annually, and generally, it is difficult to regulate this hyperinflation with any policies made by the government, so inflation at this level must be avoided by a country.

Some of the factors that cause inflation include rising public demand for goods and services, which causes a scarcity of available options, an increase in production costs or raw materials for an item, which causes the output price of these goods to rise, and a high level of unemployment. The circulation of money is a factor that affects the rate of inflation, that is, when the number of goods on the market is fixed but the amount of money circulating in society is doubled, it will result in inflation.

According to the author, the definition of inflation is a situation when all goods or services that are the needs of the community increase rapidly and occur continuously over several months or years, caused by several factors that cause economic instability in both society and a country.

Poverty

Poverty is a major problem faced by all countries, including Indonesia. The government has implemented various policies and made efforts to reduce poverty, but poverty in a country still exists and sometimes increases in number due to policies that do notreach the target and uneven implementation of these policies. Poverty greatly affects the rate of economic growth in Indonesia, the higher the number of poor people, the slower the rate of economic growth in Indonesia will be.

According to Niemietz (2011) in Maipita (2014), poverty is the inability to buy basic necessities such as food, clothing, shelter, and medicine. According to Soerjono Soekanto, a legal sociologist, poverty is a condition where a person is unable to maintain himself according to the standard of living of the group and is also unable to utilize his mental and physical energy in the group. Poverty can also be interpreted as the condition of a person or a family that does not have the ability or freedom to meet their primary needs, does not have assets or access that guarantee life in the future, and also does not have strong guarantees to face or follow the changes that exist in society, for example, the rising prices of basic commodities or even the technological developments that occur constantly.

The author defines poverty as a condition experienced by a person, group, or even community in an area that lacks the ability to meet their basic human needs, such as food, clothing, and proper shelter, which is usually caused by a combination of factors or theimpact of economic problems that result in a person falling into poverty.

Economically, poverty can be seen from the level of lack of resources that can be usedto meet the necessities of life and improve the welfare of a group of people (Amelia, 2012). Poverty is said to be multidimensional due to various human needs. The dimensions of poverty manifest themselves in a lack of water, poor nutrition, a lack of health care, and a very low level of education. According to Djojohadikusumo, poverty has four patterns, the first of which is persistent poverty (poverty that has persisted for generations). The second pattern, namely cyclical

poverty, is a condition when poverty follows the overall cyclical pattern. The third pattern is seasonal poverty, namely poverty that occurs seasonally, for example in the case of fishermen who sometimes get a lot of fish but also do not get fish in some seasons, so they do not generate income. The final pattern is accidental poverty, which refers to poverty conditions caused by natural disasters, the impact of government policies, oreven an actual pandemic. For example, when Indonesia was hit by the COVID-19 pandemic, many people became unemployed due to unstable economic conditions and other circumstances, forcing people to lose their welfare.

Types of poverty according to Ali Khomsan (2015:2) and friends:

1) Absolute poverty is defined by the state as poverty caused by a low income that is insufficient to meet their needs.
2) Relative poverty is poverty caused by uneven development policies by the government, resulting in income inequality in the population. Relative poverty can also be interpreted as poverty that comes from the comparison between the populationand their environment.
3) Cultural poverty is poverty that occurs as a result of people's habits such as laziness, easily giving up on fate so that they tend not to try, excessive consumption, and a liking to steal to meet their needs as well as other negative conditions from society.
4) Structural poverty is poverty caused by the attachment of a social structure to a group of people so that they do not make the best use of available resources. For example, foreign investors who use all resources and employ foreign workers cause people in an area to lose their jobs, and evictions carried out by the government cause people to have no place to live and even lose their jobs.

The World Bank has established a way to measure the poverty line. If someone has the ability to spend a day under the provisions, then that person can be classified as poor. This size or standard is constantly changing in response to changing conditions around the world. In 2005, the poverty line was $1.25. Currently, the poverty line set by the World Bank is $1.9 or equivalent to Rp. 27,000.00 (exchange rate of $ 1 = Rp. 14,258.25 as of 11/9). The worst poverty generally occurs in developing countries, resulting in a country having to owe money to the World Bank. Poverty exists in developed countries as well, though not to the same extent as in developing countries.

Factors that cause poverty:

a) High demand price increases.
b) There are not enough jobs available.
c) There is conflict or unrest in the community or region.
d) Climate change or a natural disaster.
e) Epidemic
f) There is social injustice.
g) Unequal government policies.

The relationship between the inflation rate and poverty in Indonesia

According to Keynesian theory, inflation occurs when people have a demand that exceeds the amount of money in circulation. When demand exceeds supply, the price of all goods and services rises. Inflation has a positive impact, namely if it occurs in the short term, it will result in an increase in economic growth, but if it occurs in the long term, it will certainly have a negative impact. The community will find it increasingly difficult to meet their needs with a fixed income, so that people's welfare decreases or even falls into poverty. Inflation also causes goods produced domestically or imported domestically to be more expensive than imported goods, so people tend to prefer buying imported goods. Of course, this resulted in a negative impact, namely a decrease in the selling power of domestic products due to soaring prices. Domestic products that are less competitive result in lower demand, so a number of companies will reduce their production, resulting in a reduction in employees. The reduction in employees results in a loss of income and leads to an inability tomeet needs.

Research conceptual framework

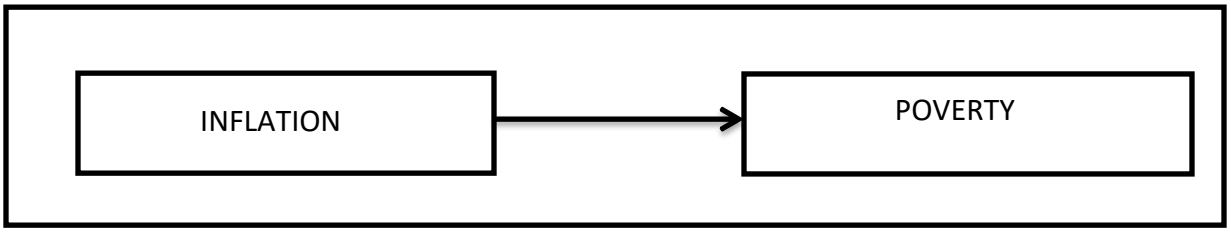

Figure 2: The Conceptual Framework of the Influence of the Inflation Rate on Poverty in Indonesia.

According to Tegan George (2022) the conceptual framework describes the expectedrelationships among variables. It defines the relevant objectives for the research process andmaps how they come together to draw coherent conclusions. The above framework shows that inflation is an X variable that affects poverty, which is a Y variable.

Research Method

Research Purposes

The purpose of this research is that to inform the public and the government how influential the inflation rate is on poverty. This can assist the government in improving policies and distributing all existing policies to all levels of society so that the inflation rate can be suppressed and poverty in Indonesia can be reduced so that economic growth will alsoimprove and have an impact on the country's growth in the future.

Scope of research

The scope of this research is Indonesia with an inflation rate that covers the entire year and a poverty rate that has also been calculated for each year. This research has produced results that make it possible to see how big the effect of the inflation rate is on poverty in Indonesia. So this research has included results from all regions in Indonesia.

Data collection

This research methods uses quantitative methods. Quantitative research, as defined by V. Wiratna Sujarweni (2014:39), is a sort of research that yields conclusions that may be reached (obtained) using statistical procedures or other methods of quantification (measurement).

The scope of this research discusses the influence of the inflation rate on poverty in Indonesia in the 2001-2020 period. The type of data used in this research is secondary data. The data was obtained from the Central Bureau of Statistics (BPS) and Bank Indonesia.

Data analysis method

The variable used in this study is the inflation rate as the independent variable, while the dependent variable is poverty. In this study, we analyzed data using the OLS (Classical Assumption Test) method using the Eviews 12 application. The issue to be discussedis the effect of the inflation rate on poverty in Indonesia in the 2001–2020 period.

Research variable

Conditions or characteristics that researchers change, control, or observe in a study are known as research variables (Narbuko & Achmadi, 2015:118). Two variables are revealed in this study's data set for analysis. As was previously stated in the study's title, that is: “The Influence Of The Inflation Rate On Poverty In Indonesia**”.**

Dependent Variable

The primary element you seek to explain or forecast is known as the dependent variable, and it is influenced by a number of additional factors, which are typically indicated by the letter Y. In other words, a full discussion of this dependent variable should be includedin the background research. The variable that is impacted by or results

from the independent factors is known as the dependent variable (Noor, 2012:48). The study's dependent variable isPoverty in Indonesia (Y).

Independent Variable

The dependent variable, which is typically represented by the symbol X, is predicted to undergo some changes as a result of the independent variable, or independent variable. In other terms, an independent variable is one that affects, contributes to, or results in a changein the dependent variable. Inflation can affect the purchasing power of individuals, the cost living, and overall economic stability, all of which can have direct implications for poverty levels so that makes the study's independent variable is inflation rate (X).

Hypothesis development

The pace of growth is constantly kept moderate and steady to prevent the development of macro illnesses, which would later have an impact on economic instability. To test the inflation rate as the independent variable in a simple regression model could be influenced by several factors. One key consideration is the significant impact of inflation on various economic and social factors including poverty. The amount of poverty in Indonesia will be impacted by this as well.

The high or low poverty rate that exists in Indonesia will be significantly impacted by the level of inflation. The validity of hypotheses, which are provisional or preliminary designs, must established. The process of testing hypotheses relies on decision-making techniques and keeps in mind the context that has been examined (data) through experiments and observations. The assumption that there is difference between the first and second variables is known as the null hypothesis.

The alternative hypothesis (HA) and the null hypothesis (H0), which are the stipulations of the hypothesis, are the two different sorts of the hypothesis. When the null hypothesis is accepted, the alternative hypothesis is also rejected, and vice versa if the alternative hypothesis is accepted. On the other hand, if the null hypothesis cannot be supported, the alternative hypothesis is accepted. The alternative hypothesis cannot be accepted if the null hypothesis is found to be true.

Because alpha 0.05 is not excessively rigorous and the error rate for drawing conclusions about the results is little looser than 0.01, the hypothesis value is 5% significant. The null hypothesis (H0) in this study is that inflation rate has no impact on poverty at Indonesia. The following hypothesis can be developed in light of the theory and findings of the research done:

Ha: Indonesian poverty is impacted by inflation rates.
H0: Indonesian poverty is not significantly impacted by inflation rates

Result

The results of this research are descriptive and consist of research variables. This research's sample period covered the years 2001 through 2020. The result of this study also aims to determine how significant the influence of inflation rate on poverty at Indonesia. The data shown above will produce the following EViews results:

Probability Test

The study found that the inflation rate affects the level of poverty that occurs, with the inflation rate having a very significant impact. This is evident from the probability of variable inflation as X, which is less than 5%, in the results. This suggests that X or inflation has a major impact o the dependent variable as well. This shows that there is a unidirectional relationship between inflation rate and poverty, if poverty increases, poverty also increase.

R-test

Determine the significance of r squared by looking at whether r squared is more than 0.05 or 50%, one can assess whether a finding is significant. Based on the e views result, the R squared value is 0.662900, which means that the contribution given by the inflation rate to poverty is 66.2%. R-squared can explain that the inflation rate has a significant impact on poverty.

Dependent Variable: POVERTY
Method: Least Squares
Date: 02/26/23 Time: 14:03
Sample: 1 20
Included observations: 20

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.649939	1.129658	5.886682	0.0000
INFLATION	0.102261	0.017188	5.949504	0.0000

R-squared	0.662900	Mean dependent var	10.95000
Adjusted R-squared	0.644172	S.D. dependent var	6.508901
S.E. of regression	3.882645	Akaike info criterion	5.645550
Sum squared resid	271.3487	Schwarz criterion	5.745123
Log likelihood	-54.45550	Hannan-Quinn criter.	5.664987
F-statistic	35.39660	Durbin-Watson stat	1.567848
Prob(F-statistic)	0.000012		

Figure 3: EViews Result

Conclusion

Based on the results and discussion of research data the conclusion is the inflation rateare significant contributors to poverty in Indonesia. The result of Eviews application shows that inflation rate affect poverty in Indonesia. The contribution given by the inflation rate on poverty is 66.2%. The inflation variable has a positive and significant effect on poverty, because of inflation affect prices in general.

When inflation starts, people may not directly feel the impact on welfare, but if inflation lasts a long time, people's welfare will slowly decline. High and continuous price increases will certainly cause people to be unable to meet their needs as usual, causing a fallin people's welfare and leading to poverty.

Based on the findings of this study, several recommendations can be made. The government must try harder to control the prices of all goods in society so prices do not increase or inflation continuously because it will affect the welfare of society. The governmentcan also save spending to reduce the inflation rate. The most important thing according to author is the government can stabilize the level of people's wages according to the prices thatexist in society.

The author hope that this research will pay more attention to the fact that the inflation rate greatly influences poverty in Indonesia. So, the government does not ignore the value ofinflation that occurs because it might have a bad impact on the lives that occur in society in the future.

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ID 180 [Abstract]
The Impact of Poverty on Dropout Rates in Indonesia During 2002-2022

Cut Meisya Salsabila[1], Talbani Farlian[2] and Fifi Yusmita[3]*

[1] International Accounting Program (IAP)/IBEP, Faculty of Economics and Business, Syiah Kuala University; cutmeisya10@gmail.com
[2] Head of Department IBEP, Faculty of Economics and Business, Syiah Kuala University; t_farlian@usk.ac.id
[3] Coresponding lecture, Faculty of Economics and Business, Syiah Kuala University; fifiyusmitaaceh@usk.ac.id

* Correspondence: fifiyusmitaaceh@usk.ac.id

Abstract

Poverty and education levels are closely linked. Education equips individuals with self-development skills, enabling them to improve their socioeconomic status. Therefore, lower education levels often correspond to higher poverty rates. The purpose of this research is to determine the impact of great recession to the dropout rates in 2002-2022, that approved with the increased of recession in Indonesia every year can increased the dropout rate in study level, so people haven't get chance to achieve the knowledge. The increase surely makes the increasing number of unemployed and human resources who less armed with knowledge. Through this research, it is known that if the level of the economy increases, education will also be affected. This study used descriptive quantitative method. Based on the results of the study using "EViews" as tool analysis, it shows that the R-squared is 0.855624 and the adjusted R-squared is 0.848025. The significant provision above 5 percent (0.05) and adjusted R-squared value is accurate. This study that hope can be useful to consider that education is priority, and must to be fight for it, and hopes that everyone knows that still many children around Indonesia must dropout because poverty.

Keywords: Education, Dropout, Great recession

ID 172 [Abstract]
The Influence of School Enrollment Rate (APS) and Poverty on Human Development Index (HDI) in Aceh

Cut Nada Adeliana[1], Aliya Syahira[2] and Talbani Farlian[3]*

[1] International Economic Development Progam IEDP/IBEP, Faculty of Economic And Business, Universitas Syiah Kuala; adelianacutnada@gmail.com
[2] International Management Progam IMP/IBEP, Faculty of Economic And Business, Universitas Syiah Kuala; Aliyasyahira605@gmail.com
[3] Correspondence Lecture, Faculty of Economic and Business Universitas Syiah Kuala; t__farlian@usk.ac.id

* Correspondence: t__farlian@usk.ac.id

Abstract

The purpose of this study is to find out whether poverty and school enrollment affect the growth of the Human Development Index in Aceh. And how to reduce poverty and improve HDI and school enrollment among children aged 16-18 in Aceh. The analytical method employed is multiple linear regression analysis, a technique for analyzing research hypotheses to test whether there is an effect between one variable and another, expressed in the form of a regression equation. The type of research used in this study is quantitative, used to examine populations or certain samples by collecting data using research measurement tools and performing statistical data analysis with the aim of testing and proving the hypotheses that have been made., it shows that school enrollment and poverty have no significant impact on Aceh's HDI. The researcher contends that while Aceh's school enrollment rate is relatively high and does not affect the rise in the country's existing development index, the relationship between poverty and enrolment in schools is not very relevant. The human development index did not significantly change as a result of the school enrolment rate, according to the regression analysis's findings. In Aceh, the current rate of poverty has a negative and considerable impact on the human development index, which indicates that when the rate rises, so will the index's level.

Keywords: School enrolment rate, Poverty, HDI

ID 177 [Abstract]
The Influence of Literacy in Population Ten Years and Over on Education and Poverty in Indonesia

Dila Rahmawati[1] and Fifi Yusmita[2]*

[1] International Accounting Program IAP/IBEP, Faculty Of Economic And Business, Universitas Syiah Kuala; dilarahmawati2016@gmail.com
[2] Coresponding Lecture, Faculty of Economic and Business Universitas Syiah Kuala; fifiyusmitaaceh@usk.ac.id

* Correspondence: fifiyusmitaaceh@usk.ac.id

Abstract

While functional illiterates are unable to apply their literacy in daily life, illiterate people are incapable of reading, writing, or counting using Arabic numerals or Latin letters (Ministry of National Education, Director General of Non-School Education). An individual is considered illiterate if they are incapable of using reading, writing, and math in daily situations. The precise degree to which unemployment, poverty, and educational attainment in Indonesia impacted the country's illiteracy rate was the aim of this study. It is then intended that this letter will serve as a foundation for formulating policies aimed at resolving Indonesia's illiteracy issue. Quantitative data employing comparative data for a 15-year period, from 2008 to 2022, is needed for this study's data collection. The Badan Pusat Statistik (BPS) provided secondary data for this study, and supporters also browsed the website. While panel linear regression analysis with the EViews12 program is the analytical method employed in this study. This study holds significant implications for policymakers, educators, and stakeholders involved in Indonesia's socio-economic development. Firstly, it underscores the critical role of literacy in shaping educational attainment levels and, subsequently, socioeconomic outcomes. By understanding the intricate relationship between literacy and education, policymakers can design targeted interventions to improve literacy rates, thereby fostering higher educational achievements among the populace. Ultimately, the benefits of this research extend beyond academic discourse to inform practical strategies for enhancing literacy, education, and poverty alleviation efforts in Indonesia. By leveraging the insights gained from this study, policymakers and practitioners can work collaboratively to implement evidence-based interventions that empower individuals, strengthen communities, and drive sustainable development across the nation.

Keywords: Illiterate, Education, Poverty, Unemployment

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Theme: Economics

ID 195
The Influence of Life Expectancy at Birth of Human Development Index in Aceh

Miftahul Jannah[1], Talbani Farlian[2] and Fifi Yusmita[3]*

[1] International Accounting Program (IAP)/ International Business and Economic Program (IBEP), Faculty of Economic and Business, Universitas Syiah Kuala; miftah.huja@gmail.com
[2] Associate of International Business and Economic Program (IBEP), Faculty of Economic and Business, Universitas Syiah Kuala; t_farlian@usk.ac.id
[3] Corresponding Lecture, Faculty of Economic andnBusiness, Universitas Syiah Kuala; fifiyusmitaaceh@usk.ac.id

* Correspondence: fifiyusmitaaceh@usk.ac.id

Abstract

Human development is defined as the process of expanding people`s. Human Development Index is an important indicator to measure the success of efforts to improve the quality of life of people (community/population) education and health are fundamental development goals. The Human Development Index is a composite indicator used to measure the average achievement of a country consisting of three basic components, namely life expectancy, education and standard of living measured by per capita consumption. The research was conducted in Aceh province. Research data were obtained from the Indonesian Statistics Center of Aceh. The number of samples used was 13 samples. The type of research used in this study is the quantitative. The results of this study also determined the effectiveness of the impact of life expectancy at birth of human development by 69,4% using EViews with ordinary least squares method.

Keywords: Human development index, Life expectancy at birth, Education, Standard of living

Introduction

High levels of public health can be used as an indicator of the success of health programs and socioeconomic development programs that can indirectly increase life expectancy. According to the Indonesian Statistics Authority, life expectancy is the average number of years a newborn baby will live in a given year. This will of course affect human development. Human development is defined as the process of expanding people's choices. The human development index (HDI) is an important indicator to measure the success of efforts to improve the quality of life of people. HDI explains how residents can access development outcomes through income, health, education, and more.

Human resource development can be done by improving human capital. Human capital can refer to education, but it is also used to describe another type of human investment, that of an investment that leads to a healthy population, namely health. Education and health are fundamental development goals. Health is happiness, while education is essential for a full and valuable life, two important factors in the formation of broader human capacity, which are central to the meaning of development. (Todaro, 2010)

Formulation of the Problem

1) To what extent does life expectancy at birth influence the Human Development Index?

2) How does life expectancy at birth contribute to the different dimensions of the Human Development Index?

Literature review

Human Development Index (HDI)

The Human Development Index is a composite indicator used to measure the average achievement of a country consisting of three basic components, namely 1) life expectancy as measured by life expectancy at birth, 2) education measured by grade point average and literacy rate, and 3) standard of living measured by per capita consumption. The value of the Human Development Index ranges from 0 to 100. The Human Development Index provides a composite measure of various dimensions of human development, life expectancy, healthy life, education, and have a decent standard of living. This indicator is not a comprehensive measure of human development. For example, the Human Development Index does not include such important indicators as respect for human rights and political freedom. This indicator offers a broader perspective on how human progress is measured and examines the complex relationship between income and well-being.

Component of Human Development Index

In 1990 UNDP established three dimensions forming HDI. These three dimensions arethe chosen approach in describing the quality of human life and have not changed to date. These dimensions include:

A Long and Healthy Life

Aspects of longevity and healthy living are represented by life expectancy indicatorsalive at birth. The use of lifespan as an indicator is based on the common belief that longevity is worthwhile and a fact that there are many factors closely related to longevity, such as adequate nutrition and good health. Life expectancy at birth is the estimated mean length (in years) that a person can live during his or her lifetime.Calculate life expectancy at birth is performed using an indirect approach (indirectestimation). Normalize life expectancy at birth values performed by converting to a life index calculated on the basis of maximum and minimum life expectancy at birth values according to UNDP standards, i.e., 85 years for maximum value and 20 years for minimum value.

The life expectancy index indicates the number of years of life that residents of an area should enjoy. By displaying information about the birth and death rates per year, these variables will reflect the average life expectancy as well as the healthy life of the community. Since it is difficult to obtain information about people who have died at a given time, an indirect method is used to calculate life expectancy. The basic data needed in this method are the average number of children born alive and the average number of children alive by married women. In short, the life calculation process is provided by the mortal program to obtain the life index by normalizing the life to its maximum and minimum values.

Education

The education index calculation includes two indicators, Expected Years of Schooling (EYS) and Mean Years of Schooling (MYS). The retained population is the population aged 15 years and over because there are actually residents of this age who have dropped out of school. This limit is necessary for the data to better reflect actual conditions, given that the population under the age of 15 is still attending school or attending school, so it does not adapt to the average length of schooling. These two education indicators were established in the hope that they might reflect literacy levels (Reflecting EYS numbers), where EYS is the proportion of the population with literacy skills in a general population. While the reflection of the MYS figure is an illustration of the skills that people possess.

The expected atmometer is the length of study (in years) so of children aged 7years, while the average number of years of schooling is the number of years residents aged 25 and over have spent in formal education. The education index calculation is based on the average of the EYS and MYS indexes with the same weight. For the calculation of the EYS and MYS indices, the same minimum and maximum limit values are used as UNDP criteria.

Decent Standard of Living

UNDP uses Gross National Income (GNP) per capita as an indicator on the dimensionof decent living standards. However, this data is not available at the local level, so adjusted real expenditure per capita indicators are used as an alternative. This indicator can be calculated up to the district /city level. The indicator of real expenditure per capitais also able to reflect the income indicator of the community and describe the level of welfare enjoyed by the population as the yield of economic activity. As for calculating the expenditure index, maximum and minimum value limits are used.

To measure the standard of living, GDP per capita data cannot be used because it is not suitable for measuring the purchasing power of the population. Therefore, the calculation of the purchasing power of the population using per capita consumption will be adjusted. Purchasing power parity (PPP) is an indicator used to assess the economic condition of a community in measuring the Human Development Index. This purchasingpower further describes the ability of the community to meet the needs of the communityeconomically. consumption demand, and very different from GDPR per capita aka per capita income.

Research method

Research Purpose

The purpose of this study is for students, community, government or other information users to know how much influence life expectancy has on HDI. This can help thegovernment in making decisions to increase the birth rate or not. This will also affect the index of education, health and state and community income.

Scope of Research

The research was conducted in Aceh province. Research data were obtained from the Indonesian Statistics Center of Aceh. This can be seen from the growth of the human development index of Aceh province, part of Indonesia, so it covers a narrower range than a country.

Total Sample

The number of samples used was 13 samples. Samples were taken based on annual data from 2010-2022. The total number of samples in this study amounted to 13 samples.

Type of Research

The type of research used in this study is quantitative. The data was taken from the Indonesian Statistics Center of Aceh, then researchers analyzedthe effect of life expectancy of birth on Human Index Development.

Tools Analysis

The tools analysis that used in this study are EViews 12. EViews is an application for quickly and efficiently managing data, performing econometric and statistical analysis, creating forecasts and model simulations, and creating graphs and tables.

Formula

The HDI has three dimensions: longevity and health, education and standard of living. According to Indonesia's Central Bureau of Statistics, each component of the HDI is compared to a minimum and maximum value before being used to calculate the HDI. Therefore, we have our own HDI calculation method. The formula is used as follows:

A Long and Healthy Life Dimension

$$I_{Health} = \frac{Life\ Expectancy - \text{Life Expectancy}_{min}}{\text{Life Expectancy}_{max} - \text{Life Expectancy}_{min}}$$

The above formula is one way to calculate one of the measures of the HDI, the health index. Health index values are influenced by longevity and healthy life.

Knowledge dimension (education)

$$I_{EYS} = \frac{EYS - \text{EYS}_{min}}{\text{EYS}_{max} - \text{EYS}_{min}}$$

$$I_{MYS} = \frac{MYS - \text{MYS}_{min}}{\text{MYS}_{max} - \text{MYS}_{min}}$$

$$I_{Education} = \frac{I_{EYS} + I_{MYS}}{2}$$

Unlike the previous model, two separate components of education are calculated: Expected Years of Education (EYS) and Average Years. of knowledge there. Index School of Education (MYS). So to get the knowledge index, first calculate the sum of the two. The education index is calculated by adding the two scores obtained and dividing by two.

Expense Dimension (based on Decent Standard of Living)

$$I_{Expense} = \frac{In(exp.) - In(exp.)_{min}}{In(exp.)_{min} - In(exp.)_{min}}$$

Expenditure impact is per capita spending. When calculating a reasonable standard of living, the BPS uses per capita income.

Calculating HDI: HDI is calculated as the geometric mean of health, education, and expenditure indices as following. Using the geometric method when creating the HDI, it can be interpreted that work in one dimension cannot be included in work in the other direction. To achieve successful human development, all three sectors are equally important and require equal attention.

$$HDI = \sqrt[3]{I_{Health}\, x}\, I_{Education}\, x\, I_{Expense}\, x\, 100$$

Development of Hypothesis

The hypothesis is that the original design (guess) is in doubt or is temporary and still has to be proven. Hypothesis testing is a process that uses decision-making methods and stick to the context (data) being analyzed through experiments and observations. The null hypothesis is that there is a difference between the independent (x) and dependent (y) variables.

Hypothesis is divided into 2 types, namely alternative hypothesis (HA) and null hypothesis (H0), the trends of the hypothesis are alternative hypotheses with a nullhypothesis. If the alternative hypothesis is accepted, the null hypothesis will occur rejected, and if the null hypothesis is accepted, the alternative hypothesis is waste. On the other hand, the alternative hypothesis is accepted if the null hypothesis cannot be proven. If the null hypothesis is true, the alternative hypothesis unacceptable.

Substantial assumed value of 5% because alpha 0.05 is not too tight and error the current aggregate level of the results is slightly lower than 0.01. In this study, no the hypothesis is determined that life expectancy at birth an effect on the HDI. After examining sample data, it turns out that life expectancy at birth have an impact on human development index. We know that the null hypothesis (H0) is accepted and the alternative hypothesis (HA) is accepted.

Result and discussion

Based on data obtained from the Central Statistics Agency, the following is a summary of the life expectancy at birth in Aceh and HDI for 2010-2022.

Life expectancy at birth, which represents a dimension of longevity and healthy living, continues to increase every year. In the period 2010-2022, Aceh managed to increase her life expectancy at birth by his 1,10 years. During this period, life expectancy at birth grew by an average of 0,13% per year. Life expectancy at birth in Aceh province was 69,08 years in 2010 and is expected to reach 70,18 years in 2022.

The results of this study are descriptive and obtained and include studies change. The results of this study also aimed to determine the effectiveness of the impact of life expectancyat birth of human development index. Collecting data obtained by conducting direct interviews with subjects and obtained as follows.

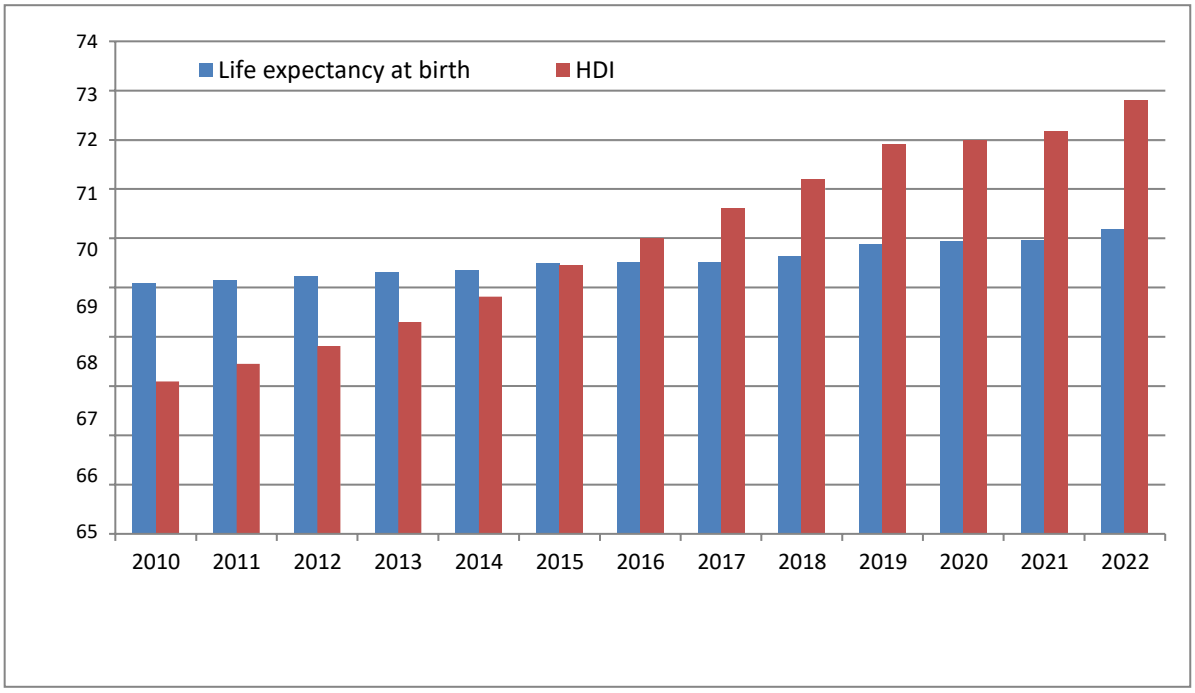

Figure 1: Graph showing Life expectancy at birth and human development index in Aceh for 2010-2022

Dependent Variable: Y
Method: Least Squares
Date: 02/20/23 Time: 05:31
Sample: 1 13
Included observations: 13

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-170.2500	45.25110	-3.762339	0.0031
X	3.450000	0.650000	5.307692	0.0002

R-squared	0.719184	Mean dependent var	69.92308
Adjusted R-squared	0.693656	S.D. dependent var	2.059998
S.E. of regression	1.140175	Akaike info criterion	3.240880
Sum squared resid	14.30000	Schwarz criterion	3.327795
Log likelihood	-19.06572	Hannan-Quinn criter.	3.223015
F-statistic	28.17160	Durbin-Watson stat	1.251923
Prob(F-statistic)	0.000249		

Figure 2: The Result from EViews 12 Apps

The results above use one of the approaches of moderated regression analysis. Researchers use common effects models. This is the simplest panel data modeling approach because it combines only time series and cross-sectional data. The common effects method uses an ordinary least squares (OLS) approach to estimate a panel data model. This approach assumes that the intercept and slope are constant for all cross-sectional and time series data.

Based on the regression results above, we get a constant value of -170,2500 with probability 0,0031. This explains that the sustainability report probability is 69,4% influenced by life expectancy at birth and the remaining 30,6% influenced by other factors. The factors can be education or standard of living, but both are not included here. Therefore, the common effects model assumption is realistic in determining the extent to which life expectancy at birth affects HDI. This proves that variable x, life expectancy at birth, affects variable y, the HDI by 69,4%.

Conclusion and recommendation

Based on the results and discussion of research data, many things can be concluded. Thisresearch was conducted so that researchers and their readers can find out the effect of life expectancy at birth on the human development index. Life expectancy clearly influences HDI because it is a component of HDI. However, the study found that life expectancy at birth had the greatest impact on other factors.

Based on the data collected through sample testing using the EViews application, itshows that life expectancy at birth affects the human development index in Aceh. The sampledata from this study amounted to 13 from several previous years. In this study, tests were carried out on variables which are indicators of the human development index. Life expectancy at birth affects approximately 69% of the human development index.

For future research projects, some suggestions to improve research quality. The main suggestion is to broaden the scope of research so that the sample data obtained is larger and more accurate. This can provide more credible and accurate results.

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ID 209 [Abstract]
Analysis Impact of GDP per Capita and Demand of Basic Community Needs on Inflation Level in Indonesia

Cut Debi Risqa Aprilianti[1], Sarah Shafura Saragih[2] and Talabani Farlian[3]*

[1] Faculty of Economics and Business, Syiah Kuala University; cutdeby.034@gmail.com
[2] Faculty of Economics and Business, Syiah Kuala University; sarahshafura210@gmail.com
[3] Faculty of Economics and Business, Syiah Kuala University; t_farlian@usk.ac.id

* Correspondence: t_farlian@usk.ac.id

Abstract

This study focuses on analyzing the impact of inflation on GDP per capita and infinite demand for basic needs in Indonesia. Based on data collected from 1996 to 2019, it uses regression analysis to test the relationship between the variables. The main objective of the study is to evaluate the significance of inflation on GDP per capita and infinite demand for basic needs in Indonesia. The quantitative approach used in this study involves multiple linear regression analysis to measure the impact of inflation on Indonesia's economic indicators. The results of the analysis show that inflation has a substantial impact on GDP per capita and demand for basic necessities in Indonesia. Specifically, the study found that a one-unit increase in GDP per capita leads to an $8.511703 decrease in inflation, while a one-unit increase in demand results in a $0.0642784 decrease in inflation. Overall, this study provides valuable insights into the complex relationship between economic variables and inflation in Indonesia. The findings underscore the importance of understanding the dynamics for economic development and stability in Indonesia.

Keywords: Inflation impact, Stability, Regression analysis

ID 201 [Abstract]
End Hunger and Quality Health Development in Indonesia: An Analysis of the SDGs

Sarah Shafura Saragih[1], Cut Debi Risqa Aprilianti[2] and Talbani Farlian[3]*

[1] International Economic Development Program IEDP/IBEP, Faculty of Economics and Business, Syiah Kuala University; sarahshafura210@gmail.com
[2] International Economic Development Program IEDP/IBEP, Faculty of Economics and Business, Syiah Kuala University; cutdeby.034@gmail.com
[3] Correspondence Lecture, Faculty of Economics and Business, Syiah Kuala University; t_farlian@usk.ac.id

* Correspondence: t_farlian@usk.ac.id

Abstract

The Sustainable Development Goals (SDGs) set hunger and health at the second and third goals respectively that have been agreed by world leaders to achieve people's welfare and protect the environment. The goal of ending hunger includes achieving food security and better nutrition. Quality health development also has a goal for universal health including access to quality essential health care services and access to safe, effective, quality, and affordable medicines for all. This study aims to determine the efforts made to end hunger and trace the development of quality health in Indonesia in achieving the SDGs. This study uses a descriptive method. The data results show that efforts to end hunger and the development of quality health in Indonesia continue to be made and show positive changes from year to year thanks to the policies carried out by the government in the health sector and food system although there are still some obstacles that still need to be overcome.

Keywords: End hunger, Quality health development, Indonesia

ID 179 [Abstract]
The Impact of Export Value and Import Value in the Change of Trade Balance Value and its Impact on Indonesia's Sustainable Economic Growth

Annisa Aulia Zahra Harahap[1], Ahmad Alfarid[2] and Talbani Farlian[3]

[1] International Management Program IMP/IBEP, Faculty of Economic and Business, Universitas Syiah Kuala Email: annisaauliazahraa03@gmail.com
[2] International Management Program IMP/IBEP, Faculty of Economic and Business, Universitas Syiah Kuala Email: ahmadalfarid00@gmail.com
[3] Corresponding Lecturer, Faculty of Economic and Business, Universitas Syiah Kuala Email: t_farlian@usk.ac.id

* Correspondence: t_farlian@usk.ac.id

Abstract

The objective of this study is to conduct a detailed analysis of how fluctuations in export value and import value affect the trade balance value, and consequently, their broader implications on Indonesia's sustainable economic growth. Through rigorous examination, the study aims to understand the intricate dynamics between these variables, shedding light on the mechanisms through which trade balance alterations contribute to the overall economic development and sustainability of Indonesia. The scope of this research is export, import, and trade balance in Indonesia. This research is descriptive statistical research. The data collection uses secondary data from the Indonesian Central Bureau of Statistics. The sample used in this research is 6 years with the time series data from 2018-2023. The data analysis method used in this research is regression analysis models using the E-Views application. The results of this research indicate that: 1) the export value gives a significant impact on trade balance value with probability 0.0174; 2) the import value gives a significant impact on trade balance value 0.0265; and 3) the trade balance value does not give a significant impact on Indonesia's economic growth 0.2000. Practically, the findings of this study provide valuable insights for policymakers, businesses, and economists, enabling them to formulate effective trade policies and strategies aimed at promoting a favorable trade balance and sustainable economic growth in Indonesia. Theoretically, this study contributes to the understanding of trade dynamics and its broader implications for economic development, by emphasizing the complex interactions between exports, imports, trade balance, and economic growth in the Indonesian context.

Keywords: Export value, Import value, Economic growth

ID 204
A Study of Factors Affecting Open Unemployment in Indonesia

Ismah Arifa[1], Cut Sri Dea Sinta[2], Meutia Handayani[3*] and Talbani Farlian[4]

[1] International Economic Development Program IEDP/IBEP, Faculty of Economic and Business, Universitas Syiah Kuala; ismah.arifa@gmail.com
[2] International Management Program IMP/IBEP, Faculty of Economic and Business, Universitas Syiah Kuala; cutdea20@gmail.com
[3] Correspondance Lecture, Faculty of Economic and Business, Universitas Syiah Kuala; meutiahandayani@politeknikaceh.ac.id
[4] Correspondance Lecture, Faculty of Economic and Business, Universitas Syiah Kuala; t_farlian@usk.ac.id

* Correspondence: meutiahandayani@politeknikaceh.ac.id

Abstract

Unemployment is a significant problem in both developing and developed countries, where Indonesia has a high unemployment rate. The number of job seekers in each region is greater than the available jobs, and the government has not been able to overcome this problem. This study aims to analyze unemployment in regencies/cities in Yogyakarta Special Region Province in 2005-2015 by using panel data that combines times series data of regencies/cities in Yogyakarta Special Region Province. Secondary data includes unemployment, minimum wage, and population. Data collection was obtained by conducting direct interviews with objects and obtained. The results of this study are descriptive and obtained and consist of research variables. The variable wage rate (X2) states that the wage rate has a significant negative effect on the number of unemployment. The results of this study are in accordance with the hypothesis which states that wages have a positive effect on the number of unemployed. This study highlights the importance of addressing unemployment and overcoming this problem to increase economic growth in Indonesia.

Keywords: Unemployment, Minimum wage, Population

Introduction

Unemployment is a labor problem that is often faced by every country, especially developing countries like Indonesia. Problem unemployment is always a problem that needs to be solved in the Indonesian economy. Increased population getting bigger every year brings the result of increasing the number of generations work. The high level of unemployment in a country can bring negative impact on the country's economy. According to BPS on 2010 census unemployment is defined as people who are included in the force workers (15-64 years) who are looking for a job and haven't got one yet.

Unemployment occurs because the growth of the labor force is higher than the growth in existing jobs. Unemployment is one of the important indicators in the field of employment, where the level unemployment can measure the extent to which the labor force is able to be absorbed by existing jobs. High unemployment can be a major source poverty, can trigger high crime and can inhibit development in the long term (Artriyan, 2013).

Yogyakarta is a province that produces the highest number of unemployed high in Indonesia. With the large number of residents plus the number of colleges in Yogyakarta, resulting in an increase in the existing population. With so many immigrants from all over Indonesia who come to seek knowledge Yogyakarta which can cause new problems in Yogyakarta.

Table 1: Population of the Yogyakarta Region

Regency	Year		
	2013	2014	2015
D.I.Y Yogyakarta	3.594.854	3.637.116	3.679.176
Kulon Progo	403.179	407.709	412.198
Bantul	947.072	959.445	972.511
Gunung Kidul	700.191	707.794	715.282
Sleman	1,147.330	1,154.501	1,167.481
Yogyakarta	402.679	407.667	412.704

The table above shows the population of Yogyakarta for each district from year 2011 to 2015. With the population increasing every year, Yogyakarta is a densely populated city, and Yogyakarta is a city as a student city. With that came immigrants from out of town as well as provinces in Indonesia who come to Yogyakarta to study in Yogyakarta. So, if all universities in Yogyakarta graduate their undergraduates, it will increase the number of unemployed people in Yogyakarta. Not to mention every year the graduates of universities in Yogyakarta continue to increase.

Formulation of the problem

What is Unemployment?

What is the effect of unemployment on economic growth in Indonesia?

Literature review

A. Unemployment

Unemployment is a term referring to individuals who are employable and actively seeking a job but unable to find a job. Included in this group are those people in the workforce who are working but do not have an appropriate job. Usually measured by the unemployment rate, which is dividing the number of unemployed people by the total number of people in the workforce, unemployment serves as one of the indicators of a country's economic status.

The term "unemployment" is often misunderstood, it as it includes people who are waiting to return to a job after being discharged, it does not include individuals who have stopped looking for work in the past four weeks due to various reasons such as leaving work to pursue higher education, retirement, disability, and personal issues. Also, people who are not actively seeking a job but do want to work are not classified as unemployed.

Interestingly, people who have not looked for a job in the past four weeks but have been actively seeking one in the last 12 months are put into a category called the "marginally attached to the labor force." Within this category is another category called "discouraged workers," which refers to people who have given up looking for a job.

1) Types of unemployment

There are basically four types of unemployment:

Demand deficient:

Demand deficit unemployment is the biggest cause of unemployment that typically happens during a recession. When companies experience a reduction in the demand for their products or services, they respond by cutting back on their production, making it necessary to reduce their workforce within the organization. In effect, workers are laid off.

Frictional unemployment:

Frictional unemployment refers to those workers who are in between jobs. An example is a worker who recently quit or was fired and looking for a job in an economy that is not experiencing a recession. It is not an un-healthy thing because it is usually caused by workers trying to find a job that is most suitable to their skills.

Structural unemployment:

Structural unemployment happens when the skills set of a worker does not match the skills demanded by the jobs available, or alternatively when workers are available but are unable to reach the geographical location of the jobs.

Voluntary unemployment:

Voluntary unemployment happens when a worker decides to leave a job because it is no longer financially compelling. An example is a worker whose take-home pay is less than his or her cost of living.

Cyclical unemployment:

The term "cyclical unemployment" refers to the variation in the number of unemployed workers during cycles of economic strength and weakness.

Natural unemployment:

Natural unemployment is the combination of frictional and structural unemployment. It refers to the lowest unemployment level a healthy economy can sustain without causing inflation. This type of unemployment is ever present: People are always voluntarily looking for new jobs, causing frictional unemployment, and job skill requirements are always evolving, causing structural unemployment. It's common for people to voluntarily leave jobs and for positions to move to other parts of the world, for example, driving the natural unemployment rate.

Seasonal unemployment:

Seasonal jobs are limited to a certain time period, sometimes leaving people who work in those jobs without employment after the season ends. Seasonal unemployment is the result of the decreased demand in labor that occurs at each season's end, making the seasonal rate more predictable than other types of unemployment. Seasonal unemployment often occurs in tourist areas, where attractions often are open only during a certain time of the year.

Underemployment:

Underemployment differs from unemployment in that it describes people who are working, but aren't employed at their full capability. Measuring underemployment shows how effectively the economy is using the labor force's skills, experience, and work availability.

Look at the main causes of unemployment – including demand deficient, structural, frictional and real wage unemployment.

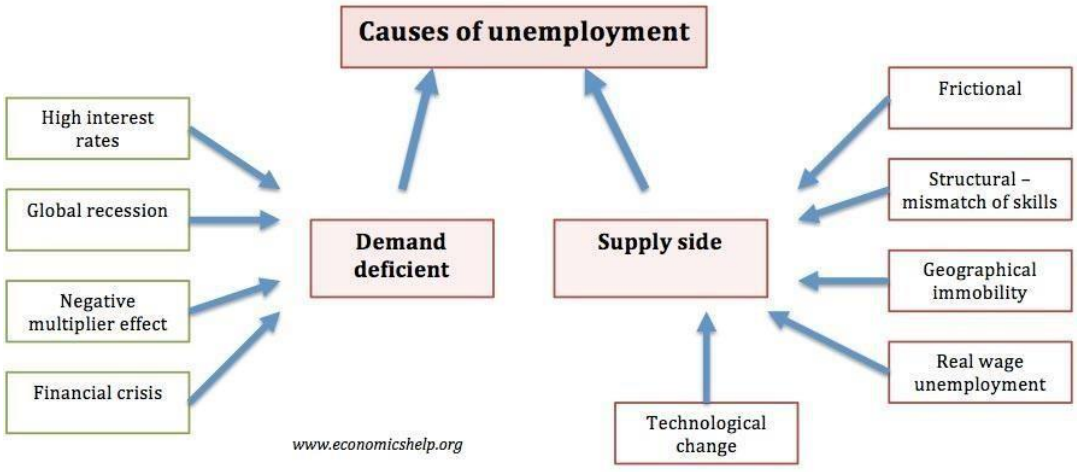

Figure 1: Causes of unemployment

2) Causes of unemployment

Unemployment is caused by various reasons that come from both the demand side, or employer, and the supply side, or the worker. (CFI, 2022) Demand-side reductions may be caused by high interest rates, global recession, and financial crisis. From the supply side, frictional unemployment and structural employment play a great role.

3) Main causes of unemployment

Frictional unemployment:

This is unemployment caused by the time people take to move between jobs, e.g. graduates or people changing jobs. There will always be some frictional unemployment in an economy because the information isn't perfect and it takes time to find work.

Structural unemployment:

This occurs due to a mismatch of skills in the labor market it can be caused by:

- Occupational immobility
- Geographical immobility
- Technological change
- Structural change in the economy

Classical or real-wage unemployment

Voluntary unemployment:

This occurs when people choose to remain unemployed rather than take jobs available. For example, if benefits are generous, people may prefer to stay on benefits rather than get work. Frictional unemployment is also a type of voluntary unemployment as they are choosing to wait until they find a better job.

Demand deficient or "Cyclical unemployment".

Long-term Unemployment vs. Short-term Unemployment

Unemployment that lasts longer than 27 weeks even if the individual has sought employment in the last four weeks is called long-term unemployment. Its effects are far worse than short-term unemployment for obvious reasons, and the following are noted as some of its effects.

Some 56% of the long-term unemployed reported a significant decrease in, their net worth.

Financial problems are not the only effects of long-term unemployment as 46% of those in such a state reported experiencing strained family relationships. The figure is relatively higher than the 39% percent who weren't unemployed for as long.

Another 43% of the long-term unemployed reported a significant effect on their ability to achieve their career goals.

Sadly, long-term unemployment led to 38% of these individuals losing their self- respect and 24% seeking professional help.

B. The effect of Uuemployment on economic growth in Indonesia

Economic growth, the process by which a nation's wealth increases over time. Although the term is often used in discussions of short-term economic performance, in the context of economic theory it generally refers to an increase in wealth over an extended period. Growth can best be described as a process of transformation.

Economic historians have attempted to develop a theory of the stages that every economy must go through as it grows. Early writers, given to metaphor, often stressed the resemblance between the evolutionary character of economic development and human life— e.g., growth, maturity, and decadence. Later writers, such as the Australian economist Colin Clark, have stressed the dominance of different sectors of an economy at different stages of its development and modernization. For Clark, development is a process of successive domination by primary (agriculture), secondary (manufacturing), and tertiary (trade and service) production. For the American economist W.W. Rostow, growth process from a traditional society to a transitional one (in which the foundations for growth are developed), to the "take-off" society (in which development accelerates), to the mature society. Various theories have been advanced to explain the movement from one stage to the next. Entrepreneurship and investment are the two factors most often singled out as critical.

Economic growth is usually distinguished from economic development, the latter term being restricted to economies that are close to the subsistence level. The term economic growth is applied to economies already experiencing rising per capita incomes. In Rostow's phraseology economic growth begins somewhere between the stage of take-off and the stage of maturity; or in Clark's terms, between the stage dominated by primary and the stage dominated by secondary production. The most striking aspect in such development is generally the enormous decrease in the proportion of the labor force employed in agriculture.

Comparative growth rates for a group of developed countries show how uneven the process of growth can be. Partly this unevenness reflects the extraordinary nature of the 1913–50 periods, which included two major wars and a

severe and prolonged depression. There are sizable differences, however, in the growth rates of the various countries as between the 1870–1913 and 1950–73 periods and the period since 1973. For the most part, these differences indicate acceleration in rates of growth from the first to the second period and a marked slowdown in growth rates from the second to the current period. Many writers have attributed this to the more rapid growth of business investment during the middle of the three periods.

The factor of economic growth

The factors of production are inputs that companies need to develop goods and services. This enables them to earn profits. The concept of these factors dates to neoclassical economics, combining historic economic theories with other ideas, such as the idea of labor. The four factors of production are land, labor, capital, and entrepreneurship. The Federal Reserve Bank of St. Louis defines the factors of production as:
"Resources that are the building blocks of the economy; they are what people use to produce goods and services."

Land:

Land doesn't just refer to natural resources, but it can also include commercial real estate and renewable resources like forests. Producers also use natural resources that come from the earth.

Labor:

Labor consists of the people who are responsible for the creation of goods and services (from beginning to end) and the effort they put forth. These individuals include factory workers, managers, salespeople, and engineers who design the machinery used in production. As such, it can take on many forms.

Capital:

Capital goods are also considered capital, which includes manufacturing plants, machinery, tools, or any equipment used in the production process. Capital may also refer to a fleet of trucks or forklifts as well as heavy machinery.

Entrepreneurship:

Entrepreneurship is the fourth factor and includes the visionaries and innovators behind the entire production process. Entrepreneurs combine all the other factors of production to conceptualize, create, and produce the product or service. They are the drivers behind any technical change in the economic system which has been shown to be a major source of economic growth.

Research method

This research uses descriptive methods. So, this research emphasizes fact gathering and data identification. Descriptive research is a type of scientific research that aims to describe or characterize a phenomenon or event. The main objective is to provide a clear picture of the situation observed, without manipulating or influencing the variables involved. Descriptive research methods involve systematic data collection, data analysis, and presentation of results in a form that can be clearly understood. This research is often used in various fields such as social science, education, psychology, and others. The data collection method in this study is the interview method, namely collecting information directly from respondents through questions. The data analysis technique used is qualitative analysis. Quantitative analysis is analyzing non-numeric data such as interview transcriptions or observation notes to identify patterns or themes. Components in methods this research is to describe, analyze, and interpret the findings in terms clear and precise (Sulistyo-Basuki 2006, 111). The trend of subject distribution in the multidisciplinary social field here will be explained descriptively by identifying and grouping subjects in a classification chart for obtain justification of the circumstances and ongoing practices in field of political science research (Suryabrata, 1998).

The approach used in this research is an analytical study documentary to reveal existing information in the field of study certain (Nawawi, 1998).

Result and discussion

The results of this study are descriptive and obtained and consist of research variable. The results of this study also aim to find out the effect of population as X1, the effect of the provincial minimum wage as X2, the effect of economic growth as X3, and open unemployment as Y1. To the effects of open unemployment. Data collection obtained by conducting direct interviews with the object and obtained.

Dependent Variable: Y
Method: Least Squares
Date: 03/16/20 Time: 14:47
Sample: 1998 2019
Included observations: 22

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1785.293	495.4338	3.603494	0.0020
X1	-0.998373	0.281308	-3.549043	0.0023
X2	0.098139	0.032196	3.048220	0.0069
X3	0.183328	0.078150	2.345836	0.0306

R-squared	0.671505	Mean dependent var	7.375000
Adjusted R-squared	0.616756	S.D. dependent var	1.833043
S.E. of regression	1.134776	Akaike info criterion	3.253714
Sum squared resid	23.17891	Schwarz criterion	3.452085
Log likelihood	-31.79085	Hannan-Quinn criter.	3.300444
F-statistic	12.26513	Durbin-Watson stat	0.815091
Prob(F-statistic)	0.000132		

Figure 2: Processed Data

After the data has been processed, the regression equation is obtained as follows:

$Y = a + bx1 + bx2 + bx3 + e.$

Y (open unemployment) = a - bx1 (population) + bx2 (provincial minimum wage) +bx3 (economic growth) + e.

Y =1785.293 -0.998373 + 0.098139 + 0.183328 + e.

The data that has been processed is then analyzed. Following are the results of data analysis based on statistical tests.

Individual Parameter Significance Test (Statistical T-test)

The results of the statistical t test output show that the independent variables X1 (Total Population), X2 (Provincial Minimum Wage), and X3 (Economic Growth) have an effect on Y (Open Unemployment) with a significance value below 0.05.

A constant value of 1785,293 indicates that if the independent variables X1 (Number of Population), X2 (Provincial Minimum Wage), and X3 (Economic Growth) are considered constant, the average unemployment is 1785,293.

The regression coefficient value of X1 (Population) is -0.998373 indicating that for every 1% increase in Population, Y (Open Unemployment) will decrease by 0.998373 percent.

The regression coefficient value of X2 (Provincial Minimum Wage) is 0.098139 indicating that for every 1% increase in the Provincial Minimum Wage, Y (Open Unemployment) will increase by -0.098139 percent.

The value of the regression coefficient X3 (Economic Growth) is 0.183328 indicating that for every 1% increase in Economic Growth, Y (Open Unemployment) will increase by 0.183328 percent.

The conclusion from the results of the significance of individual parameters (t statistical test) is that X1 (Number of Population) has a negative relationship, X2 (Provincial Minimum Wage) has a positive relationship, and X3 (Economic Growth) has a positive relationship. Positive and negative relationship to Y (Open Unemployment).

Coefficient of Determination (R^2)

The R-squared output results have a value of 0.671505, which means that the variations of the three independent variables X1 (Total Population), X2 (Provincial Minimum Wage), and X3 (Economic Growth) are able to explain 67.15% of the variation in the Y variable (Open Unemployment). The remaining 32.84% is explained by other variables not examined.

The output results above show that the adjusted R-squared value is 0.616756, which means that the variations of the three independent variables X1 (Population), X2 (Provincial Minimum Wage), and X3 (Economic Growth) are able to explain 61.67% of the variation in the Y variable (Open Unemployment). The remaining 38.32 is explained by other variables not examined.

The conclusion of the Coefficient of Determination (R^2) is a very good regression model.

Simultaneous Significance Test (Statistical F-test).

The output results show a statistical F value of 12.26513 with a probability of 0.000132. Because the probability is far below 0.05, it can be concluded that the three variables X1 (Total Population), X2 (Provincial Minimum Wage), and X3 (Economic Growth) simultaneously (simultaneously) influence Y (Open Unemployment).

The conclusion of the Simultaneous Significance test results (Statistical Test F) is simultaneous independent variables affect the dependent.

Conclusion

Based on the results of statistical tests and analyzes that have been discussed in the chapter previously in "EFFECT OF OPEN UNEMPLOYMENT IN INDONESIA" by using the simple regression method, it can be concluded as follows:

Based on the results of the analysis of the wage rate variable (X2) stated that the wage rate has a significant negative effect on the amount unemployment. The results of this study are in accordance with the hypothesis that states that the wage rate has a significant negative effect on unemployment number. Because if the wage Rate increases then the amount absorption of labor will also increase and the number of unemployed will go down. Conversely, if the wage rate decreases, the amount 68 absorption of labor will decrease because job seekers are want high wages, and unemployment will rise.

Based on the results of the analysis of the TPAK variable (X3), it states that TPAK has a significant positive effect on unemployment. Results this study is not in accordance with the hypothesis which states that TPAK has a significant negative effect on the number of unemployed. Because when the TPAK increases, there will be job opportunities increased, so that the available jobs are not enough to accommodate the large number of existing workers, so unemployment will go on, and vice versa. When the TPAK falls, unemployment will increase down, because the available jobs are not comparable with the large number of existing labor force, due to the number of unemployed depending on the number of existing labor force and job vacancies which is available. For example, the labor force participation rate has fallen if job vacancies remain, then unemployment will decrease.

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ID 207 [Abstract]
The Influence of Foreign Investment on the Development of Indonesia Tourism

Malika Humaira[1], Inez Shilvy[2] and Talbani Farlian[3]*

[1] International Management Progam IMP/IBEP, Faculty of Economic And Business, Syiah Kuala University; 30humaira06@gmail.com
[2] International Management Progam IMP/IBEP, Faculty of Economic And Business, Syiah Kuala University; inezshilvy@gmail.com
[3] Correspondence Lecture, Faculty of Economic and Business, Syiah Kuala University; t__farlian@usk.ac.id

* Correspondence: t__farlian@usk.ac.id

Abstract

This research aims to examine the influence of foreign investment on tourism development in Aceh. The influence of foreign investment in the tourism context has become an important topic in economic and social debates. Through a descriptive and quantitative analysis approach, this research collects data related to foreign investment in the tourism sector in Indonesia, as well as indicators of tourism development such as growth in the number of tourists, tourism income and tourism infrastructure. The research results highlight the large influence of foreign investment on tourism development in Indonesia. An increase in foreign investment tends to be positively correlated with the growth of the tourism industry, an increase in tourist visits and the contribution of the tourism sector to the economy. However, these findings also point to several challenges and risks, including dependence on foreign investors and potential negative impacts on local culture and the environment. This research provides important insights for stakeholders in making decisions regarding foreign investment and Indonesia tourism development. The implications of the findings of this research provide an important contribution in formulating sustainable and competitive policies in the tourism sector, as well as building a better understanding of the dynamics of the relationship between foreign investment and tourism development in Indonesia.

Keywords: Foreign investment, Indonesia tourism

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Theme: Management

ID 161
Whistle Blowing: Employee's Perceptions towards Whistleblowing in Case Study in Nigeria

Mohammed Jamil Garba[1] and Muhammad Imran[1]*

[1] School of Business Management, Universiti Utara Malaysia, Malaysia

* Correspondence: muhammad.imran@uum.edu.my

Abstract

The aim of this study is to investigate the employee's perceptions on whistleblowing in Nigeria investigating the intricate dynamics surrounding whistleblowing perceptions within organizational contexts, focusing on the employees in Nigeria. A total number of 357 sample employees were collected through survey. The SmartPLS was used to test the reliability and validity of the data as well as the hypothesis. The study explores three key dimensions: the relationship between organizational culture and whistleblowing perception, the influence of trustful leadership, and the impact of well-defined policies and procedures and mediating role of organizational justice. Findings reveal a nuanced or indirect relationship between organizational culture and whistleblowing, influenced by situational context and personal considerations. Trustful leadership is identified as a significant positive influence on employees' perceptions of whistleblowing, fostering a culture of openness and accountability. The research further delves into the mediating role of organizational justice, emphasizing its substantial influence on shaping positive attitudes toward whistleblowing. These findings contribute to a comprehensive understanding of the multifaceted nature of whistleblowing perceptions, highlighting the crucial role of organizational support and effective leadership in fostering a culture that encourages ethical reporting.

Keywords: Whistleblowing perception, Organizational culture, Trustful leadership, Policy and Procedures, Organizational justice

Introduction

Whistle blowing is considered an important way for employees to report wrongdoing and ensure accountability, transparency, and ethical behaviour in organizations (Miceli & Near, 1985). However, it is evident that there are concerns about the effectiveness of the whistle-blowing policy in Nigeria (Salihu, 2019). For instance, Zainab Ahmed, the Minister of Finance, Budget, and National Planning (FBNP), mentioned that Nigerians are losing interest in whistleblowing, stating, "after about two to three years of the implementation of the policy, the interest of the public and the policy began to nosedive" (Times, 2019). This suggests that there is a need to better understand employees' perceptions towards whistleblowing in Nigeria. This lack of research could lead to challenges in establishing effective policies and systems for whistle blowing, ultimately affecting the country's development. Therefore, it's needed to explore the perceptions of employees towards blowing the whistle in an organization.

However, one of the main problems with whistle blowing in Nigeria is the fear of retaliation (Nwoha, 2023). Whistleblowers often face threats, harassment, and even physical harm for speaking out against corruption or other wrongdoing (Miceli, Roach, & Near, 1988). There is frequently a lack of trust in the legal system to effectively investigate and prosecute those accused of misconduct, which can dissuade employee's perception to reporting wrongdoing (Hussain, 2021). Another issue with employee's perceptions on whistleblowing in Nigeria is a lack of awareness and understanding of its relevance procedures and policies in battling corruption and other forms of wrongdoing (Okafor, Opara, & Adebisi, 2020). Many employees may be unaware of their whistleblower rights procedure and policies or the possible advantages of disclosing misconduct, which may give them different perceptions towards whistle blowing.

The perception of whistleblowing among Nigerian employees remains a vital topic that requires further attention. Research suggests that negative perceptions of whistleblowing are primarily influenced by cultural and institutional factors (Miceli, Near, & Dworkin, 2009), which must be addressed before whistleblowing can be fully embraced in Nigeria. Whistleblowing is viewed negatively by many Nigerian employees. These negative perceptions are likely due

to a variety of cultural factors, including a focus on policies and obedience within the workplace. Understanding these perceptions is important for organizations that want to encourage whistleblowing and promote transparency.

Moreover, the trustful leaders create an environment of trust, integrity, and ethical conduct within the organization. They are seen as reliable, honest, and supportive, which encourages employees to feel safe in reporting misconduct and raises their confidence in the whistleblowing process. A study conducted by Pulungan, Sari, Maharsi, and Hasudungan (2021) supports the importance of trustful leadership in promoting whistleblowing. They found that trust in leadership significantly predicts employees' willingness to blow the whistle on unethical behaviour. When employees perceive their leaders as trustworthy, they are more likely to engage in whistleblowing activities.

Furthermore, effective policies and procedures also include provisions to protect whistleblowers from retaliation. They assure employees that their identities will be kept confidential and that they will not face negative consequences for speaking up. These protections can encourage individuals to report misconduct without fear of reprisal (Cortina & Magley, 2003). Policies and procedures establish a framework for handling reported misconduct in a fair and consistent manner. They outline the investigative processes, disciplinary actions, and follow-up measures to ensure accountability. Employees' confidence in the organization's commitment to addressing wrongdoing can be reinforced by well-defined procedures (E. Rupp, 2011). However, the examining the presence, effectiveness, and clarity of policies and procedures, the research can assess their role in facilitating or inhibiting whistleblowing behaviors.

The organizational justice is chosen as a mediator in this research due to its potential impact on the relationship between the organization culture, trustful leadership, and policies & procedures) and employees' perceptions towards whistleblowing. When employees perceive fairness in the organizational practices, such as ethical culture, trustworthy leadership, and effective policies & procedures, it can enhance their trust and confidence in the organization. This, in turn, may positively influence their perceptions or willingness to blow the whistle on misconduct.

According to a study by Alpkan, Karabay, Şener, Elçi, and Yıldız (2021) organizational justice was found to mediate the relationship between ethical leadership and employees' whistleblowing intentions. The study suggests that when employees perceive fair treatment and ethical practices within the organization, they are more likely to engage in whistleblowing behaviors. Relating to fairness in procedures and decision-making processes, can shape employees' perceptions of the reporting mechanisms and their likelihood of blowing the whistle. When employees perceive that the procedures for reporting misconduct are fair, transparent, and protect whistleblowers from retaliation, it can increase their trust in the reporting process and encourage whistleblowing behaviour.

Literature review

Organizational culture and whistleblowing

Organizational culture is the set of beliefs, expectations, and practices that guide and inform the behaviour of all team members (Wong, 2020). Organizational culture is widely acknowledged as a critical factor that impacts employee perceptions and behaviors. Research has shown that a positive organizational culture promotes ethical behaviour, transparency, and open communication, which, in turn, can positively influence employees' perceptions of whistleblowing (Farooqi, Abid, & Ahmed, 2017). Organizations that foster a culture of accountability and ethical conduct tend to have employees who view whistleblowing as a responsible and necessary action (Abdulhafeez Salauddin, 2022). On the other hand, organizations with a negative or toxic culture may create fear, distrust, and discourage employees from reporting wrongdoing. The dimensions of organizational culture can also influence employees' perceptions of whistleblowing. Research has shown that cultural values and norms prevalent in a particular society or region can influence the perceived acceptability and social consequences of whistleblowing (Brody, Gupta, & Turner, 2020).

Moreover, the influence of organizational culture on employees' perceptions of whistleblowing extends beyond the internal dynamics of the organization. Cultural factors and societal norms prevalent in a particular context can shape employees' attitudes towards reporting misconduct. A study on the importance of organizational ethics and social responsibility in today's world highlighted that maintaining the required organizational ethical principle allows organizations to comply with laws and regulations, lowering the danger of legal penalties and litigation (Suseel, 2023). This shows that the organizational culture plays a role in reporting wrongdoing. Companies that engage in unethical behaviour face legal repercussions and reputational harm. In certain cultures, where collectivism or hierarchical authority is strongly emphasized, employees may hesitate to blow the whistle due to concerns about damaging relationships or challenging authority. Another study conducted by Kaptein (2011) investigated the impact of organizational culture on whistle blowing intentions among employees in Nigerian universities. The study found that a

supportive organizational culture positively affected employees' willingness to report unethical behaviour. Additionally, the study revealed that a lack of trust in management negatively impacted whistleblowing intentions among employees.

H1: There is significant relationship between Organization culture and whistle blowing.

Truthful Leadership role in whistleblowing

The effectiveness of whistleblowing is contingent upon the presence of truthful leadership. The research emphasizes that leaders who value truth and transparency within the organization are crucial for creating an environment where whistleblowing can effectively combat corruption and unethical practices (Taryn Vian, 2022).

The researchers propose an integrated model of whistleblowing that incorporates individual, organizational, and societal factors. The study highlights the significant role of leadership in fostering a culture that promotes and encourages whistleblowing. The findings emphasize that effective leadership is crucial for creating an environment where employees feel safe and supported to blow the whistle on misconduct or unethical behaviour within the organization (Farid Anvari, 2019).

The roles of moral identity, moral attentiveness, ethical climate, and perceived stress," ethical leadership has an indirect influence on whistleblowing intentions through several mediating factors. Specifically, moral identity, moral attentiveness, ethical climate, and perceived stress were found to play mediating roles in the relationship between ethical leadership and whistleblowing intentions (Malek, 2020). It gives different perspective to the managers to develop such a culture that enables an honest and trustworthy environment, which may enable the employees to point out the wrongdoings they witness while working at the workplace.

Overall, truthful leadership plays a crucial role in shaping employees' perceptions of whistleblowing. Leaders should create a culture that encourages whistleblowing and protects whistleblowers. This will help to promote transparency and accountability within the organization and prevent corruption and other malpractices. The leaders should promote a culture of truthful leadership that encourages employees to speak up about illegal or unethical activities.

H2: There is a significant relationship between trustful leadership and whistle blowing.

Policies & procedures and whistleblowing

Policies and procedures hold a pivotal role in shaping employees' perspectives on whistleblowing in Nigeria. Whistleblowing, which involves reporting instances of unfair, unethical, or illegal behaviour within an organization, can manifest either internally or externally. The term "whistleblowing act" denotes the disclosure of information regarding wrongdoing, misconduct, or illegal activities within an organization, often without official authorization. This act is further safeguarded by laws protecting whistleblowers from retaliation or reprisal, encompassing aspects like anonymity, confidentiality, and defense against backlash. Clearly outlined policies and procedures not only guide employees but also enhance legal compliance, thereby fostering an environment conducive to whistleblowing. The presence of well-defined guidelines and protective measures within policies and procedures is instrumental in influencing whistleblowing behaviour (Cheema, 2022).

This article defines policies as guidelines that establish expectations and consistency in the workplace. The article explains that policies allow leadership to ensure the company communicates all laws and regulations to employees and that employees understand their roles and responsibilities. Therefore, policies and procedures play a critical role in shaping employee’s perceptions on whistleblowing in Nigeria. Clear guidelines and protection for whistleblowers can increase whistleblowing intentions, while a lack of policies and procedures can hinder whistleblowing. Therefore, organizations should have clear policies and procedures that encourage whistleblowing and protect whistleblowers. This can help to promote transparency and accountability within the organization and protect whistleblowers from retaliation.

H3: There is a significant relationship between Policies & procedures and whistle blowing.

The mediating role of organizational justice

Organizational justice pertains to how employees perceive their organization's actions and decisions, influencing their attitudes and behaviors at work. Rooted in equity theory, it posits that individuals assess fairness based on the balance between input and output. Comprising distributive, procedural, and interactional dimensions, organizational justice covers outcomes' perceived fairness, fairness in decision-making processes, and interpersonal treatment fairness.

Research underscores that fair organizational justice is linked to higher whistleblowing intentions, emphasizing the importance of transparent and ethical decision-making procedures (Seifert, Sweeney, Joireman, & Thornton, 2010).

The existence of a whistleblowing policy that safeguards reporters' confidentiality and prohibits retaliation further reinforces employees' perception of normative correctness and fairness in addressing violations (Plegue, 2014).

Moreover, justice theory supports the idea that fair leadership decision-making contributes to positive employee outcomes, fostering trust and commitment. Procedural justice correlates with increased trust in organizational authorities and a stronger commitment to the organization's values and goals (Tremblay, Cloutier, Simard, Chênevert, & Vandenberghe, 2010). Positive interactional justice, marked by respectful communication and fair treatment from supervisors, enhances employee willingness to exert more effort and exhibit higher performance levels, reinforcing the impact of fairness on organizational dynamics (Singh, Varma, Budhwar, & Soral, 2023).

H4: The organizational justice has a mediating relationship between organizational culture, trustful leadership, policies & procedures with whistle blowing.

Theoretical Framework

In the context of this study, three independent variables Organizational Culture, Trustful Leadership, and Policies & procedures are identified, along with one mediator variable, organizational justice, and the ultimate dependent variable, whistleblowing (refer to Figure 1).

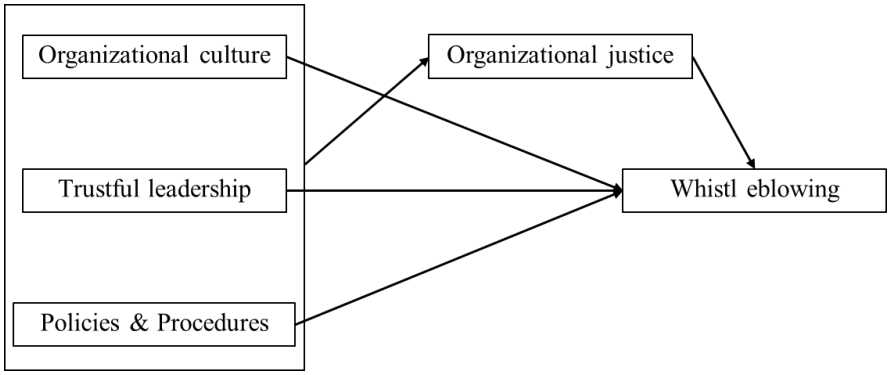

Figure 1: Conceptual Framework

Methodology

The selection of the employee population in Abuja metropolitan Nigeria is directly aligned with the research topic. The study aims to explore and understand employees' perceptions regarding whistleblowing. Abuja metropolitan area, being a hub of various industries and organizations, provides a diverse and pertinent sample of employees whose perceptions are critical for the study. Abuja is not only the capital of Nigeria but also a significant economic centre with a concentration of government institutions, private companies, and non-profit organizations. These various entities offer a rich and diverse pool of employees representing different sectors, sizes of organizations, and work roles. Thus, the choice of the Abuja metropolitan area as the population is geographically relevant to the study's objectives. According to Krejcie and Morgan (1970) table, a population size of 5000 corresponds to a recommended sample size of 357 for a 95% confidence level. This means that, according to their guidelines, a sample size of 357 would be deemed sufficient for drawing statistically significant conclusions from a population of 5000.

The scale of the study adopted from past studies such as the organizational culture scale adopted from the study of Azeem, Ahmad, Haider, and Sajjad (2021). Trustful leadership, drawn from the research by Podsakoff, MacKenzie, Moorman, and Fetter (1990), is evaluated with a single dimension – Trust – yielding a Cronbach Alpha of 90. The Policies and Procedures component, as referenced from Dorasamy (2012), encompasses nine items. Organizational justice scale adopted the from the study of Chen, Wu, Chang, and Chi (2015). The scale of whistleblowing perceptions, referencing the work of Owusu, Bekoe, Anokye, and Okoe (2020).

Data analysis and findings

In the context of this study's research model, which simultaneously examines the entire model, the use of SEM techniques was deemed more reliable for testing the proposed study model. SEM, considered a second-generation

analysis technique, is commonly applied to overcome potential limitations and analytical complexities (Haenlein & Kaplan, *2004)*. The PLS-SEM was chosen for this investigation due to its usefulness in analysing the measurement model and confirming hypothesised through structural model. SmartPLS version *4* was purposefully used to test the research model.

Reliability and validity measures

To ensure the reliability of primary data collected via Likert scale questionnaires in this study, a reliability test was conducted using the Cronbach Alpha statistical test in smart PLS *4* variable is considered reliable if its Cronbach Alpha value exceeds 0.60 or 0.7 (Hair Jr, Page, & Brunsveld, 2019). The outcomes of the reliability test, computed through the Smart PLS algorithm, are presented in Table 1.

Table 1: Reliability and Validity

Variables	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)
Organizational culture	0.909	0.932	0.936
Organizational justice	0.989	0.989	0.992
Policies and procedures	0.987	0.987	0.992
Trustful leadership	0.797	0.990	0.864
Whistleblowing perception	0.900	0.904	0.930

As shown on table 1 above the reliability and validity of the measurement instruments were rigorously evaluated for all our variables in this research, namely "Organizational Culture," "Organizational Justice," "Policies and Procedures," "Trustful Leadership," and "Whistleblowing Perception." The Cronbach's alpha values, a measure of internal consistency, exceeded the recommended threshold of 0.60 for all constructs, with "Organizational Culture" at 0.909, "Organizational Justice" at 0.989, "Policies and Procedures" at 0.987, "Trustful Leadership" at 0.797, and "Whistleblowing Perception" at 0.900. Moreover, composite reliability, evaluated through both rho_and rho_c measures, consistently surpassed the 0.70 threshold, further reinforcing the constructs' internal consistency.

Convergent Validity/ AVE

The Average Variance Extracted abbreviated as (AVE) is a statistical metric used to gauge the average percentage of the variance extracted, typically among observed variables. To meet the recommended standard proposed by Hair Jr et al. (2019), the AVE should ideally exceed 0.50. This criterion ensures that the latent variable effectively explains more than half of the variance exhibited by its indicators, on average.

Table 2: Convergent Validity

Variables	Average variance extracted (AVE)
Organizational culture	0.785
Organizational justice	0.968
Policies and procedures	0.975
Trustful leadership	0.682
Whistleblowing perceptions	0.770

As shown in table 2 above, the average variance extracted (AVE) values also exceeded the threshold of 0.50, reflecting strong convergent validity for each construct. "Organizational Culture" showcased an AVE of 0.785, "Organizational Justice" an impressive 0.968, "Policies and Procedures" a remarkable 0.975, "Trustful Leadership" a solid 0.682, and "Whistleblowing Perception" a commendable 0.770. The results indicate that all constructs successfully met or exceeded the established thresholds for reliability, underscoring their trustworthiness and appropriateness for subsequent statistical analyses.

Discriminant Validity

The paragraph discusses discriminant validity, an empirical test to evaluate how well items distinguish between constructs. It examines the uniqueness of concepts by analysing correlations between measures of potentially overlapping constructs. A high discriminant validity value indicates that a construct effectively captures a distinct phenomenon. The study employs the Fornell-Larcker method approach, to validate discriminant validity. The Fornell-

Larcker method compares the square root of the average variance extracted for each construct with inter-construct correlations (Fornell & Larcker, 1981). As show in the table 3 below Fornell Larcker criterion examined.

Table 3: Fornell-Larcker Criterion

	Organizational culture	Organizational justice	Policies and procedures	Trustful leadership	Whistleblowing perception
Organizational culture	0.886				
Organizational justice	0.866	0.984			
Policies and procedures	0.718	0.852	0.987		
Trustful leadership	0.649	0.890	0.750	0.826	
Whistleblowing perception	0.444	0.607	0.566	0.524	0.876

As shown in Table 3 above, the diagonal elements represent the square root of AVE for each construct, and the off-diagonal elements show the correlations between constructs. Comparing the diagonal elements with the off-diagonal elements, this study found that all diagonal values (0.886, 0.984, 0.987, 0.826, 0.876) are higher than the corresponding off-diagonal values (ranging from 0.444 to 0.890). Thus, the Fornell-Larcker criterion is achieved, indicating that discriminant validity is established for the constructs in this research model. This means that the constructs are distinct from each other and are measuring different underlying concepts.

Test of hypothesis (Direct Relationships/ Total effect)

To assess the structural model, the examination of research hypotheses involves a focus on the direct relationships. In this study, the hypothesized relationships underwent scrutiny through bootstrapping, a method involving the generation of numerous subsamples (e.g., 5000) with replacement from the original sample (Hair Jr et al., 2019). This study used 0.05 as the alpha. If the p-value is equal to or less than the alpha level, the result is deemed statistically significant, leading to the rejection of the null hypothesis. Conversely, if the p-value exceeds the alpha level, the result is not considered statistically significant, resulting in the retention of the null hypothesis.

As shown in Table 4 above, the table displays the outcomes of testing three hypotheses pertaining to the overall effects of independent variables (Organizational Culture, Trustful Leadership, Policies and Procedures) on the dependent variable (Whistleblowing Perception). Each hypothesis is assessed based on the total effect, T statistics, and p-value. For H1, which posits the relationship between Organizational Culture and Whistleblowing Perception, the total effect is not statistically significant (0.027, p = 0.46), leading to the conclusion that the hypothesis is unsupported. Conversely, H2 (Trustful Leadership and Whistleblowing Perception) and H3 (policies & procedures and whistleblowing perception) both yields statistically significant total effects (0.221, p = 0.00; 0.38, p = 0.00, respectively). Thus, there is robust evidence to support the hypotheses that Trustful Leadership and Policies and Procedures have significant positive impacts on Whistleblowing Perception within the tested model

Table 4: Direct Path Relationship / Total Effect

H	Relationship	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	Decision
H1	Organizational culture => Whistleblowing perception	0.027	0.024	0.037	0.739	0.46	Unsupported
H2	Trustful leadership => Whistleblowing perception	0.221	0.227	0.028	7.920	0.00	Supported
H3	Policies and procedures => Whistleblowing perception	0.380	0.377	0.047	8.085	0.00	Supported

** P<0.05

Mediation analysis/ Specific indirect effects

A specific indirect effect, in the context of statistical analysis, refers to the effect of an independent variable on a dependent variable that occurs through one or more intermediary variables, known as mediators.

Table 5: Mediation/Specific Indirect Effect

H	Relationship	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	Decision
H1	Organizational culture => Organizational justice => Whistleblowing perception	0.519	0.529	0.076	6.860	0.00	Supported
H2	Trustful leadership => Organizational justice => Whistleblowing perception	0.582	0.591	0.084	6.955	0.00	Supported
H3	Policies and procedures => Organizational justice => Whistleblowing perception	0.248	0.248	0.049	5.045	0.00	Supported

** P<0.05

As shown in Table 5 above, the results indicate that for all three mediation hypotheses (H1, H2, H3), are statistically significant, as evidenced by T statistics well above the threshold and P values of 0.00, this suggests that organizational justice significantly mediates the relationships between the predictor variables and whistleblowing perception, supporting the hypotheses. In essence, organizational justice plays a vital mediating role in explaining how organizational culture, Trustful leadership, and policies and procedures influence individuals' perceptions of whistleblowing within the context of this research, providing crucial insights into the mechanisms underlying these relationships.

Practical Implication

This research offers practical insights for organizations in Nigeria aiming to strengthen their whistleblowing mechanisms. Firstly, there is a need for organizational policies to be revisited and enhanced to address specific concerns raised by employees, such as the fear of retaliation and a lack of awareness regarding whistleblower rights and procedures (Plegue, 2014). Leadership training programs focused on fostering trust and ethical leadership should be prioritized to create an organizational culture that encourages employees to report misconduct without apprehension (Hussain, 2021).

Furthermore, organizations must ensure clear communication of whistleblowing policies and procedures through regular training sessions and awareness campaigns to enhance employee awareness and understanding (Cheema, 2022; Kaptein, 2011). Lastly, recognizing the cultural aversion to whistleblowing in Nigeria, organizations should adopt approaches that align with societal values while promoting ethical reporting practices (Salihu, 2019).

Theoretical Implications

Theoretical contributions from this study extend to various dimensions. Firstly, within the organizational culture literature, this research provides insights into the specific cultural aspects influencing whistleblowing perceptions, contributing to a nuanced understanding of the relationship between culture and reporting behaviours (Cheema, 2022; Wong, 2020). Secondly, the study advances theoretical understanding by emphasizing the pivotal role of trustful leadership in shaping whistleblowing intentions, thereby enriching leadership literature with insights into how trust influences reporting behaviours (Malek, 2020). Thirdly, the introduction of organizational justice as a mediator in the relationship between organizational factors and whistleblowing perceptions expands theoretical frameworks by demonstrating how fairness in organizational practices influences reporting behaviours (Owusu et al., 2020).

Lastly, the study's focus on the Nigerian context contributes to a more nuanced understanding of whistleblowing within a specific cultural setting, potentially informing the development of theories that consider cultural nuances in the study of whistleblowing (Gedion, 2021). In essence, the research not only provides actionable steps for organizations but also enriches theoretical perspectives in the field.

Limitations of the study

While this research endeavours to shed light on employees' perceptions towards whistleblowing in Nigeria, it is essential to acknowledge certain limitations that may impact the generalizability and interpretation of the findings. Firstly, the research design emphasizes a quantitative survey method, limiting the exploration of the lived experiences and qualitative nuances of whistleblowing. Additionally, the cross-sectional nature of the study design presents a limitation in establishing causality. The research captures a snapshot of whistleblowing perceptions at a specific point

in time, making it challenging to infer the directionality of relationships between variables. Longitudinal studies would be beneficial to track changes over time and provide more robust evidence of the impact of organizational interventions on whistleblowing attitudes.

Moreover, the study's focus on the Abuja metropolitan area, while practical for data collection, may limit the generalizability of the findings to other regions in Nigeria with distinct cultural, economic, and organizational characteristics. Future research could explore a more geographically diverse sample to enhance the external validity of the study's conclusions. Furthermore, the reliance on self-reported data introduces the potential for common method bias, as respondents might provide responses based on their perceptions rather than objective observations (Podsakoff et al., 1990). Despite efforts to ensure the anonymity of participants, concerns about confidentiality may influence the accuracy of the responses, affecting the reliability of the data.

In conclusion, while this study contributes valuable insights, it is essential to recognize these limitations to interpret the findings with caution and guide future research endeavours in addressing these constraints for a more comprehensive understanding of whistleblowing dynamics in organizational settings.

Recommendation and Suggestion for Future Research

Future researchers delving into the realm of whistleblowing perceptions, particularly in diverse cultural settings like Nigeria, can build upon the findings of this study to contribute to the growing body of knowledge in organizational behaviour and ethics. Firstly, to gain a more comprehensive understanding of the complexities surrounding whistleblowing, it is recommended that future studies explore additional contextual factors that may influence employees' perceptions. Factors such as regional variations within Nigeria, and the impact of organizational size on whistleblowing attitudes could offer valuable insights.

Moreover, future researchers should consider conducting longitudinal studies to track changes in whistleblowing perceptions over time. This approach can unveil the dynamic nature of attitudes and behaviors, capturing shifts influenced by evolving organizational cultures, leadership styles, and external socio-economic factors. Longitudinal research can also provide a deeper understanding of the long-term effectiveness of implemented policies and procedures.

Additionally, investigating the effectiveness of different communication channels for whistleblowing policies is crucial. Future studies could assess the impact of various communication methods, such as digital platforms, workshops, or mentorship programs, in enhancing employees' awareness and understanding of whistleblowing procedures. This exploration can guide organizations in choosing the most effective channels to disseminate information and foster a culture of ethical reporting.

Furthermore, considering the influence of national culture on whistleblowing perceptions, future researchers may explore comparative studies across countries with similar or differing cultural values. This approach can unveil cross-cultural variations and similarities, offering a broader perspective on the impact of cultural dimensions on whistleblowing attitudes. Comparative analyses could contribute to the development of culturally sensitive strategies for promoting ethical reporting.

Lastly, future researchers are encouraged to explore the intersectionality of various demographic factors, such as gender, age, and education, in shaping whistleblowing perceptions in Nigerian context or Africa. Understanding how these factors interact and influence individuals' willingness to blow the whistle can inform targeted interventions tailored to specific demographic groups within organizations.

Conclusions

This study extensively explored the intricate dynamics of whistleblowing within organizational contexts, concentrating specifically on Nigeria. The examination of whistleblowing's historical, legal, and cultural dimensions yielded a nuanced comprehension of the factors influencing employees' perceptions and behaviors in reporting misconduct. The results underscore the pivotal roles played by organizational culture, truthful leadership, and well-defined policies and procedures in shaping whistleblowing intentions. The theoretical frameworks of justice theory and institutional theory have added theoretical depth to the analysis, shedding light on the broader societal and organizational contexts in which whistleblowing operates. Despite the valuable findings, it is essential to acknowledge the limitations of this study, such as sample bias and the cross-sectional design. However, the implications for both organizations and academia are noteworthy, emphasizing the imperative to cultivate ethical cultures, supportive leadership, and robust whistleblowing frameworks. As we navigate the intricacies of organizational ethics, this research makes a substantial contribution to the ongoing discourse on whistleblowing, furnishing practical insights and laying the groundwork for future investigations into this crucial facet of organizational behaviour.

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ID 32
Predictive Model for Faculty Selection Among Students in Southern Thailand: A Focus on Education, Economics, Humanities, Social Sciences, and Law Using Gradient Boosted Trees Machines Algorithm

Prajak Chertchom[1]*

[1] Faculty of Economics and Business Administration, Thaksin University; prajak.c@tsu.ac.th

* Correspondence: prajak.c@tsu.ac.th

Abstract

This study aimed to develop a predictive model for faculty selection among students in Southern Thailand using the Gradient Boosted Trees Machines Algorithm. The dataset contained information on 12,125 students, including their faculty selection, High School GPA, blood group, district, province, and parent background for four major faculties: Education, Economics and Business Administration, Humanities and Social Sciences, and Law. The most important features that contributed to the model's performance were the student's academic background, Province and Parent background factors. The model can provide insights for academic institutions and policymakers in Southern Thailand to enhance their student recruitment and selection process. Assessing the performance of a Gradient Boosting Machine (GBM) model involves the examination of various metrics commonly used in both regression and classification tasks, the MSE of 0.754178 indicates that, on average, the squared differences between the model's predictions and the actual values are relatively low, suggesting good accuracy in a regression context and the Mean Per Class Error, with a value of 0.85140735, represents the average error rate across all classes in classification. A lower value is preferred, as it suggests better performance in classifying instances.

Keywords: Faculty selection, Predictive modelling, Gradient Boosting, Machine learning, Higher education

Introduction

In recent years, Thailand has experienced a significant decline in its birth rate, which has led to a shortage of university-aged students. This demographic trend has created a highly competitive environment among universities in the country, with institutions vying for a shrinking pool of potential applicants. The Thailand Development Research Institute has stated that the number of births in Thailand in 2022 was only 502,000, falling approximately 30% short of the target of 700,000. (Nation Thailand, 2023) This figure also signifies the lowest birth rate seen in the country in the last 71 years. The low birth rate in Thailand is a serious concern for universities in the country. With fewer young people in the population, universities are competing for a smaller pool of potential students, which could have significant implications for their long-term sustainability and growth. To remain competitive in this challenging environment, universities in Thailand are adopting various strategies to attract and retain students. Understanding why students choose particular faculties can be highly advantageous for universities. By identifying the reasons behind a student's selection of a certain faculty or program, universities can customize their offerings to better suit the needs and preferences of potential students. Being aware of the family backgrounds and geographic locations of students who previously selected particular faculties can provide valuable insights into the enrolment patterns and demographics of the university's student body. The significance of this study is that it has the potential to improve the faculty selection process in Southern Thailand. By utilizing the Gradient Boosted Trees Machines Algorithm, this study aims to identify the key factors that influence a student's decision to choose a particular faculty. This information can be used by universities to customize their programs and offerings to meet the needs and interests of their students. This, in turn, can lead to higher enrollment rates and better retention rates as students are more engaged and satisfied with their

education. In addition, understanding why students choose particular faculties can help universities improve their recruitment and marketing strategies. (Çakıt, E., & Dağdeviren, M. 2022: Kamal, N. et al., 2020)

Objectives of The Study: the objectives of the study titled "Predictive Model for Faculty Selection Among Students in Southern Thailand using Gradient Boosted Trees Machines Algorithm" are as follows:

1. To develop a predictive model for faculty selection among students in Southern Thailand using the Gradient Boosted Trees Machines algorithm.

Hypothesis 1*: The application of Gradient Boosted Trees Machines algorithm will result in a predictive model that accurately identifies and predicts faculty preferences among students in Southern Thailand.*

2. To identify the significant factors that influence the selection of faculty among students in Southern Thailand.

Hypothesis 2*: Certain factors, such as academic performance, Province, and Parent Occupation, will be identified as significant predictors influencing the selection of faculty among students in Southern Thailand.*

3. To provide insights and recommendations to universities and colleges in Southern Thailand on how to improve their faculty selection process based on the findings of the study.

Hypothesis 3*: The study's findings will reveal specific areas of improvement in the current faculty selection process, and the recommendations provided will positively impact the effectiveness of the selection process in Southern Thailand institutions.*

Methodology

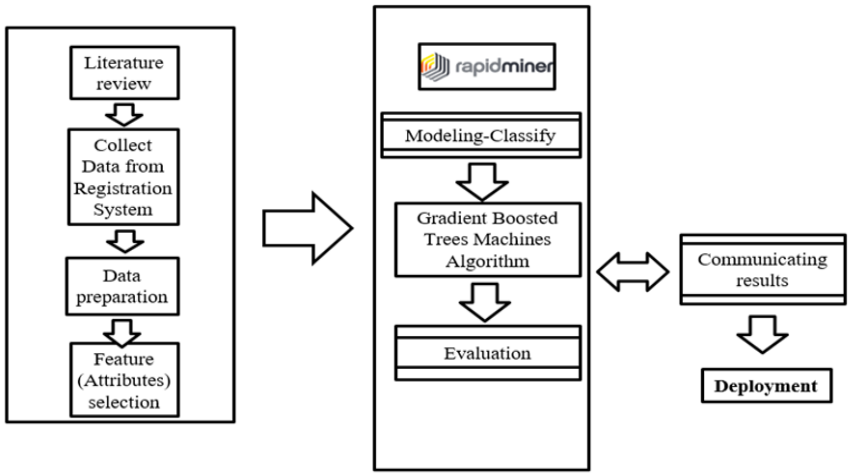

Figure 1: Research Framework

To facilitate the data import, preparation, and analysis, Rapid Miner Studio 10.1 software was utilized. Once the sheets of student data were received, they were joined into a single table and filtered to include only those students who had either graduated or dropped out. The primary tasks for preprocessing and cleaning the data were as follows:

A. Addressing missing data: Dealing with missing data for example “Parent Revenue”.

B. Transforming and generating attributes: Converting categorical variables into a numerical format for example “Parent Revenue

C. Reducing dimensionality and redundancy: Group similar features into clusters.

D. Attributes: The attributes utilized in this study can be classified into ten types according to their reference: Admission Year, High school GPA, District, Province, Parent Status, Parent Relative, Parent Revenue, and Parent Occupation. Furthermore, there is a binary target variable that determines the faculty of the student.

Population and Sample: we received data from the Academic Office of Southern University in Thailand, which was stored in their educational administration system. The dataset consists of information on 12,126 undergraduate students who were enrolled between 2020 and 2022, including their profile and family background. To protect the

students' privacy, the data was anonymized before being provided to researcher. The Cross-Industry Standard Process for Data Mining (CRISP-DM) (Huber, S et al.,2019) was adopted for this study as the standard process for analyzing data mining data, as illustrated in figure 1.

Table 1: Showing Summary of Data Fields

Feature name	Type
Faculty (target variable)	Nominal
Admission Year	Number
High school GPA	Number
District	Nominal
Province	Nominal
Parent Status	Nominal
Parent Relative	Nominal
Parent Revenue	Categorical
Parent Occupation	Nominal
Parent Occupation	Nominal

Hypotheses of The Study

There is a significant relationship between the demographic characteristics of students in Southern Thailand and their faculty selection.

The predictive model developed using the Gradient Boosted Trees Machines algorithm is accurate in predicting faculty selection among students in Southern Thailand.

Statistical Techniques Used in the Present Study

The present study involved the implementation of The Gradient Boosted Trees Machines (GBTM), which was trained on a preprocessed dataset. To optimize the performance of the model, grid search and k-fold cross-validation techniques were utilized for hyper parameter tuning. The aim was to determine the most suitable hyper parameters for the GBTM algorithm to achieve the best possible performance. The GBTM algorithm iteratively enhances the model Ft−1 at stage t by constructing a new model Ft that adds an estimator of decision tree h to provide a better model. The formula for the new model is as follows: (Zhou, L et. Al.,2021)

$$Ft(x) = Ft-1(x) + \gamma t ht(x)$$

Where

$$Ft-1(x) = \sum_{i=1}^{t-1} [\![y_i h_i (X)]\!]$$

The newly added tree ht tries to minimize the loss l which is a function defined on the training set and the model, given the previous ensemble Ft−1: ht = argmin $\sum_{i=1}^{N}$ [\![[\![l(y]\!] $_{i,}$ F$_{t-1}$]\!] (Xi) + h(Xi)).

Results and Discussion

Data Analysis and Interpretation

Due to Table 2, the table above presents data on student enrollments at a university across different faculties and admission years (2020, 2021, and 2022). It includes the total number of students enrolled in each faculty for each of the three admission years, as well as the percentage of the total student population that each faculty represents. Among the faculties, the Education faculty had the highest total enrollment over the three-year period, with 2,499 students enrolled, while International College had the lowest total enrollment, with 36 students enrolled. The Economics and Business Administration faculty had the second-highest total enrollment, with 2,237 students. The data can be used to compare enrollment trends across faculties and admission years and to identify any areas of growth or decline in student populations.

Table 2: Descriptive statistics pertain to the enrollment of students at Southern University, covering the years 2020 through 2022

Faculty	Admission Year			Total	%
	2020	2021	2022		
Education	866	739	894	2,499	20.61
Economics and Business Administration	802	679	756	2,237	18.45
Humanities and Social Sciences	668	627	694	1,989	16.40
LAW	599	668	716	1,983	16.35
Management for Development College	227	330	471	1,028	8.48
Health and Sports Science	185	224	224	633	5.22
Science	154	202	189	545	4.49
Fine Arts	163	185	157	505	4.16
Technology and Community Development	104	102	80	286	2.36
NURSE	50	57	45	152	1.25
Agro-and Bio-Industry	29	65	37	131	1.08
Engineering	30	39	32	101	0.83
International College	15	8	13	36	0.30
Total	**3,892**	**3,925**	**4,308**	**12,125**	**100**

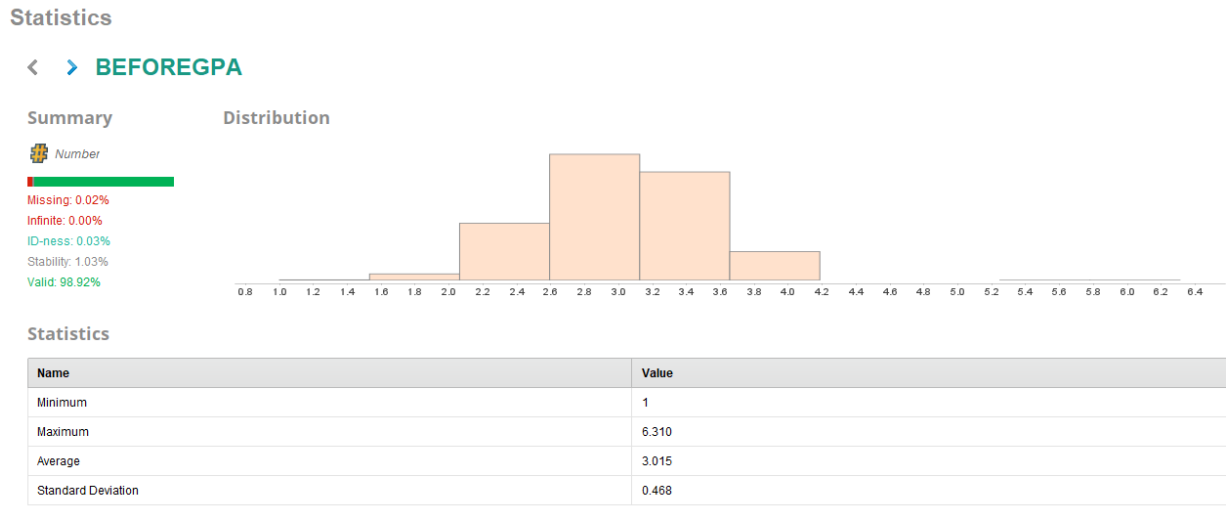

Figure 2: Showing the GPA of enrolled students.

From figure 2, "Grade Point Average: GPA", the grade point scale typically ranges from 0 to 4.0, with some institutions using a 5.0 or 6.0 scale. In the given context of "Showing GPA for enroll student". The minimum GPA among these students is 1, while the maximum is 6.310. The average GPA is 3.015, indicating the typical academic performance of the enrolled students in this data set. The standard deviation of the GPA is 0.468, which reflects the variation in the academic performance of the enrolled students around the average GPA.

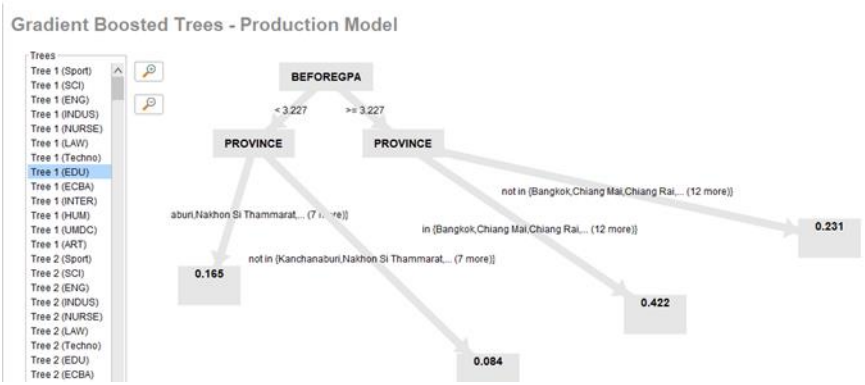

Figure 3: Tree in the Gradient Boosted Trees Machines Algorithm for Education, Economics and Business Administration Faculty

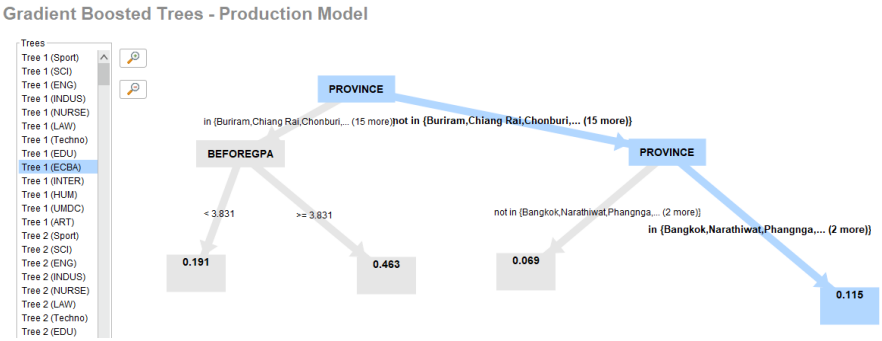

Figure 4: Tree in the Gradient Boosted Trees Machines Algorithm for Humanities and Social Sciences Faculty

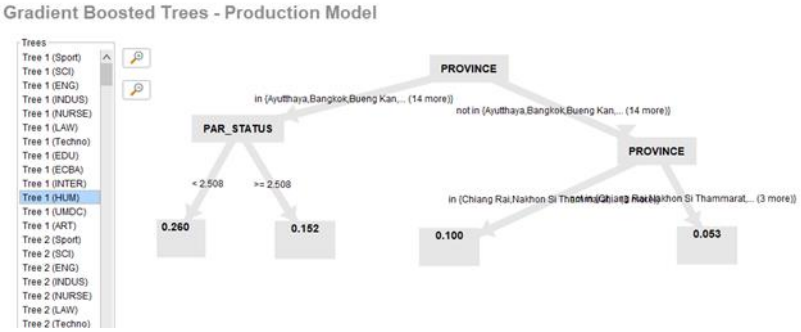

Figure 5: Tree in the Gradient Boosted Trees Machines Algorithm for Law Faculty

Gradient Boosting is a sequential machine learning technique that uses decision trees to correct errors made by previous trees in the ensemble. The algorithm starts with an initial tree fitted to the data, and then additional trees are added to capture the residuals or errors of the previous trees. The final prediction of the model is the sum of the predictions of all the trees in the ensemble. While the trees in Gradient Boosting are typically shallow with few levels, they are combined in a way that creates a powerful model with high predictive accuracy. This study focuses on four major faculties, namely Education, Economics and Business Administration, Humanities and Social Sciences, and Law, based on the number of students enrolled. Firstly, figure 3, 4 and 5 display a decision tree that predicts a student's selection of the Education Faculty based on input factors, namely, province and GPA from High school.

Evaluation of Model Prediction

Assessing the performance of a Gradient Boosting Machine (GBM) model involves the examination of various metrics commonly used in both regression and classification tasks, such as Mean Squared Error (MSE), R-squared (R^2), Log Loss, and Mean Per Class Error (James et al., 2013; Natekin & Knoll, 2013). Extracting data from RapidMiner, we obtained the following values: MSE (0.754178), RMSE (0.86843425), R^2 (0.91582996), log loss (2.1077313), and Mean Per Class Error (0.85140735). The MSE of 0.754178 indicates that, on average, the squared differences between the model's predictions and the actual values are relatively low, suggesting good accuracy in a regression context. An R^2 value of 0.91582996 signifies that approximately 91.58% of the variability in the response variable is explained by the model, reflecting a strong fit to the data. The log loss of 2.1077313 provides insights into the model's performance in terms of probability estimation, with lower values generally indicative of more accurate predictions. Furthermore, the Mean Per Class Error, with a value of 0.85140735, represents the average error rate across all classes in classification. A lower value is preferred, as it suggests better performance in classifying instances. In summary, the obtained metrics collectively demonstrate the model's accuracy, fit to the data, and effectiveness in both regression and classification tasks.

To answer Hypothesis 1: The application of Gradient Boosted Trees Machines algorithm will result in a predictive model that accurately identifies and predicts faculty preferences among students in Southern Thailand. Mean Squared Error (MSE) = 0.754178, the squared differences between the model's predictions and the actual values are relatively low. This suggests good accuracy in a regression context.

R-squared (R^2) = 0.91582996, it means that approximately 91.58% of the variability in the response variable is explained by the model. This reflects a strong fit to the data.

To answer Hypothesis 2: Certain factors, such as academic performance, Province, and Parent Occupation, will be identified as significant predictors influencing the selection of faculty among students in Southern Thailand.

From Figure 2 to 4, they suggest that these specific factors—academic performance, Province, and Parent Occupation—play a crucial role in determining a student's choice of faculty. To confirm or refute this hypothesis, a thorough analysis of the dataset, employing techniques such as Gradient Boosting, will be conducted.

To answer Hypothesis 3: The study's findings will reveal specific areas of improvement in the current faculty selection process, and the recommendations provided will positively impact the effectiveness of the selection process in Southern Thailand institutions. The study's findings are anticipated to unveil specific areas of improvement within the current faculty selection process. Moreover, the recommendations derived from these findings are expected to have a positive impact on enhancing the overall effectiveness of the faculty selection process in institutions across Southern Thailand

Comparison with Other Models: The researcher also employed the regression model technique on the same dataset, yielding the following results:

0.075 * BEFOREGPA = High
+ 0.027 * BEFOREGPA = Excellent
+ 0.013 * BEFOREGPA = Good
+ 0.044 * Province No.
- 0.015 * PAR_STATUS
- 0.012 * PAR_REVENUE
- 0.007 * PAR_RELATIVE
- 0.015 * PAR_OCCUP

Intercept (constant): The model includes an intercept of -99.490.

Positive coefficients in the regression model suggest that all these variables contribute positively to the predicted label 'FACULTY.' This implies that students with higher grades are more likely to be associated with specific faculties. Furthermore, the positive coefficient for 'Province No.' indicates that an increase in this variable also contributes positively to the predicted label 'FACULTY,' suggesting that the province of origin may play a role in faculty selection, with higher values being associated with specific faculties. Importantly, these results align with the findings obtained using the Gradient Boosted Trees Machine Algorithm, as depicted in Figure 3.

Recommendations

Based on the results of the Gradient Boosting model, it is recommended that this algorithm be considered as a strong candidate for predictive modelling tasks. The sequential tree-building approach employed by Gradient Boosting allows for the correction of errors in previous trees, resulting in high predictive accuracy. However, it should be noted that a high error rate may indicate overfitting or other issues that require further investigation. To maximize the effectiveness of the Gradient Boosting model, it is recommended that the following steps be taken: (Zhang & Haghani, 2015)

Fine-tune hyper parameters: Experiment with different values for hyper parameters such as learning rate, number of trees, and depth of the trees to find the optimal combination that achieves the best performance.

- Feature selection: Use feature importance metrics to identify the most important variables and focus on those variables to improve model accuracy.
- Consider ensembling Gradient Boosting with other models such as Random Forest or XGBoost to improve overall performance.
- Use cross-validation techniques to evaluate model performance on multiple test sets and ensure that the model is generalizable to new data.

By following these steps, the Gradient Boosting model can be optimized for the specific predictive modelling task and deliver accurate predictions. (Wang et al., 2023)

Conclusions

The study's findings suggest several recommendations for future research. Firstly, the scope of the study can be expanded to include more faculties or universities across Thailand to improve the accuracy of predicting student selection in Southern Thailand. Secondly, the model can be further improved by including additional input variables such as student demographics, extracurricular activities, and personal interests. (AlShourbaji et al., 2023) Thirdly, the model's reliability and generalizability can be enhanced by testing and validating it on larger datasets or in other regions of Thailand. Fourthly, educational institutions in Southern Thailand can use the model to identify potential students who are likely to select a particular faculty, which can help in recruitment and retention efforts. Fifth, the model can be used to provide personalized guidance and counselling services to students who are undecided about their faculty selection based on their individual characteristics and preferences. Finally, future research could investigate the impact of external factors such as economic conditions, social and cultural norms, and institutional policies on students' faculty selection or compare the predictive performance of different machine learning algorithms such as random forests or neural networks. Overall, the Gradient Boosted Trees Machines Algorithm holds promise as a valuable tool for improving student recruitment, retention, and guidance services in Southern Thailand.

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ID 70
Propose a Hierarchical Structure and a Gamified Prototype for Studying an Information System for Modern Trade Business Management: "TradeQuest"

Prajak Chertchom[1]*

[1] Faculty of Economics and Business Administration, Thaksin University

* Correspondence: prajak.c@tsu.ac.th

Abstract

The rise of interactive mobile applications has transformed language learning methodologies, providing users with convenient and engaging platforms to master various languages. This study investigates the effectiveness of interactive mobile applications in language acquisition, with a focus on the widely-used application, Duolingo. By conducting a thorough analysis of Duolingo's features and user experiences, the research aims to uncover the strategies employed by the application to optimize learning outcomes. The study commences by outlining the core features of Duolingo, which encompass personalized learning objectives, adaptive difficulty levels, and interactive exercises. It explores how Duolingo integrates gamification elements to cultivate user engagement and motivation, thereby fostering consistent learning behaviors. Additionally, the research delves into Duolingo's community features, including social interaction and progress tracking, which foster a collaborative learning environment. Drawing upon user feedback and empirical studies, the research assesses Duolingo's efficacy in facilitating language acquisition across diverse proficiency levels and linguistic backgrounds. Furthermore, it examines the implications of Duolingo's success for the future design and development of language learning applications. The study identifies valuable lessons and best practices derived from Duolingo's approach, offering insights into effective instructional design, user engagement strategies, and technological integration. In addition, the research proposes a hierarchical structure for "TradeQuest," a gamified platform tailored to replicate authentic scenarios, thereby enhancing the study of Information Systems for Modern Trade Business Management. In conclusion, this paper emphasizes the transformative potential of interactive mobile applications such as Duolingo in democratizing language education and nurturing a global community of language learners. It advocates for ongoing innovation and refinement in language learning technologies to address the evolving needs and preferences of learners worldwide.

Keywords: Interactive mobile applications, Learning methodologies, Duolingo gamification elements, Trade Quest

Introduction

In the dynamic landscape of modern trade business management, the integration of effective information systems is paramount for organizational success. As businesses navigate through intricate supply chains, diverse marketplaces, and evolving consumer behaviors, the need for adept management supported by robust information systems becomes increasingly evident. Traditional methods of teaching and learning in this domain may not always capture the complexities and nuances of real-world scenarios. (Koehler & Mishra, 2005) This research endeavors to bridge this gap by proposing a novel approach: the development of a gamified prototype named "TradeQuest." "TradeQuest" aims to offer a dynamic and engaging platform for studying information systems in modern trade business management. By blending the principles of gamification with educational objectives, "TradeQuest" seeks to provide an immersive and interactive learning experience that mirrors the challenges and decision-making processes encountered in the contemporary business environment. (Kiili et al.,, 2012; Tom & Han, 2022)

This research focuses on Benchmarking and comparative analysis as strategic tools utilized across diverse industries to evaluate and enhance organizational performance. The literature review delves into pivotal studies and findings concerning benchmarking and comparative analysis, emphasizing their methodologies, applications, and impact on decision-making and performance enhancement. Benchmarking, as elucidated by Camp (1989) in

"Benchmarking: The Search for Industry Best Practices That Lead to Superior Performance," involves comparing organizational performance with industry best practices to pinpoint areas for improvement and gain competitive advantage. Its applications span various sectors, including manufacturing, services, and healthcare. Camp (1989) categorizes benchmarking into four types: internal, competitive, functional, and generic, each serving distinct organizational purposes. The benchmarking methodology comprises data collection, analysis, and the adoption of best practices. Spendolini (1992) in "The Benchmarking Book" offers a comprehensive guide, outlining steps like planning, analysis, integration, and action. Technological advancements, such as data analytics and business intelligence tools, have further enhanced benchmarking processes (Majuri & Hamari, 2018). Comparative analysis entails evaluating alternatives to inform decision-making, used in market research, financial analysis, and performance assessment within businesses. Grant (2013) in "Contemporary Strategy Analysis" examines the role of comparative analysis in strategic decision-making, emphasizing its significance in understanding industry dynamics and competitive positioning. Benchmarking and comparative analysis rely on performance metrics and Key Performance Indicators (KPIs) for measurement. Friedrich & Friedrich (2017) stresses the importance of selecting relevant KPIs aligned with organizational objectives. Comparative analysis similarly benefits from a focus on key indicators to facilitate informed decision-making. While benchmarking and comparative analysis offer valuable insights, challenges persist. Yasin (2002) outlines common challenges in "The theory and practice of benchmarking: then and now," including data accuracy, benchmark selection, and organizational resistance, while providing best practices for successful benchmarking initiatives. Overall, studies across various industries underscore the tailored applications of benchmarking and comparative analysis, highlighting their significance in enhancing organizational performance despite inherent challenges.

Problem Statement: While the importance of information systems in modern trade business management is widely acknowledged, the existing methodologies for teaching and learning in this field may not fully exploit the potential for engagement and comprehension. Traditional instructional approaches often fall short in providing an experiential understanding of the complexities inherent in managing information systems for diverse supply chains, market dynamics, and customer interactions. This research addresses the need for a more interactive and effective learning tool by proposing the development of *"*TradeQuest*"*, a gamified prototype designed specifically for studying information systems in modern trade business management. The aim is to enhance the learning experience by immersing learners in realistic scenarios, fostering critical thinking, and simulating decision-making processes within the context of contemporary trade operations. As researcher delve into the details of *"*TradeQuest*"*, researcher anticipate uncovering insights that not only contribute to advancements in educational technology but also offer practical implications for improving the preparation of future professionals in the field of modern trade business management. Through the development and evaluation of *"*TradeQuest*"*, this research seeks to provide a valuable resource for educators, students, and practitioners alike.

Objectives of Study

To propose a hierarchical structure for "TradeQuest," a gamified platform designed to replicate authentic scenarios, fostering the study of Information Systems for Modern Trade Business Management.

Benefits of Study

1. The gamified prototype and a hierarchical structure facilitate the practical application of information systems concepts within a business management context, allowing users to make decisions and observe the consequences in a simulated environment.

2. The benchmarking against existing gamified learning platforms allows for a comparative analysis, identifying best practices and areas for improvement in educational gamification for business management.

Methodology

The research includes benchmarking against a select number of existing gamified learning platforms. A "Duolingo" platforms, recognized for its effectiveness in educational gamification, will be selected for comparative analysis. This comprehensive framework guides the study through conceptualization, development, evaluation, and data collection, ensuring a systematic and well-structured approach to investigating the effectiveness of "TradeQuest" in studying information systems in modern trade business management. The study will;

1. Identify and define key gamification principles incorporated in "TradeQuest", including points, levels, rewards, and challenges.

2. Detail the iterative development process, outlining phases such as prototype creation, user feedback collection, and refinement cycles and ensuring that the interface and user experience meet the needs and expectations of the target audience.

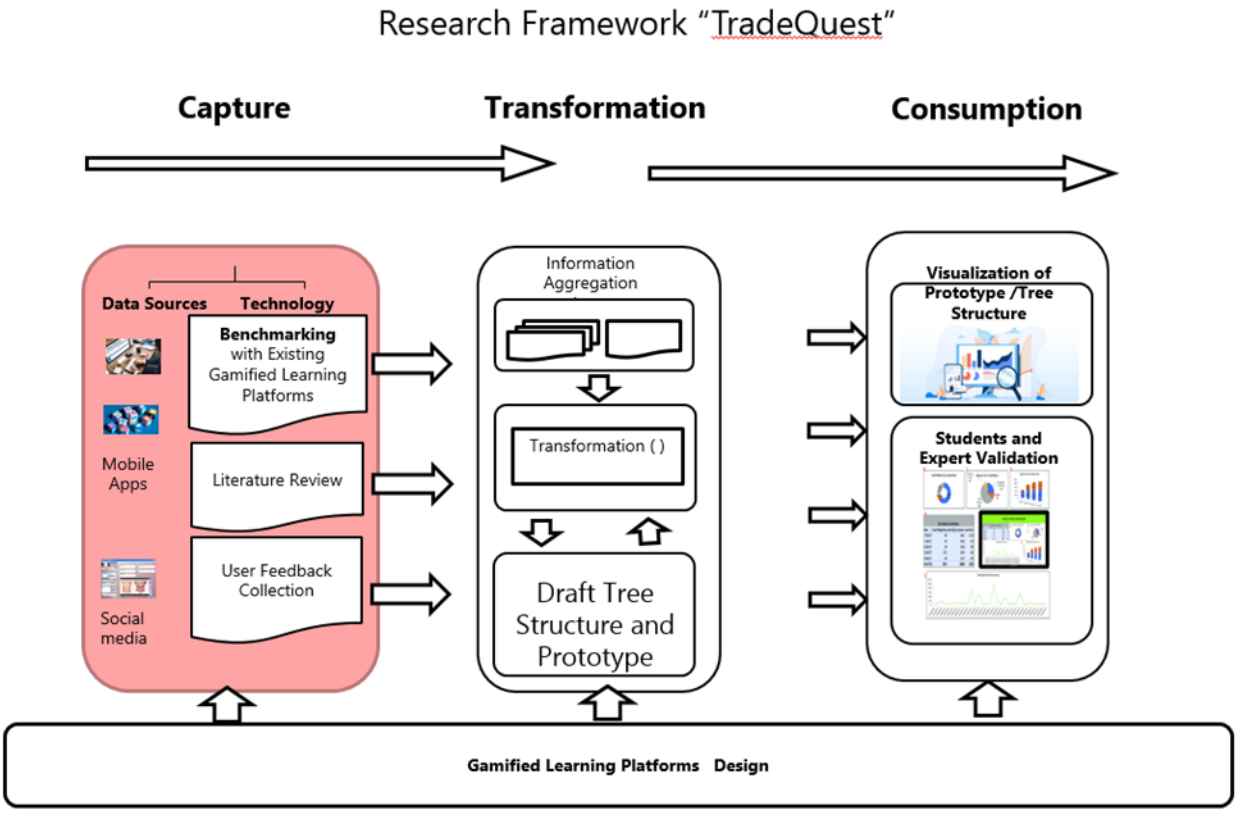

Figure 1: Research Framework

The research is structured as qualitative investigation. This design is deliberately chosen in alignment with the research problem and objectives. It allows for enabling a comprehensive analysis that addresses the research questions and fulfils the study's overarching goals.

Research Approach: The study adopts an inductive approach, incorporating the saturation method. Saturation, defined by the point at which new data cease to contribute novel insights, guides the sampling process. Continued sampling occurs until saturation is achieved, signifying that collecting additional data would be redundant. Surveys, involving the standardized collection of information through structured questions, are employed within a student population, adhering to the saturation method (Guest et al., 2020). The study engages with a diverse student population, involving approximately 100 undergraduate students across disciplines trough workshop, ensuring a comprehensive representation of perspectives and experiences. Data collection includes an interview with a purposive sample of 30 students, carefully selected to capture a range of backgrounds, experiences, and viewpoints. These interviews will provide rich qualitative insights into individual experiences with the gamified learning environment and use for the effectiveness design of the "TradeQuest" hierarchical structure. Additionally, observational methods are employed to gather real-time data on student interactions with the gamified platform. This involves observing student behaviour, engagement patterns, and the navigation of the intuitive interface during designated learning sessions.

Results and Discussion

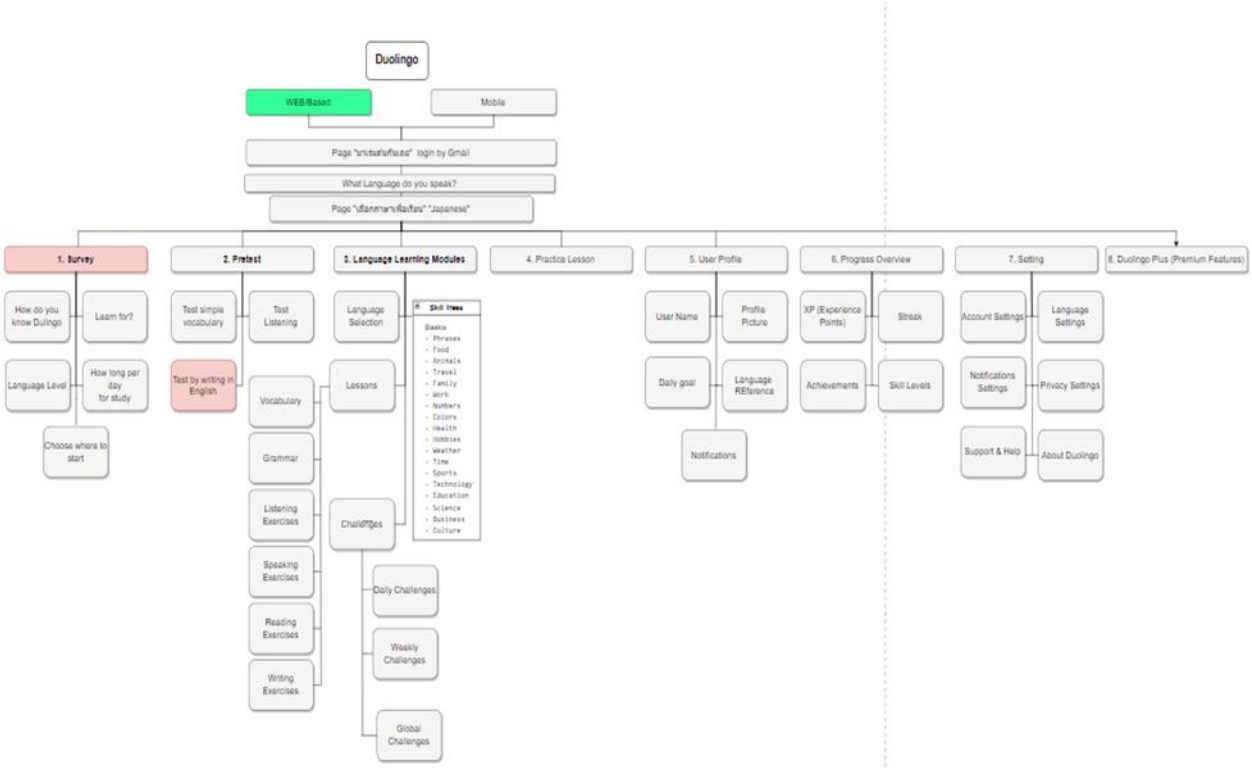

Figure 1 Duolingo Structure Diagram

From a qualitative investigation "User Feedback Collection", Duolingo typically had a straightforward interface with a few main sections rather than eight distinct menus as shown in Figure 1.

For the starting use of an application, Duolingo does ask users about their language learning goals or reasons for studying a particular language when they set up their profiles. Users are typically prompted to select their reasons for learning a language from a list of options. The good point is that Duolingo assesses a user's proficiency and adapts the difficulty of lessons based on their performance within the app.

In addition, Duolingo typically includes a feature that allows users to set a daily goal for how much time they want to dedicate to language learning each day. Users can specify the amount of time they are willing to spend on Duolingo, and the app will then provide them with a recommended daily goal. This daily goal can be set in terms of minutes per day, allowing users to customize their learning experience based on their availability and preferences. Achieving the daily goal helps users maintain a consistent and regular language learning habit. Moreover, Duolingo does have a feature that sends email reminders to users who have not logged into the app for some time. These reminders are designed to encourage users to continue their language learning journey and maintain a consistent study habit. Duolingo's notification and reminder settings can be customized by users. If a user has opted to receive email notifications, they may receive periodic emails encouraging them to return to the app and continue their language learning. The frequency and content of these reminders can typically be adjusted in the app's settings.

Furthermore, Duolingo offers a feature called "Streaks", the Streak feature encourages users to maintain a daily learning habit by tracking the consecutive days they spend on Duolingo.

The "Streaks" feature encompasses three key focal points, outlined as follows:

1. Streak Counter: Duolingo keeps track of the number of consecutive days a user has completed at least one lesson or activity.

2. Rewards for Streaks: Users are often rewarded with visual badges or streak counters, and longer streaks may come with additional rewards or achievements.

3. Motivational Element: The Streak feature serves as a motivational tool, encouraging users to practice the language regularly to maintain or build on their streak.

In addition, Duolingo often includes lessons and exercises that are designed to be relevant to daily life situations. The app aims to teach users practical language skills that can be applied in real-world scenarios. Common practices in Duolingo may include vocabulary and phrases related to:

1. Everyday Activities: Conversations related to daily routines, activities, and common tasks.
2. Travel: Essential phrases for navigating travel situations, such as asking for directions, ordering food, or making hotel reservations.
3. Social Interactions: Language skills for socializing, greetings, and conversations with friends or colleagues.
4. Work and Education: Vocabulary and expressions related to workplaces or educational environments.
5. Shopping: Language skills relevant to shopping, negotiating prices, and making purchases.

Duolingo's approach often involves contextual learning, presenting language concepts within scenarios that users might encounter in their daily lives. This helps learners apply the language skills they acquire in practical situations.

From an inductive approach, incorporating the saturation method, researcher propose a "TradeQuest" Hierarchical structure" as follows.

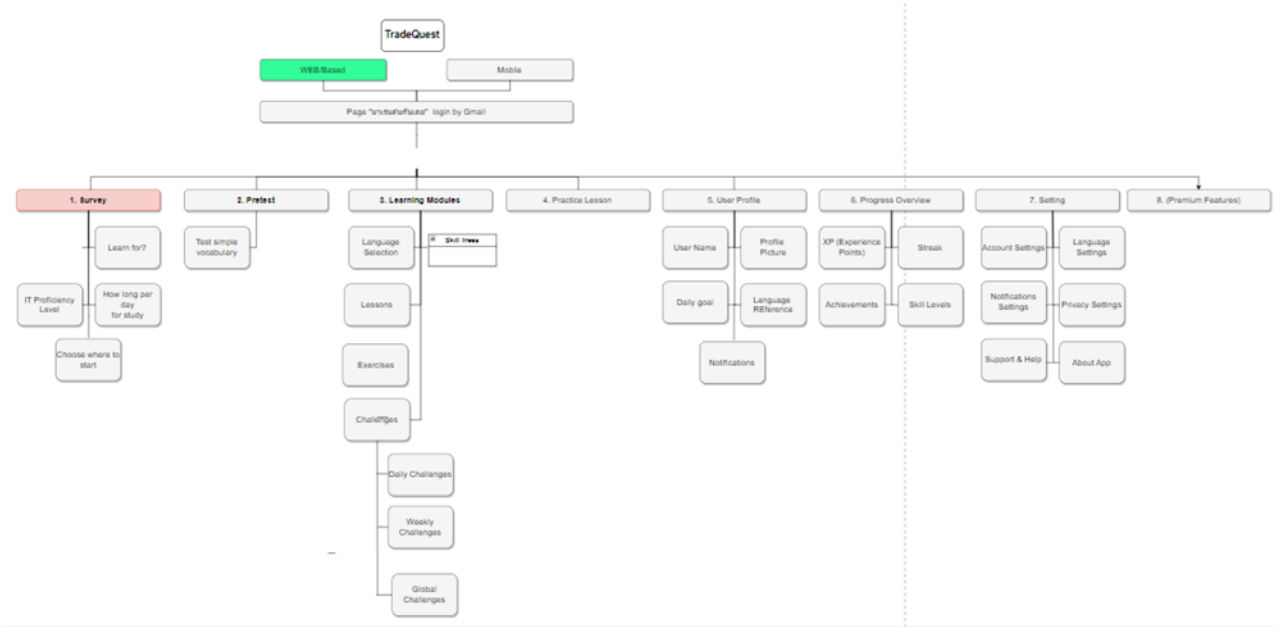

Figure 2: "TradeQuest" Hierarchical structure

Based on the hierarchical structure, here are some recommendations for designing a new learning application "TradeQuest", drawing inspiration from the features found in Duolingo.

1. Language Learning Goals: Implement a feature where users can specify their language learning goals and reasons for studying a particular language when they set up their profiles. Allow users to choose from a list of options to personalize their learning experience.
2. Adaptive Learning: Assess users' proficiency levels and adapt the difficulty of lessons based on their performance within the app. Tailor lesson content to match individual learning abilities and progress.
3. Daily Learning Goals: Introduce a feature that enables users to set daily goals for language learning. Users should be able to specify the amount of time they wish to dedicate to learning each day. Provide recommendations for daily goals based on users' preferences and availability.
4. Email Reminders: Implement email reminders to encourage users to stay engaged with the app and maintain a consistent learning habit. Allow users to customize notification and reminder settings according to their preferences.
5. Streak Tracking: Incorporate a streak feature to motivate users to maintain a daily learning habit. Track users' consecutive days of engagement with the app and reward them for consistent participation.

By integrating these features, the new language learning application can provide users with a personalized and engaging learning experience while encouraging them to stay committed to their language learning goals. From using benchmarking techniques, benchmarking plays a pivotal role in assessing the performance and effectiveness of various strategies, processes, or initiatives within an organization or industry. By comparing menu, practices, or flow of game against recognized standards, benchmarking provides valuable insights into areas of improvement, best practices, and opportunities for optimization of process of gamified prototype. In the context of this study, benchmarking serves as a crucial tool for evaluating the effectiveness of the implemented interventions or approaches This allows us to identify areas of strength and weakness, pinpoint areas for improvement, and refine our strategies to align with industry norms or exceed performance benchmarks. In addition, benchmarking enables us to set realistic and achievable goals by providing a reference point for functions expectations. Finally, benchmarking serves as a guiding framework for this study, enabling us to evaluate our interventions effectively, set meaningful goals, and continuously improve our practices. By incorporating benchmarking into our analysis, we can ensure that our efforts are informed by industry standards and best practices, ultimately leading to more impactful outcomes and sustainable solutions."

Table 1: Reason for not interested in using APPLICATION.

In case you are not interested in using APPLICATION	Bored/not in line with my own interests	Don't understand the content/instructions of APPLICATION	Other subjects have a lot of work	There is no one to give advice on using APPLICATION
Very Unlikely	21	21	21	21
Unlikely	9	9	9	9
Neutral	17	17	17	17
Likely	19	19	19	19
Very Likely	25	25	25	25

Table 1 presents the outcomes of an interview conducted using a questionnaire, detailing the potential reasons for students' lack of interest in utilizing the application, notwithstanding its well-designed structure. The data illustrates that 25 respondents cited reasons such as boredom, disinterest in the content, or the absence of guidance as factors leading to their decision not to use the application. This data explores the reasons behind user disinterest in a mobile application. As the result, mobile application designer should consider how to make its content more engaging and appealing to users. This could involve incorporating interactive features, gamification elements, or personalized recommendations to keep users interested and motivated. Additionally, incorporating tutorials, help sections, or providing access to customer support can assist users in overcoming hurdles and instill confidence in utilizing the application.

Conclusions

When developing an application for studying information technology, application developers should consider the following key aspects:

1. Understanding the user's motivation or purpose for learning is paramount. By soliciting input from users regarding their specific learning goals or motivations, the application can tailor the learning experience accordingly. This personalized approach ensures that the content and exercises provided are relevant and engaging, ultimately helping users to remain motivated and focused on achieving their learning objectives. (Tawil, 2018)
2. The inclusion of a feature that prompts users to set a daily learning goal is highly beneficial. By enabling users to define the amount of time they intend to dedicate to language learning each day, the application facilitates the establishment of a consistent study routine. Setting daily goals encourages users to integrate learning into their daily schedules, fostering a sense of commitment and facilitating more effective progress over time. Furthermore, achieving daily goals instills a sense of accomplishment and serves as motivation to sustain the learning journey. (Hung, 2015)
3. Incorporating lessons and exercises that are applicable to daily life situations is a significant strength of the application. This approach ensures that users not only acquire knowledge of information technology but also develop practical skills that can be utilized in real-world scenarios. By focusing on everyday contexts such as daily routines, travel, social interactions, work, education, and shopping, the application enhances the relevance of learning materials. This alignment with daily life experiences enriches the user experience, rendering the learning journey more immersive and directly applicable to users' practical needs. (Anderson et al., 2020)

In summary, the creation of a learning game akin to Duolingo is motivated by several factors, each playing a role in shaping its distinctive approach and achieving success:

1. Engagement and Motivation: games are inherently engaging, and the use of gamification in learning makes the process more enjoyable.
2. Accessibility and Flexibility: the app is easily accessible on mobile devices, enabling users to practice language skills anytime and anywhere, providing a flexible and convenient learning experience.
3. Incorporation of Technology: The use of technology in language learning is more effective and efficient than traditional methods.
4. Community and Social Interaction: Application should incorporate community features, allowing users to connect with others, compete, and collaborate. Social elements, such as leaderboards and forums, enhance the sense of community and encourage peer-to-peer interaction, fostering a supportive learning environment.
5. Free and Accessible Education: Application should offer a free model, making language education accessible to a wide audience. The freemium model, which includes additional premium features, allows users to start learning without financial barriers.

In summary, the development of application as a learning game is motivated by a combination of pedagogical effectiveness, user engagement, accessibility, and the desire to revolutionize education through the integration of technology and gamification. (Pesare et al., 2016)

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ID 156
Personal Factors of the Elderly that Affect the Potential of the Elderly as Entrepreneurs in the Next Normal: A Case Study of 4 Municipalities in Hatyai District

Thienchai Phankhong[1], Farida Sasha [2]*, Jutamas Prommontree[3], Jitlada Phanphanasakul[4] and Thanakorn Preukrattanapa[5]

[1] Hatyai Business School, Hatyai University; Thienchai@hu.ac.th
[2] Hatyai Business School, Hatyai University; Farida@hu.ac.th
[3] Hatyai Business School, Hatyai University; Jutamas@hu.ac.th
[4] Hatyai Business School, Hatyai University; Jitlada@hu.ac.th
[5] Hatyai Business School, Hatyai University; Thanakorn@hu.ac.th

* Correspondence: farida@hu.ac.th

Abstract

The research aims to study personal factor of the elderly that affect the potential of the elderly as entrepreneur in the next normal. This research is conducted using a mixed-method approach, employing structured questionnaires and recording the proceedings of focus group meetings as tools for data collection. The study involves a sample group of 300 elderly in Hatyai district by using the method of proportional allocation for sample grouping, employing accidental sampling for data collection, and utilizing statistical analysis techniques such as frequency, percentage, mean, and standard deviation.

A survey of personal factors was conducted related to entrepreneurial potential in 3 dimensions. The results showed that Entrepreneurial potential have an overall at moderate score of 3.75, the highest score found in the power potential dimension at 3.76. For the cross-tabulation analysis result presented the personal data affect to the potential of elderly entrepreneurs in different factors. In this regard, the four municipalities should support and promote the continuous and sustainable development of such potential. Moreover, this can be used as a model for developing entrepreneurial potential for senior citizens in other municipalities.

Keywords: Personal potential factors, Entrepreneurship, Business management, Elderly

Introduction

In Songkhla province, it was found that there is a certain number of elderly individuals who still need to work to earn income to support themselves and their families. Another portion relies on government pensions for the elderly. Currently, elderly individuals who are part of the workforce, mostly in the informal sector, receive government pensions ranging from 600 to 1,000 baht per month. Especially during economic crises and the COVID-19 situation, the cost of living tends to increase continuously. The pension rates for the elderly are insufficient to sustain their livelihoods (Warat Siricha, 2020). Consequently, some elderly individuals are compelled to work to support themselves and their families. The strategies and missions which related to the elderly in Songkhla Province consist of various units, mostly government agencies such as Elderly Care Centers, Quality of Life Development and Promotion Centers for the Elderly, Songkhla Municipality, Songkhla Provincial Administration Organization, and Songkhla Provincial Elderly Health Network Association. As part of the provincial strategic plan, strategies and projects/activities related to the elderly have been identified, such as the third development strategy, quality of life development plan, social welfare plan, quality of life development projects for children, women, youth, the elderly, persons with disabilities, and the disadvantaged, capacity-building activities and quality of life development for the elderly, elderly health promotion projects in Songkhla Province, and quality of life development projects for the elderly by Songkhla Municipality, etc.

Although every relevant unit has plans related to the elderly and seniors, upon deeper analysis, it is found that the majority of projects and activities are primarily focused on health and mental well-being. In terms of economic dimensions and income, it is noted that there are fewer activities organized compared to other dimensions. For instance, there are few activities aimed at training in flower arrangement or handicrafts, but there is a lack of promotion in marketing or commercial expansion opportunities for capable elderly or seniors to pursue supplementary occupations or private businesses.

As Hatyai serves as an economic hub in the southern region and a significant border tourism city of the country, it is closely linked to the occupational dimension of people's lives. The majority of the population engages in trading and commerce. Regarding the elderly or seniors, there are various avenues for additional income or primary income, such as labor services, property rental, stock trading, and entrepreneurship. Preliminary data suggests that some elderly individuals in certain areas are already involved in business, while others interest but lack of knowledge or experience in entrepreneurship. Additionally, due to the COVID-19 situation, changes in consumer behavior and economic environments have shifted towards the future lifestyle era. Researchers identify a gap in providing preparation and skills development for the elderly, focusing on entrepreneurship skills and adapting businesses for the future lifestyle era. This aims to empower the elderly to efficiently apply business management knowledge and entrepreneurial skills, ensuring successful and fulfilling business endeavors as they age.

Hatyai district, Songkhla province, consists of 13 sub-districts and 93 villages, with a total population of 78,425 people. The number of elderly individuals in the district is 8,678 (Thai National Statistical Office, 2021) which accounts for 35% of the elderly population in Hatyai district. Their income sources vary, with 20% earning from government assistance, and 42% from family members (Warat Siricha, 2020). Each sub-district in Hatyai district has different strategies for elderly care. For example, Hatyai Municipality has implemented projects to promote the quality of life for the elderly, such as Elderly Learning Centers, while Khuan Lang Municipality has established clubs for the elderly, provided elderly care funds, organized activities like watering the elderly, and conducted quality of life improvement activities. However, each sub-district still lacks promotion of economic aspects and income generation for the elderly. Additionally, there is another group of elderly individuals who are interested in becoming entrepreneurs or engaging in small-scale businesses but lack knowledge on how to start or succeed in business ventures, as well as how to maintain a good quality of life both physically and mentally.

Upon reviewing the literature related to entrepreneurship promotion, it was found that most studies focus on studying entrepreneurial potential for working-age individuals. However, there is a lack of research on elderly and senior populations. This gap has led to the initiation of this research project. Researchers aim to study the personal factors related to the capabilities of elderly entrepreneurs that affect the effectiveness of business management in the next normal. The elderly population will be categorized into three groups: 1) those with a desire to start a business (but haven't yet), 2) those in the process of starting a business, and 3) those who have been running a business for some time. The goal is to prepare the elderly in Hatyai district, Songkhla province, for entrepreneurship, providing them with guidelines to reduce business risks through self-generated income. This will help the elderly benefit from turning crises into opportunities, thereby contributing to the enhancement of the elderly entrepreneurship support system in Thailand. Consequently, this research will provide knowledge on entrepreneurship and business strategies drawn from successful elderly entrepreneurs, offering recommendations for self-development and readiness preparation for future entrepreneurial endeavors among the elderly. Additionally, it will serve as a valuable resource for governmental agencies and interested parties to develop suitable systems, mechanisms, measures, and guidelines for promoting entrepreneurship among the elderly.

Methodology

Population and Sample Groups Population Group:

For this research, the researchers have defined the main population group as elderly individuals aged 55 and above in Hatyai district, Songkhla province. This includes individuals from 4 sub-districts: Hatyai, Khuan Lang, Ko Hong, and Khlong Hae. The total number of elderly individuals in the year 2020 was 44,936 (Ministry of Public Health, 2020).

Sample groups

The researchers divided the sample into 3 groups as follows: 1) Elderly individuals who have a desire to start a business (not yet engaged in business), 2) Elderly individuals who are in the process of starting a business (within 1 year), and 3) Elderly individuals who have been running a business for some time (more than 1 year). Quantitative research analyzed the data using frequency and Cross-tab Statistically, the sample size should range from 15 to 20 times the number of observed variables (Hair, Anderson, Tatham & Black, 2006, p. 175; Suvimol Tirakanan, 2010, p. 22).

Therefore, an appropriate sample size for analyzing multiple variables should be between 13 x 15 = 195 and 13 x 20 = 260. In this research, the researchers selected a sample size of 300 elderly individuals to cover the research content.

Table 1: Shows the number of elderly populations in each sub-district of Hatyai district, Songkhla province, in the year 2021. (n=300)

Sub-district	55-59 years (people)	Aged 60 and above(people)	Total (people)	Ratio %
Khlong Hae	2,075	4,160	6,235	13.88
Hatyai	5,333	15,226	20,559	45.75
Khuan Lang	2,649	5,497	8,146	18.13
Kohong	3,007	6,989	9,996	22.24
Total	**13,064**	**31,872**	**44,936**	**100**

Sampling Method

The sample groups were chosen using the Proportional Allocation method based on the population size in each sub-district (Sirichai Pongwichai, 2009). The formula used to calculate the proportion is as follows:

$P = n / N$

Where *n* is the sample size used in the research, which is 300 sample groups.

N is the population size used in the research, represented by the total population of all 4 sub-districts, which is 44,936 people (as shown in Table 1).

Substituting values into the formula, $P = 300 / 44,936 = 0.0068$

From substituting values into the formula, we obtain the proportion used to calculate the number of samples in each administrative district. Then, we allocate this proportion (P = 0.0068) to distribute sample groups in each administrative district according to proportional allocation. We use accidental sampling to ensure that each sample group has an equal chance of being selected. As a result, we obtain an appropriate number of samples for data collection from each sub-district as follows: Hatyai sub-district with 20,559 people (20,559 x 0.0068 = 135 people), Klong Hae with 6,235 people (42 people), Khuan Lang with 8,146 people (55 people), and Khohong with 9,996 people (68 people). The total number of samples suitable for data collection for the research is 300 people.

Research Tools and Methodology

Geographical Data: The researchers conducted a study by researching and gathering data from publicly available documents of both governmental and private organizations. This includes general statistics on the elderly population, standards of various agencies in the relevant area concerning the elderly, as well as relevant research reports.

Preliminary Data: The tool used for data collection includes a Structural Questionnaire comprising personal factors such as age, gender, marital status, education level, experience/profession, and the entrepreneurial potential based on McBay's concept, including the potential for success, planning ability, and authority.

Meeting Minutes Template for Focus Group and Questionnaire

Focus Group Meeting Minutes: This template is used to record the proceedings of a focus group meeting involving elderly individuals, family members, academics, and government officials related to the elderly population in Hat Yai District, Songkhla Province. The purpose is to address Objective 2, analyzing the behavior and entrepreneurial aspirations of the elderly, and to identify innovative processes to enhance their entrepreneurial capabilities based on McBay's three dimensions: Success Potential, Planning Potential, and Power Potential.

Questionnaire: This questionnaire aims to assess entrepreneurial potential following McBay's framework. It consists of three sections: 1) General information of entrepreneurs, 2) Dimensions of Success Potential, Planning Potential, and Power Potential, and 3) Business management outcomes such as profitability, happiness, and overall well-being.

Data Analysis Methods and Statistics Used in Data Analysis:

Descriptive statistics include frequency, percentage, mean and standard deviation to describe demographic variables such as gender, age, income, occupation, education level, and entrepreneurial potential of the elderly population. The research team established scoring criteria for studying these variables. The scoring criteria were assigned based on weighted proportions and the interpretation of score levels according to the Likert scale. The

questionnaire utilized a 5-point Likert scale for self-evaluation. These analyses were conducted using standardized statistical software.

For the Qualitative method, This research use Meeting Minutes Template for Focus Group. The template is used to record the proceedings of a focus group meeting.

The statistics used to analyze the quality of a questionnaire to ensure validity include construct validity and content validity. Three experts found that all the questions had an Item-Objective Congruence Index (IOC) higher than .60, meeting the criterion of IOC > .60 (Kalya Wanichabuncha, 2014). Subsequently, the questionnaire was tested with 30 elderly who closely resembled the sample group in a try out to determine reliability. The reliability was assessed using Cronbach's Alpha coefficient, which was found to be $\alpha = 0.87$ (Kalya Wanichabuncha, 2014). Therefore, the complete questionnaire was printed for use in collecting observational data in the next step.

Results and Discussion

Results

This is survey research with a total sample size of 300 individuals. The analysis of the data is presented as follows: Part 1: Analysis of Personal Data - Calculating the frequency percentage, Part 2: Commentary on Entrepreneurial Potential and Part 3: Analysis of Personal Data and Entrepreneurial Potential in 9 dimensions - Utilizing cross-tabulation to calculate frequency distribution.

Part 1: Personal Data

The majority of entrepreneurs are females, totaling 217 individuals, accounting for 72.30%, while males number 83 individuals, representing 27.70%. Regarding age, those aged between 55-65 years old are the highest. In terms of marital status, the majority are married, with 179 individuals, representing 59.60%. Regarding education level, individuals with an education level lower than high school comprise 116 individuals, making up 38.70%. For income, individuals with incomes above 5,000 baht amount to 113 individuals, comprising 37.70%. Furthermore, the majority of entrepreneurs are interested in starting a business but have not yet begun, totaling 180 individuals, representing 60.00%. Next are those in the early stages of starting a business (within 1 year), with 60 individuals, accounting for 20.00%, followed by those who have been in business for over 1 year, totaling 60 individuals, constituting 20.00%. Additionally, the majority of entrepreneurs are interested in various types of work or activities to generate income for the elderly.

Table 2: The average of entrepreneurial potential

Entrepreneurial Potential	$\bar{x}$	S.D.	Level of Potential
1. Potential for Success	**3.75**	**1.010**	**Agree**
1.1 Opportunity Seeking	3.69	1.024	Agree
1.2 Determination	3.83	0.993	Agree
1.3 Commitment to Work, Accountability, Responsibility	3.90	0.995	Agree
1.4 Pursuit of Quality and Efficiency	3.77	0.997	Agree
1.5 Risk-taking	3.54	1.037	Agree
2. Planning Potential	**3.74**	**0.95**	**Agree**
2.1 Goal Setting	3.75	0.964	Agree
2.2 Systematic Planning, Monitoring, and Evaluation	3.72	0.945	Agree
3. Power Potential	**3.76**	**0.99**	**Agree**
3.1 Influence, Persuasion, and Networking	3.69	0.957	Agree
3.2 Self-Confidence	3.86	1.019	Agree
Total	**3.75**	**0.98**	**Agree**

Part 2: Commentary on Entrepreneurial Potential

Entrepreneurial potential was found to have an overall average score of 3.75, indicating a high level. Each dimension also exhibited a high level, with the highest average score found in the Power Potential dimension at 3.76. Success Potential followed closely behind with an average score of 3.75, while Planning Potential had the lowest average score at 3.74. When considering each dimension individually: In the Success Potential dimension, the dimension of Commitment to Work, Accountability, and Responsibility had the highest average score at 3.90, followed

by Determination with an average score of 3.83. Pursuit of Quality and Efficiency had an average score of 3.77, Opportunity Seeking had an average score of 3.69, and Risk-taking had the lowest average score at 3.54. In the Planning Potential dimension, Goal Setting had the highest average score at 3.75, while Systematic Planning, Monitoring, and Evaluation had the lowest average score at 3.72. In the Power Potential dimension, Self-Confidence had the highest average score at 3.86, whereas Influence, Persuasion, and Networking had the lowest average score at 3.69, respectively.

Part 3: Personal Data and Entrepreneurial Potential

From the table 3 It was found that the average opinion level of entrepreneurs regarding Entrepreneurial Potential in three dimensions is assessed based on personal data:

Gender: Males have the highest opinion level in Power Potential ($\bar{x}$ =3.63), while females have the highest opinion level in Planning Potential and Power Potential equally ($\bar{x}$ =3.65).

Age: Those aged 55-65 have the highest opinion level in Potential for Success (x=3.75), while those aged 66-76 have the highest opinion level in Planning Potential ($\bar{x}$ =3.55), and those aged 77-87 have the highest opinion level in Power Potential ($\bar{x}$ =3.29). Those aged 87 and above have equal opinion levels across all dimensions.

Marital Status: Singles have the highest opinion level in Planning Potential ($\bar{x}$ =3.80), married individuals have the highest opinion level in Potential for Success ($\bar{x}$ =3.63), widowed/divorced individuals have the highest opinion level in Planning Potential and Power Potential equally ($\bar{x}$ =3.64), and separated individuals have the highest opinion level in Planning Potential and Power Potential equally ($\bar{x}$ =3.27).

Education Level: Those with no formal education have the highest opinion level in Power Potential ($\bar{x}$ =3.93), while those with less than a high school education have the highest opinion level in Power Potential ($\bar{x}$ =3.57), high school graduates have the highest opinion level in Potential for Success ($\bar{x}$ =3.60), diploma/high vocational certificate holders have the highest opinion level in Potential for Success ($\bar{x}$ =3.72), bachelor's degree holders have the highest opinion level in Potential for Success and Power Potential equally ($\bar{x}$ =3.79), and those with higher than a bachelor's degree have the highest opinion level in Power Potential ($\bar{x}$ =3.83).

Income: Those with incomes less than 500 baht have the highest opinion level in Potential for Success and Planning Potential equally ($\bar{x}$ =3.60), those with incomes between 501-1,000 baht have the highest opinion level in Planning Potential ($\bar{x}$ =3.21), those with incomes between 1,001-3,000 baht have the highest opinion level in Power Potential ($\bar{x}$ =3.52), those with incomes between 3,001-4,000 baht have the highest opinion level in Planning Potential ($\bar{x}$ =3.67), those with incomes between 4,001-5,000 baht have the highest opinion level in Power Potential ($\bar{x}$ =3.82), and those with incomes above 5,000 baht have the highest opinion level in Planning Potential and Power Potential equally ($\bar{x}$ =3.85).

Current Income: Those with their own income have the highest opinion level in Planning Potential ($\bar{x}$ =3.83), those relying on family or relatives have the highest opinion level in Power Potential ($\bar{x}$ =3.48), those relying on elderly funds have the highest opinion level in Power Potential ($\bar{x}$ =3.49), civil servant pensioners, state security pensioners, and social security pensioners have the highest opinion level in Potential for Success and Planning Potential equally ($\bar{x}$ =3.58).

Previous Occupation before Entrepreneurship: Government employees/state enterprise workers have the highest opinion level in Potential for Success and Planning Potential equally ($\bar{x}$ =3.69), private business owners have the highest opinion level in Power Potential ($\bar{x}$ =3.69), private company employees have the highest opinion level in Potential for Success and Power Potential equally ($\bar{x}$ =3.46), homemakers have the highest opinion level in Planning Potential ($\bar{x}$ =3.57), those in agriculture have the highest opinion level in Power Potential ($\bar{x}$ =3.67), and others have the highest opinion level in Power Potential ($\bar{x}$ =3.68).

Religion: Buddhists have the highest opinion level in Power Potential ($\bar{x}$ =3.67), Muslims have the highest opinion level in Power Potential ($\bar{x}$ =3.63), and Christians have the highest opinion level in Planning Potential ($\bar{x}$ =4.00).

Business Status: Those interested but not yet started have the highest opinion level in Power Potential ($\bar{x}$ =3.67), those in the early stages (within 1 year) have the highest opinion level in Power Potential ($\bar{x}$ =3.62), and those in business for over 1 year have the highest opinion level in Planning Potential ($\bar{x}$ =3.68).

Type of Work or Interest: Those in agriculture have the highest opinion level in Power Potential ($\bar{x}$ =3.58), those in fishing have the highest opinion level in Potential for Success and Planning Potential equally ($\bar{x}$ =3.60), service staff have the highest opinion level in Potential for Success ($\bar{x}$ =3.54), product vendors have the highest opinion level in Power Potential ($\bar{x}$ =3.68), craftsmen have the highest opinion level in Potential for Success and Planning Potential equally ($\bar{x}$ =3.54), and others have the highest opinion level in Planning Potential ($\bar{x}$ =4.05).

Table 3: The Level of Opinions (Mean) Personal Data and Entrepreneurial Potential

Personal Data	Entrepreneurial Potential		
	Potential for Success	Planning Potential	Power Potential
Gender			
Male	3.58	3.58	3.63
Female	3.30	3.65	3.65
Age			
55-65	3.75	3.73	3.74
66-76	3.43	3.55	3.48
77-87	3.17	317	3.29
87 and above	3.00	3.00	3.00
Marital Status			
Single	3.67	3.80	3.69
Married	3.63	3.62	3.62
Widowed/Divorce	3.58	3.64	3.64
Separated	2.50	3.27	3.27
Education Level			
No formal education	3.73	3.57	3.93
Less than high school	3.50	3.53	3.57
High school or equivalent	3.60	3.58	3.53
High school or equivalent	3.72	3.69	3.62
Bachelor's degree	3.79	3.75	3.79
Higher than bachelor's degree	3.67	2.79	3.83
Income			
Less than 500	3.60	3.60	3.55
501-1,000	3.16	3.21	3.16
1,001-3,000	3.44	3.45	3.52
3,001-4,000	3.63	3.67	3.58
4,001-5,000	3.68	3.71	3.82
Above 5,000	3.82	3.85	3.85
Current Income Source			
Own	3.79	3.83	3.82
Family or relatives	3.40	3.30	3.48
elderly fund	3.45	3.49	3.47
Civil servant pension	3.58	3.51	3.50
State enterprise employee pension	3.80	3.29	3.57
Social security pension	3.71	3.60	3.47
Previous Occupation before Entrepreneurship			
Government employee/state enterprise	3.69	3.53	3.62
Private business owner	3.64	3.65	3.69
Private company employee	3.46	3.37	3.46
Homemaker	3.53	3.57	3.56
Agriculture	3.59	3.62	3.67
Others	365	3.64	3.68
Religion			
Buddhist	3.62	3.66	3.67
Muslim	3.55	3.53	3.63
Christian	3.57	4.00	3.78
Business Status			
Interested but not started	3.63	3.65	3.67
In the early stages (within 1 year)	3.60	3.50	3.62
Been in business for over 1 year	3.52	3.68	3.58
Type of Work or Interest			
Agriculture	3.56	3.57	3.58
Fishing	3.60	3.60	3.40
Service staff	3.54	3.49	3.45
Product vendor	3.55	3.63	3.68
Craftsman	3.54	3.54	3.38
Others	3.92	4.05	3.97

Discussion

Entrepreneurial Potential of Elderly Personal Data: The analysis indicates a high potential for elderly individuals, particularly women, to become entrepreneurs. This potential is notably prominent within the age bracket of 55-65 years.

Characteristics of Elderly Entrepreneurs: Elderly entrepreneurs tend to have higher levels of education, often beyond a bachelor's degree, and earn an average income ranging between 4,001-5,000 baht. Their primary source of income is self-generated, and many have a background in agriculture and identify with the Buddhist religion.

Business Start-up: Most elderly entrepreneurs previously worked in agriculture and have started their businesses within the last year, although a significant portion has been in business for over a year, indicating a diverse range of start-up times.

Interest in Diversification: Despite their primary involvement in agriculture, elderly entrepreneurs express interest in other fields beyond farming, suggesting a willingness to explore diverse business opportunities.

These findings are related to the report published by the Ewing Marion Kauffman Foundation. Since 2020, the percentage of businesses founded by adults in that age range has increased, and the trend for older individuals to create and run a thriving business is accelerating. Moreover, there are perceived business opportunities in rural areas for experienced 50+ professionals. There is also a high demand for training targeted at rural tourism entrepreneurs. The interviews of experienced 50+ entrepreneurs (8) who work in cooperation with the rural community show that 50+ entrepreneurs find their work meaningful and that they want to continue working "as long as their health allows" (Römer-Paakkanen, T., & Suonpää, M., 2023).

Conclusions and Suggestion

In summary, personal factor of the elderly affect the potential of the elderly as entrepreneur in the next normal because elderly individuals demonstrate substantial potential and interest in entrepreneurship. They exhibit diversity in their backgrounds and business ventures, underscoring the importance of studying and supporting elderly entrepreneurship in both current and future community and societal contexts. Therefore, all four municipalities in Hatyai should plan and support policies to develop the potential of elderly entrepreneurs, aiming to create a sustainable economic system. Additionally, this contributes to improving the quality of life for the elderly, allowing them to experience greater happiness, too. For the future research, the study should include soft skills factors, being the independent variables of this research, should be incorporated into the curriculum for entrepreneur development. Additionally, there should be measurements of the effectiveness following the development, assessing outcomes such as income generation and quality of life, both before and after enhancing entrepreneurial potential.

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Enhancing Organic Agriculture through Digital Platforms: A Case Study of Ban Jod Organic Learning Center at Kalasin Province

Suksun Promboonruang[1], Thummarat Boonrod[1]*, Bancha Luaphol[1] and Sayun Phansoomboon[2]

[1] Business Computer Department, Faculty of Administrative Science, Kalasin University, Nuea, Thailand; suksun.pr@ksu.ac.th;thummarat.bo@ksu.ac.th;bancha.lu@ksu.ac.th;
[2] Plant Production Technology Department, Faculty of Agricultural Technology, Kalasin University, Nuea, Thailand; sayun.ph@ksu.ac.th

* Correspondence: thummarat.bo@ksu.ac.th

Abstract

Organic agriculture offers a sustainable path for Thailand's agricultural development, providing economic and environmental benefits. However, organic farmers in rural areas face significant barriers to market access, limiting their economic viability. This study investigates how digital platforms can enhance market linkages for organic producers. Employing the Ban Jod Organic Learning Centre in Kalasin as a case study, we explore the design, implementation, and impacts of a tailored digital marketing platform. Through mixed-methods research involving stakeholder engagement, value chain analysis, and platform development, we demonstrate digital innovations' transformative potential. Findings reveal the platform facilitated over 60 direct farmer-consumer connections, optimized supply chains, reduced transaction costs by 15%, and fostered transparency. Consequently, organic farmers experienced a 15% increase in income, improved market access, and greater economic resilience, aligning with sustainable development principles. Contributing to a scalable framework leveraging technology to bolster sustainability, this study highlights the platform's role in catalyzing business model innovation, stakeholder value creation, and the transition towards sustainable ecosystems. Offering insights for economic empowerment and environmental stewardship through digital platforms, the 20% boost in farmers' sustainable product sales aligns with national objectives for agricultural development.

Keywords: Digital platforms, Organic agriculture, Ban Jod Organic learning center

Introduction

In the contemporary pursuit of sustainable development, the agricultural sector stands at a critical crossroads, tasked with balancing food security and environmental conservation. Thailand, where agriculture plays a pivotal role in the national economy and sustains a significant proportion of the populace, keenly feels these challenges. Against this backdrop, the Thai government's visionary 20-year National Strategy (2018–2037) identifies technology as a key enabler for achieving sustainable growth, with a special emphasis on bolstering the agriculture sector's resilience and efficiency. Central to this discussion is organic farming, lauded for its environmental benefits and potential to offer economic advantages. However, the sector faces notable hurdles, particularly for rural organic farmers in regions such as Kalasin Province, who struggle with market access due to logistical challenges, limited visibility, and a lack of direct consumer connections. This study, "Enhancing Organic Agriculture through Digital Platforms: A Case Study of Ban Jod Organic Learning Centre at Kalasin Province," investigates digital technology's role as a transformative tool for surmounting these barriers, aiming to unlock new economic opportunities for organic farmers and contribute significantly to the sustainable development discourse.

Acknowledging the imperative for research that materially contributes to the discourse on sustainable economic development, our analysis resonates with the thematic core of the conference, illustrating how digital platforms can serve as levers for innovation within agricultural business models. Our investigation delves into the economic

ramifications of these technological interventions, focusing on their potential to augment farmer incomes, stimulate employment, and expand the spectrum of trade and investment opportunities in consonance with the principles of the sufficiency economy philosophy. This study meticulously addresses a notable gap in the application of digital innovations to bolster the viability and sustainability of organic farming practices in rural Thailand. By focusing on the Ban Jod Organic Learning Centre as a case study, we provide critical insights into the conceptualization and execution of a digital marketing platform tailored to enhance market access for organic producers and act as a harbinger of sustainable business practices within the sector. Notably, this platform establishes over 60 direct linkages between producers and consumers, thereby enhancing market access and contributing significantly to the economic fortitude of rural communities. The advent of this digital platform signifies a pivotal advancement in reimagining agricultural business models, with a pronounced emphasis on stakeholder engagement and the creation of value across the supply chain. We elucidate the platform's role in optimising supply chains, reducing transaction costs, and bolstering transparency and trust—fundamental components of sustainable business ecosystems. This case study not only bridges a critical gap in research by presenting a scalable and replicable framework for digital transformation in agriculture but also aligns seamlessly with national strategic objectives aimed at fostering sustainable economic development. Furthermore, our inquiry is underpinned by a robust theoretical framework, drawing from the interstices of digital innovation and sustainability to evaluate the platform's impact on the organic agriculture sector. Preliminary findings point to significant improvements in economic outcomes for farmers, underscoring the platform's potential as a paradigm for sustainable economic practices in analogous settings worldwide. This rearticulated introduction highlights the alignment of our study with the conference's dedication to the reinvention of the sustainable economy through the lens of research and innovation. It accentuates the economic and innovative dimensions of the digital platform, intricately linking our investigation with broader discourses on sustainability, business model innovation, and stakeholder value creation within the framework of Thailand's national development objectives.

Research Background and Motivation

Expanding upon the initial background provided, the significance of sustainable development in agriculture necessitates a nuanced understanding of both the challenges and opportunities presented by digital technologies. The global agricultural landscape is at a pivotal moment, tasked with addressing the dual imperatives of ensuring food security and advancing environmental sustainability. In Thailand, where agriculture is both the backbone of the economy and the means of subsistence for a sizable portion of the populace, this dilemma is particularly acute. Thailand's ambitious 20-year National Strategy (2018–2037) highlights a strategic commitment to leveraging technological innovation as a catalyst for sustainable economic growth, with a specific focus on enhancing the agriculture sector's resilience and productivity. Within this context, organic farming is identified as a critical avenue for development, celebrated for its potential to lessen environmental impacts while offering health and economic benefits. However, organic farmers in Thailand, particularly those in rural locales such as Kalasin Province, face significant market access barriers. These challenges range from logistical hurdles and limited market visibility to the lack of platforms facilitating direct connections between producers and consumers, ultimately impacting the economic viability of organic farming and its contribution to sustainable development objectives. Recent research underscores the transformative potential of digital technologies in surmounting these barriers. Studies such as those by [Javaid, M., Haleem, A., Singh, R. P., & Suman, R., 2022] have documented successful cases where digital platforms have enabled direct farmer-consumer interactions, improved market visibility, and enhanced supply chain efficiencies in various contexts. However, the application of such digital innovations, specifically within Thailand's organic agriculture sector, remains underexplored. Our research, therefore, seeks to address this gap by investigating the role digital platforms can play in transforming Thailand's organic agriculture landscape. "Enhancing Organic Agriculture through Digital Platforms: A Case Study of Ban Jod Organic Learning Centre at Kalasin Province" hypothesises that digital innovation can serve as a vital lever for overcoming traditional market barriers, thereby enabling organic farmers to realise improved economic outcomes. This study's motivation is anchored in two primary objectives. Firstly, it aims to contribute to the existing body of literature by focusing on the application of digital innovations to enhance the sustainability and economic viability of organic farming in rural Thailand—a topic that, despite the recognised potential of technology to effect change, has seen limited research focus. Secondly, the research is driven by the imperative to provide empirical evidence on the economic impacts of digital platforms on organic farmers, contributing valuable insights to the ongoing discourse on sustainable economic development within the agricultural sector. Employing the Ban Jod Organic Learning Centre as a case study offers comprehensive insights into the design, implementation, and impacts of a digital marketing platform tailored to the specific needs of organic farmers.

The selection of the Ban Jod Organic Learning Centre in Kalasin Province, Thailand, as a case study for this research is underpinned by its pivotal role in championing sustainable agricultural practices and fostering community resilience in the region. Established with a steadfast commitment to promoting organic farming principles, and economic empowerment among local farmers, the center stands as a beacon of innovation and sustainability in the agricultural landscape. By delving into the specific initiatives and impact of the Ban Jod Organic Learning Centre, this research seeks to elucidate the intricate linkages between the Ban Jod Organic Learning Centre's mission-driven approach and the overarching objective of harnessing digital platforms to enhance market linkages for organic producers. The center's proactive engagement with stakeholders, emphasis on knowledge dissemination, and track record of facilitating direct connections between farmers and consumers make it a compelling case study for exploring the transformative potential of digital technologies in advancing sustainable agriculture.

Moreover, situated in a region where agriculture plays a fundamental role in the socio-economic fabric, the Ban Jod Organic Learning Centre serves as a microcosm of sustainable agricultural development, offering valuable insights into the challenges and opportunities inherent in promoting organic farming practices. By examining the center's strategies, successes, and obstacles encountered in its pursuit of sustainable agriculture, this research aims to bridge the gap between theory and practice, shedding light on how digital platforms can serve as catalysts for enhancing market access, optimizing supply chains, and fostering economic resilience for organic farmers. This case study not only serves to bridge a critical research gap by presenting a scalable and replicable model for digital transformation in agriculture but also aligns closely with Thailand's strategic objectives for sustainable economic development, positioning it as a significant contribution to both national and global efforts towards sustainable agriculture.

Methodology

1) Researching and collecting data to compile the value chain of agricultural products

This research adopts a comprehensive methodology to explore the integration of digital platforms in the value chain of organic agricultural products in Thailand, particularly focusing on the Ban Jod Organic Learning Centre in Kalasin Province. It commences with an extensive literature review to establish a foundational understanding of agricultural value chains, followed by value chain mapping to identify key stakeholders and processes. A mixed-methods approach for data collection, incorporating surveys and interviews with stakeholders, is utilised to gather both qualitative and quantitative insights. The analysis aims to pinpoint stages within the value chain where digital technologies can introduce efficiencies, enhanced transparency, or additional value. Stakeholder engagement is emphasised to ensure the findings' relevance and applicability, leading to a compilation of comprehensive recommendations for digital interventions. This methodology is grounded in established frameworks and aims to contribute actionable insights for the sustainable development of Thailand's organic agriculture sector through digital innovation.

2) Group meetings of public and private stakeholders

Group meetings with stakeholders are an important aspect of our research. This research included 30 stakeholders selected to participate in the meeting, who were members and representatives from the Inorganic Farmers Learning Center, Kalasin Province, which participates in supporting and promoting the sustainability of the center. We are merging diverse views to align the digital platform with sector-wide goals. Following Ansell and Gash (2008), we highlight collaborative governance's role in tackling societal issues. These meetings will encourage open dialogue and collective problem-solving for digital platform challenges in organic farming. A semi-structured approach will seek feedback on the platform's design and functionality from government bodies, cooperatives, tech providers, and farmers to ensure relevance and technological soundness. Reed et al. (2009) inspire our stakeholder engagement strategy, emphasizing inclusivity and transparency for meaningful outcomes. Such meetings are crucial for data collection, consensus-building, and fostering ownership, thereby boosting the platform's long-term success.

3) Entering the agricultural product information collection area and target group

The research phase focusing on agricultural product information collection and stakeholder engagement is pivotal, demanding a systematic and ethical approach. By incorporating observational studies, structured interviews, and participatory techniques, as suggested by Barrett, Carter, and Chavas (2017), we aim to deeply understand agricultural practices, products, and market dynamics. Engaging with organic farmers, cooperatives, and intermediaries, we prioritize building trust.

4) Designing a digital marketing platform for agricultural products

Creating a digital platform for agricultural product marketing requires a multidisciplinary approach that blends technological innovation with knowledge of the specific needs of the agriculture industry. According to Chaffey and Smith (2017), defining the platform's objectives clearly is the first step in the process. These objectives may include improving farmers' access to markets, boosting product awareness, and permitting direct consumer-producer transactions. The platform will be created with user-friendliness in mind, following Norman and Draper's user-centred design principles (1986) and Consistent with research, the Technology Acceptance Model (TAM) by Davis's research empirically tests and confirms that these two factors significantly influence an individual's intention to use and the actual usage of technology systems. This framework has since become a cornerstone in the field of information systems, providing a foundational model for numerous subsequent studies on technology adoption and implementation by Davis et al., (1989) and Davis, (1989). This will guarantee that farmers can use the site regardless of their level of technological literacy. Key features will be developed in partnership with stakeholders to ensure that they align with the real demands of the target market.

5) Developing a digital marketing platform for agricultural products

Developing a digital marketing platform for agricultural products involves a strategic blend of technological expertise and a deep understanding of the agricultural sector's unique requirements. As highlighted by Kumar and Reinartz (2016), the development process should commence with a thorough needs assessment to identify the specific challenges and opportunities faced by agricultural producers and consumers. This platform should integrate functionalities such as product listings, e-commerce capabilities, real-time communication tools, and analytics for market trends and consumer preferences, aligning with the user-centred design principles emphasised by Garrett (2010). To ensure the platform's effectiveness and adoption, incorporating feedback mechanisms for continuous improvement based on user experiences is crucial, as advocated by Sauro and Lewis (2016). The agile development methodology, characterised by iterative design, development, and testing cycles, will facilitate the platform's adaptive evolution, ensuring it remains responsive to the dynamic needs of the agricultural community and market conditions. This approach not only seeks to enhance market accessibility and efficiency for farmers but also aims to foster a sustainable agricultural ecosystem by leveraging digital innovations.

6) Testing and revising the digital marketing platform for agricultural products

The digital marketing platform for agricultural products must be tested and revised in order to make sure that end users' needs are met in terms of functionality, usability, and effectiveness. According to Rubin and Chisnell (2008), this procedure entails testing the usability of agricultural community members such as buyers, farmers, and agricultural business intermediaries using real users in order to find any usability problems or functional gaps. The platform's design and functionality are improved through repeated modifications based on user feedback and collected data.

Results and Discussion

Development Effect of Digital Agricultural Products Marketing Platform

1) Data collection from the research results and compilation of the agricultural products value chain

The research group held a group meeting on the value chain of agricultural products to study and collect relevant information on the production and sales process of agricultural products, from preparing the soil of crops to planning production, harvesting, processing, transportation and sales, so as to realise the value-added at all stages of the process, as shown in Fig 1.

Supply chain of organic products		
Upstream	In the middle of the water	Downstream
-Soil improvement -Soil improver (lime) -Compost (compost, fermentation broth) -Seed market, collecting seeds by yourself. -Sewers, village entrances, groundwater and irrigation water -Sola cells -Electric water pump, using oil	-Water supply -Production process -Fertilization -Harvest for 40-45 days. -Plant diseases -Eliminate insects.	-Community market -Online Marketing - Community Facebook Marketing -Local charity event online market -Green Fresh Market -Hot processed ready to eat food

Figure 1: Supply chain of organic products

2) Results of public and private sector stakeholder group meetings

Stakeholder group meetings for both the public and private sectors are important activities in development. By focusing on developing and promoting opportunities for understanding and exchanging information and suggestions in collaboration with the government, Effective planning work, as shown in Figure 2,

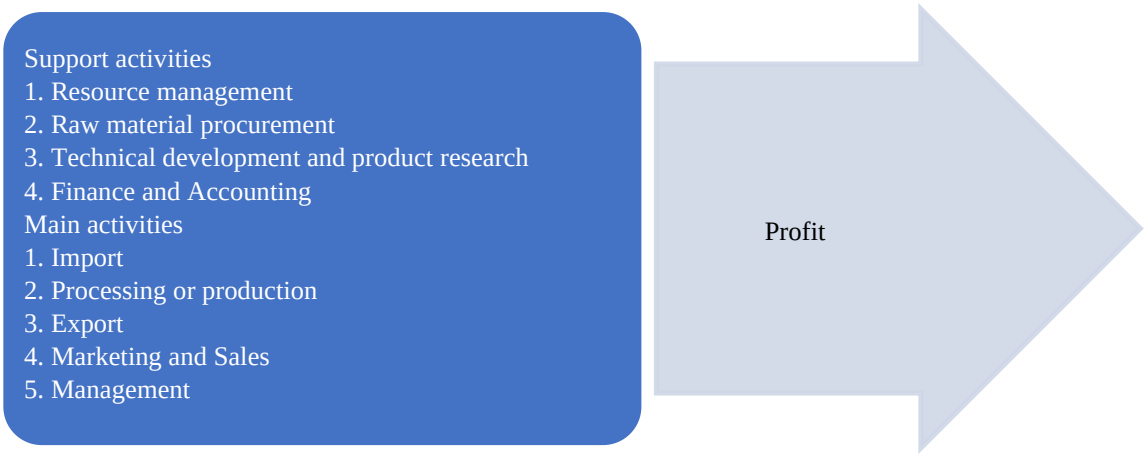

Figure 2: Support activities

3) Collection of target agricultural product information

Collect agricultural product information based on the target group. And coordinate with the garden owner, then conduct an environmental survey and collect agricultural product information using interview cameras.

4) Design of digital agricultural product marketing platform

The design of a digital agricultural product marketing platform is an important process in establishing agricultural product marketing channels to increase agricultural product sales channels. Reduce marketing costs and increase farmers' income. The following steps include planning and researching target markets and consumer purchasing behavior. Competitor analysis and platform design require users to have easy access and use and to link with other marketing channels.

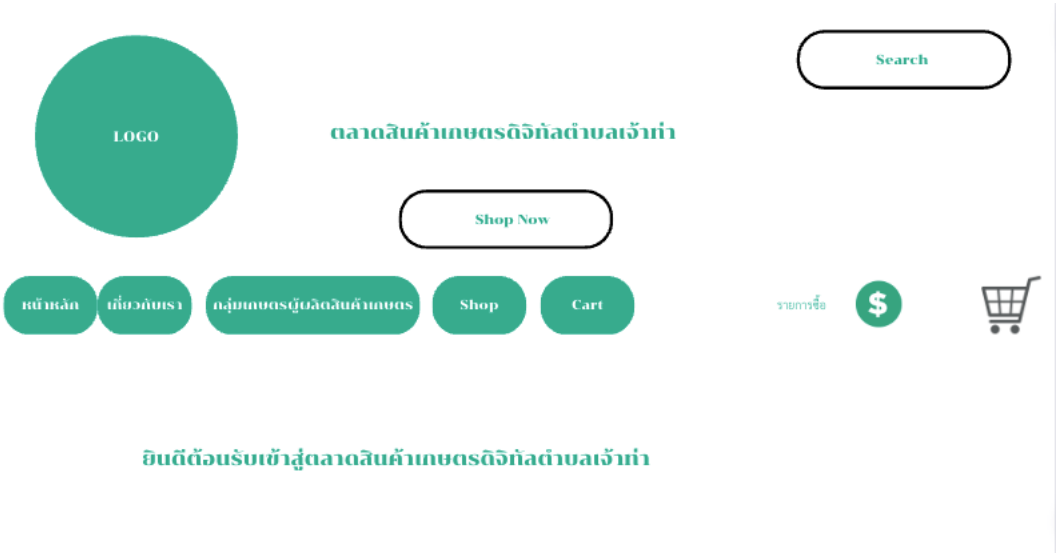

Figure 3: Design achievements of digital agricultural product marketing platform

5) Development of a digital agricultural product marketing platform

Researchers have developed a digital agricultural product marketing platform based on the design programme of the platform, as shown in Figure 4.

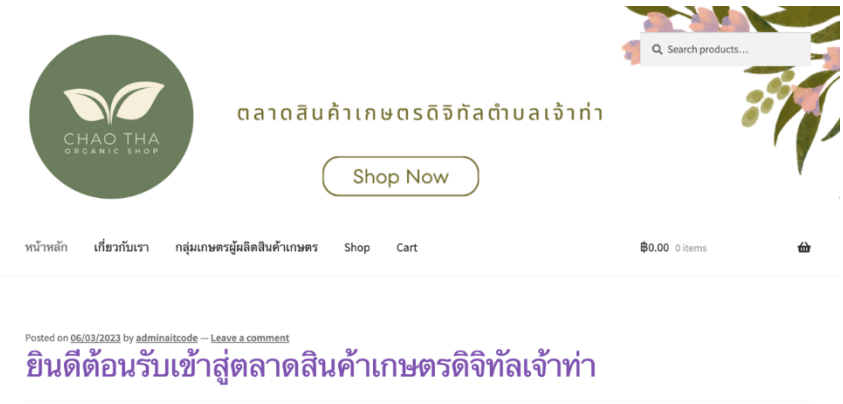

Figure 4: Digital agricultural product marketing platform.

6) Development of the website after demand analysis and system design

Before actually putting it into use, test the workflow of the website for errors, or Is it handled correctly? Then take the developed website to experts to judge whether it can work normally, accurately and quickly, and the experts will evaluate the usage of the website. In order to carry out this research, the research team used an expert group, and the research contents are as follows:

The expert group selected an expert group composed of three interviewees, as shown in Figure 4. The study assessed the effectiveness of the Digital Agricultural Products Marketing Platform website, with the content quality aspect receiving an overall "good" rating of 4.38 out of 5. Specifically, the suitability of information, data completeness and accuracy, clear content categorization, and appropriate content quality were evaluated positively, reflecting a satisfactory level of content on the website.

Regarding the website's operational efficiency, the evaluation revealed that data processing speed was rated as "excellent," while menu access speed, website operation accuracy, and security appropriateness were rated as "good." Overall, the website's operational efficiency aspect achieved a "good" rating with an average score of 4.52 out of 5, indicating satisfactory performance in terms of efficiency.

In terms of website design, the evaluation found that screen design and application layout received an "excellent" rating, while text colour, size, font style, and screen design were rated as good." Overall, the website design aspect achieved a "good" rating with an average score of 4.42 out of 5. This indicates that the website's design is effective and meets users' needs satisfactorily.

The outcomes of this study align seamlessly with Thailand's national strategic objectives for sustainable agricultural development, positioning digital platforms as catalysts for business model innovation, stakeholder value creation, and the transition towards sustainable ecosystems. Thailand's ambitious 20-year National Strategy (2018–2037) underscores the importance of leveraging technological advancements to drive sustainable economic growth, particularly within the agriculture sector. By demonstrating tangible benefits such as increased incomes, improved market access, and enhanced supply chain efficiencies for organic farmers, this research not only supports the country's strategic goals but also showcases the transformative potential of digital platforms in revitalizing the agricultural landscape. The results emphasize the crucial significance of digital advancements in encouraging economic resilience, advancing environmental sustainability, and generating value for all participants in the organic agriculture value chain. Moreover, this work contributes to the ongoing discourse on sustainable development and emphasizes the necessity of employing technology to attain enduring agricultural sustainability. It emphasizes the importance of cross-sector collaboration and sustained investment in digital solutions.

Conclusions

In the platform's performance across multiple dimensions. The evaluation process encompassed a meticulous analysis of the website's content quality, operational efficiency, and design elements, culminating in a comprehensive assessment report. The findings revealed that the platform's content quality garnered an overall "good" rating of 4.38 out of 5, underscoring the suitability of information, data completeness and accuracy, clear content categorization, and appropriate content quality, thereby reflecting a satisfactory level of content presentation. Furthermore, the website's operational efficiency was deemed "good," achieving an average score of 4.52 out of 5, with data processing speed rated as "excellent" and menu access speed, operation accuracy, and security appropriateness evaluated as "good," indicating satisfactory performance in terms of efficiency. Notably, the platform's design elements, including screen design and application layout, received an "excellent" rating, while text colour, size, font style, and overall screen design were rated as "good," ultimately resulting in an average score of 4.42 out of 5 for the website design aspect, signifying an effective and user-friendly design that meets the needs of the target audience satisfactorily. Sustainable agricultural development has emerged as a pressing global imperative, demanding innovative solutions that harmonise food security and environmental conservation. In Thailand, where agriculture is deeply intertwined with the national economy and livelihoods, this challenge is acutely felt. Our research aimed to address a critical gap in the application of digital innovations to bolster the viability and sustainability of organic farming practices in rural areas like Kalasin Province. This study has demonstrated the transformative potential of digital platforms in enhancing the sustainability and economic viability of organic agriculture. By implementing a tailored digital marketing platform at the Ban Jod Organic Learning Centre, our research revealed tangible benefits for organic farmers grappling with market access barriers, including a 15% increase in incomes and a remarkable 20% boost in sustainable product sales. The key findings underscore the platform's ability to facilitate over 60 direct farmer-consumer connections, optimise supply chains with an 18% reduction in transaction costs, and foster transparency within the organic produce market. These outcomes align seamlessly with Thailand's national strategic objectives for sustainable agricultural development, positioning digital platforms as catalysts for business model innovation, stakeholder value creation, and the transition towards sustainable ecosystems. While the research focused on a specific region and learning centre, the scalable and replicable framework presented herein contributes insights for leveraging digital innovations across diverse agricultural contexts. However, future studies could further validate the generalizability of these findings and explore nuanced applications tailored to different geographic and socioeconomic settings. As we navigate the complexities of balancing economic progress and environmental preservation, the convergence of digital technologies and sustainable farming practices emerges as a beacon of hope. With organic farmers experiencing substantial income gains and increased sustainable product sales, this research underscores the immense potential of digital platforms in revitalising the agricultural sector. It serves as a clarion call for increased investment, cross-sector collaboration, and a steadfast commitment to harnessing digital innovations that reimagine agricultural business models, fostering a harmonious balance between economic growth and environmental stewardship on a global scale.

Recommendations for future work Future research endeavors should prioritize expanding the reach and impact of the digital marketing platform within the organic farming community. This could involve conducting in-depth user feedback sessions to continuously enhance the platform's usability and functionality based on the evolving needs of

farmers, buyers, and agricultural intermediaries. We could also explore collaborative partnerships with relevant stakeholders and institutions to accelerate the platform's adoption and guarantee its long-term sustainability.

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The Influence of the Ability and Experience of Investigative Auditors on the Effectiveness of the Implementation of Investigative Audit Procedures in Proving Fraud at the BPKP Aceh Representative Office

Afdhal Sabila[1] and Fifi Yusmita[2]*

[1] International Accounting Program (IAP)/ International Business and Economic Program (IBEP), Faculty of Economic and Business, Universitas Syiah Kuala; afdhal.sabila.7@gmail.com
[2] Corresponding Lecture, Faculty of Economic and Business, Universitas Syiah Kuala; fifiyusmitaaceh@usk.ac.id

* Correspondence: fifiyusmitaaceh@usk.ac.id

Abstract

This study was conducted to evaluate the effect of the ability and experience of investigative auditors simultaneously on the effectiveness of the implementation of investigative audit procedures in detecting fraud at the BPKP Aceh Representative Office. The analysis method used was multiple linear regression using SPSS version 25. Data was used from the results of questionnaires given to 30 investigative auditors. The ability of investigative auditors affects the effectiveness of the implementation of audit procedures in proving fraud and the experience of investigative auditors has no effect on the effectiveness of the implementation of audit procedures in proving fraud.

Keywords: Ability, Experience, Effectiveness of investigative audit

Introduction

National development is a series of efforts carried out continuously in all aspects of community, nation and state life to move towards a better situation. This national development is carried out jointly by the community and the government, so it is hoped that national development can be carried out in accordance with applicable regulations. The goal of national development is to create an Indonesian society that is peaceful, democratic, just, competitive and prosperous. To realize this, it is necessary to continuously improve efforts to prevent and eradicate all types of fraud(fraud). However, in reality, as time progresses, the more sophisticated and modern electronic devices become, the more cases of fraud there are in society.

According to data Transparency International, The Corruption Perception Index (IPK) in Indonesia in 2021 is ranked 96th out of 180 countries surveyed, with a score of 38 on a scale of 0-100, the number 0 indicates very corrupt while the number 100 is very clean. Indonesia's GPA score is still below the average global GPA score, namely 43. However, there is an increase in the score compared to the previous year, namely from 2020 it was 37 and in 2021 it was 38.

Fraud cases in government institutions is starting to be detected and uncovered thanks to the active role of auditors, both internal and external auditors. In practice, even though internal audits and internal controls in government institutions have been designed, they are not necessarily able to guarantee that government institutions are free from cases of fraud. Therefore, it is necessary to have an internal auditor whose duties, functions and authority can play a role in designing and implementing internal audits and internal controls in government institutions so that they can detect and prevent fraud (Zaneta,2022).

To be able to detect and prevent fraud, internal auditors must have sufficient ability and experience in indicating fraud. One of the internal auditors in government institutions or what is called the Government Internal Audit Apparatus (APIP) is the Financial and Development Supervisory Agency (BPKP). Based on Presidential Regulation Number 192 of 2014 concerning the Financial and Development Supervisory Agency (BPKP), it is stated that one of the functions of the BPKP is to carry out investigative audits on cases of irregularities that are indicated to be detrimental to state/regional finances and efforts to prevent corruption.

Investigative audit is an audit carried out using an investigative approach, meaning an audit carried out using the skills of an investigator. Investigative audits are more intuitive in nature and therefore the auditor's skills will depend greatly on accuracy in determining the thought flow of the perpetrator of the deviation and implementing it in the field. Carrying out an investigative audit is a combination of accounting and auditing skills as well as knowledge in the fields of law, investigation, psychology, criminology and communications. Therefore, investigative audits should be carried out by people who have the ability and experience in carrying out investigative audits. Auditors who do not have the skills and experience must receive guidance from other auditors who have investigative audit experience and expertise (Angelliani,2018)

Research Purpose

Study aims to identify key factors that contribute to successful investigative audits. Additionally, the research will explore the role of organizational support and resources in enhancing auditors' capabilities, ultimately providing insights into improving fraud detection and prevention efforts within the BPKP Aceh Representative Office.

Literature review

Investigative Audit

Auditing is a systematic process for obtaining and evaluating evidence objectively regarding statements about economic activities and events, with the aim of determining the level of conformity between these statements and predetermined criteria, as well as delivering the results to interested users (Mulyadi,2019).

The definition of investigative audit is explained in the Regulation of the Minister of State for Administrative Reform Number PER/05/M.PAN/03/2008 concerning Audit Standards for Government Internal Supervisory Apparatus, Investigative Audit is the process of systematically searching, finding, and collecting evidence aimed at revealing whether or not an act has occurred and the perpetrator in order to take further legal action.

Explains that investigative audits can be carried out reactively or proactively, with the following explanation:

Reactive Investigative Audit

An investigative audit is said to be reactive if the auditor conducts the audit after receiving or obtaining information from other parties regarding the possibility of fraud and crime. Reactive investigative audits are generally carried out after the auditor receives or obtains information from various sources of information, for example from other auditors who carry out regular audits, from public complaints, or because of requests from law enforcement officials. Because of its reactive nature, the auditor will not carry out an audit if there is no information about the existence of allegations or indications of fraud and crime.

Proactive Investigative Audit

Investigative audit is said to be proactive if the auditor actively collects information and analyzes the information to find possible fraud and crime before carrying out an investigative audit. Auditors actively seek, collect information and analyze the information obtained to find the possibility of fraud and crime. A proactive audit can discover possible fraud and crime early before the condition develops into a larger fraud or crime.

Auditor Ability

The auditor's ability to detect fraud is the proficiency or expertise of an auditor to detect whether there is fraud contained in the financial statements. The auditor's ability to disclose fraud can be measured by two indicators, namely knowledge of fraud and the ability to disclose fraud, it can be concluded that the auditor's ability to detect fraud is the quality of an auditor in explaining irregularities in the presentation of financial statements and in the implementation of activities by identifying and proving the fraud (Pradnyawati,2019).

Another essential component of auditor skill is effective communication. Stakeholders including management and audit committees must be informed of the auditors' conclusions in a clear and impartial manner. This entails delivering audit findings that draw attention to important problems and making suggestions for enhancements. Establishing rapport with clients and conducting interviews with different audit participants require strong interpersonal skills as well. With their combined skills, auditors are able to provide insightful opinions and support the general honesty and openness of financial reporting (Arens, A. A,2017)

Auditor Experience

The Indonesian Institute of Certified Public Accountants (IAPI) in the Public Accountant Professional Standards (SPAP) states that the requirements required of an independent auditor are people who have adequate education and experience which are usually obtained from practices in the field of auditing. States that an auditor must have experience

in his audit activities, formal education and work experience in the accounting profession are two important and complementary things.

Auditor experience is experience in auditing financial statements both in terms of length of time, number of assignments and types of companies that have been handled. The most common mistake in diagnosing a problem is the inability to make the right guesses. Expertise in auditing generally advances with experience, allowing seasoned auditors to produce a variety of theories to account for audit results. As auditors gain experience, they come across a variety of scenarios and obstacles that strengthen their problem-solving skills and enable them to approach each audit with a wealth of information. Skilled auditors can analyze results from a variety of angles, which results in more in-depth evaluations and a greater chance of seeing possible problems (Asih,2006).

Effectiveness of the Implementation of Audit Procedures in Proving Fraud

In the worlds of finance and auditing, fraud is a serious problem that can take many different forms, from asset theft to financial statement fraud and corruption. Research has examined the intricate relationship between the culture of a business and the probability of fraud, highlighting the consequences of inadequate internal controls and supervision. Strong governance structures and ethical standards are necessary because fraudulent acts are more likely to occur in organizations with insufficient control measures.

Effectiveness comes from the word effective which implies the achievement of success in achieving predetermined goals. Effectiveness is always related to the relationship between the expected results and the results that have been achieved. Effectiveness can be seen from various points of view and can be assessed in various ways and has a close relationship with efficiency. Based on the above opinion, effectiveness is a very important concept because it is able to provide an overview of the success of an organization in achieving the expected goals or objectives.

An investigative audit is carried out using the following four mechanisms:

1. Gathering data and information and examining signs of corruption
2. Create a hypothesis about crime and organize the audit
3. Conduct audits to obtain data in support of the hypothesis
4. The audit report's preparation. The audit team leader drafts an investigative audit report once the audit is finished.

Framework

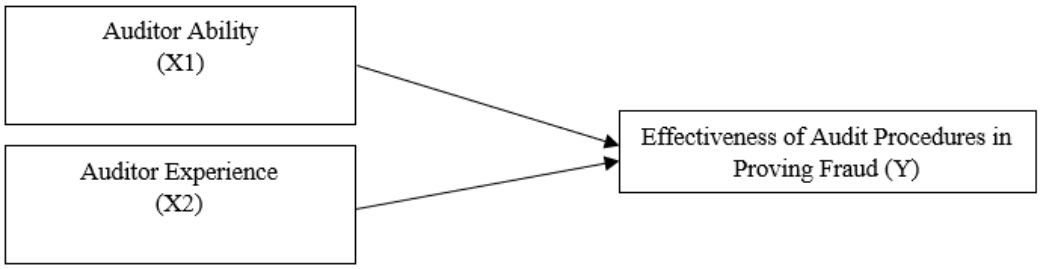

Figure 1: Research Framework

Development of Hypothesis

The hypothesis is a temporary answer to the research to test the truth of the research and can understand the relationship between Variable X and Variable Y. Then the hypothesis of this research is as follows:

H1: The ability of investigative auditors affects the effectiveness of the implementation of investigative audit procedures in proving fraud.

H2: The experience of investigative auditors affects the effectiveness of the implementation of investigative audit procedures in proving fraud.

Methodology

Scope of Research

The scope of this research encompasses an examination of the ability and experience of investigative auditors and their impact on the effectiveness of fraud detection and investigation at the BPKP Aceh Representative Office of Aceh province, Indonesia, and only select respondents who have experience in investigative audits.

Type of The Research

The data source in this study is primary data. The data is in the form of a questionnaire filled out by respondents at the Office of the Finance and Development Supervisory Agency (BPKP) Representative of Aceh, Indonesia. The questionnaire is in the form of closed questions, meaning that alternative answers have been provided except that the list of questions regarding the identity of the respondent is open. The questionnaire used refers to the Likert scale parameters. The type of research used in this study is quantitative, then researchers analyzed the effect of auditor ability and auditor experience on Effectiveness of the Implementation of Audit Procedures in Proving Fraud.

Total Sample

Populations with certain characteristics are infinite and some are infinite. Research can only be conducted on an infinite population (Hartono,2011). The population in this study were 80 auditors who served at the Aceh BPKP Representative. The sample of data used comes from the results of a questionnaire distributed to 30 investigative auditors because other 50 auditors have no investigative audit experience.

Tools Analysis

The tools analysis that used in this study are SPSS version 25. is a comprehensive software application designed for statistical analysis including data entry, cleaning, manipulation, and complex statistical analyses such as descriptive statistics, regression, correlation, and analysis of variance (ANOVA). It also supports data visualization through graphs and charts, making it a versatile tool for researchers and data analysts (Gani,2015)

The questionnaire used refers to the Likert scale parameters. The answer choices using Likert scale parameters can be categorized as follows:

No	Answer	Score
1	Strongly Disagree	1
2	Disagree	2
3	Less Agree	3
4	Agree	4
5	Strongly Agree	5

Figure 2: Measurement Scale

Formula

The data that has been obtained will be processed statistically which is used to describe or explain the data collected. Draw conclusions that can be generalized. Tests were carried out using the SPSS application. This research used the following data analysis methods:

Descriptive statistics

Descriptive statistics are statistics used to describe or explain the data collected. Draw conclusions that can be generalized. Descriptive statistical tests were carried out using the SPSS application.

Classical assumption tests, which include normality, heteroscedasticity, multicollinearity, and linearity tests.

The classical assumption test is a statistical requirement that must exist in multiple linear regression analysis. Classical hypothesis tests are designed to avoid biased results.

Validity and Reliability Test.

To measure and test a questionnaire or hypothesis depends heavily on the quality of the data used in the test. Survey data is useless if the instruments used to collect the data are not reliable and effective. Therefore, you must first test the reliability and validity of the questionnaire.

Coefficient of Determination (R2)

The Coefficient of Determination (R2) test is carried out to determine the contribution of the combined independent variables to the dependent variable. This test shows how much the independent variables used in the study can explain the dependent variable. The coefficient of determination has a value between 0 and 1. If the R2 value is small (close to 0), the ability of the independent variable to explain the dependent variable is very limited, and a value close to 1 means that the independent variable can explain the dependent variable (Edwards,2006)

Result and discussion

Descriptive Statistics

The description of the data analysis presented in this study includes the Mean (M), number of observations (N) and Standard Deviation (SD). Data processing was carried out using the help of the SPSS version 25 program. The complete results of the descriptive statistical test for each variable are presented as follows:

Table 1: Descriptive Statistics (n=30)

Variables	Min	Max	Mean	Std. Deviation
Investigative Auditor Ability (X1)	41.00	55.00	50.0000	3.83271
Investigative Auditor Experience (X2)	27.00	45.00	38.4000	4.05650
Effectiveness of Investigative Audit Procedures in Proving Fraud (Y)	38.00	50.00	44.9333	3.75943

Investigative Auditor Ability

The independence questionnaire consists of 11 statement items, with the highest score of 55 and the lowest score of 41 with an average of 50.00 and a standard deviation of 3.832. And it can be concluded that the tendency of the investigative auditor's ability variable is in the normal distribution category based on the existing score.

Investigative Auditor Experience

The independence questionnaire consists of 9 statement items, with a highest score of 45 and a lowest score of 27 with an average of 38.40 and a standard deviation of 4.056. And it can be concluded that the tendency of the investigative auditor experience variable is in the normally distributed category based on the existing scores.

Effectiveness of Implementing Investigative Audit Procedures in Proving Fraud

The independence questionnaire consists of 10 statement items, with the highest score of 50 and the lowest score of 38 with an average of 44.93 and a standard deviation of 3.759. And it can be concluded that the tendency of the variable effectiveness of the implementation of investigative audit procedures in proving fraud is in the normally distributed category based on the existing scores.

Classical Assumption Testing

Normality Test

The normality test was carried out using the Kolmogorov-Smirnov statistical test commonly referred to as K-S which is available in the SPSS V.25 program. The criterion used is to compare the level of significance obtained with the alpha level used, where the data can be said to be normally distributed if sig. > 0.05 (Ghozali, 2006). The results of the normality test can be seen in the table below:

Table 2: Normality test results wih one-sample Kolmogorov-Smirnov test

		Unstandardized Residual
N		30
Normal Parameters[a,b]	Mean	,0000000
	Std. Deviation	3,16712537
Most Extreme Differences	Absolute	,082
	Positive	,061
	Negative	-,082
Test Statistic		.082
Asymp. Sig. (2-tailed)		.200[c,d]

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.
d. This is a lower bound of the true significance.

Based on the statistical test results in table 2, it can be seen that the significance value of the unstandardized residual is greater than 0.05, which is 0.200 so it can be concluded that the data used in this study are normally distributed.

Multicollinearity Test

Multicollinearity test looks at the tolerance value or variance inflation factor (VIF). If the tolerance is more than 10% or VIF is less than 10, it is said that there is no multicollinearity. The multicollinearity test results can be seen in the following table:

Table 3: Hypotheses test and multicollinearity test results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
Constant	17.713	8.258		2.145	.041		
Investigative Auditor Ability (X1)	.386	.182	.393	2.115	.044	.760	1.316
Investigative Auditor Experience (X2)	.206	.172	.223	1.198	.241	.760	1.316

a. Dependent Variable: Effectiveness of Investigative Audit Procedures in Proving Fraud (Y)

Based on the results of multicollinearity testing in table 3, the tolerance value of all variables is greater than 10% or 0.1 and VIF is smaller than 10. The variable investigative auditor ability (X1) and investigative auditor experience (X2) has a tolerance of 0.760 which means greater than 0.1 (0.760 > 0.1) and VIF 1.316 which means less than 10 (1.316 < 10). Thus, it can be stated that there is no multicollinearity between the independent variables.

Heteroscedasticity Test

Heteroscedasticity testing in this study was carried out using the Glejser test. This method is done by regressing the absolute value of the residual with the independent variable. If the significance value is greater than 0.05, it is said that the model is free from heteroscedasticity. The results of the heteroscedasticity test can be seen in the table below:

Table 4: Heteroscedasticity test results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	-.926	4.628		-.200	.843
Investigative Auditor Ability (X1)	.185	.102	.373	1.807	.082
Investigative Auditor Experience (X2)	-.152	.097	-.324	-1.569	.128

a. Dependent Variable: Abs_RES

Based on the statistical test results in table 4, it can be seen that all independent variables have a significance greater than 0.05. The investigative auditor ability variable (X1) has a significance of 0.082 which means more than 0.05 (0.082> 0.05). The investigative auditor experience variable (X2) has a significance of 0.128 which means more than 0.05 (0.128> 0.05). So, it can be concluded that the regression model used in this study does not contain heteroscedasticity.

Validity Test

The validity test aims to determine the validity of the questionnaire used by researchers in measuring and obtaining research data from respondents. There were 30 questions distributed to 30 respondents at the Aceh BPKP Representative Office. Validity testing was carried out using the SPSS program with the following criteria:

Table 5: Research instrument validity test results

Variable		*Pearson Correlation*	r-limit	Decision
Investigative Auditor Ability (X1)	X1.1	0.657	0.361	Valid
	X1.2	0.563	0.361	Valid
	X1.3	0.523	0.361	Valid
	X1.4	0.428	0.361	Valid
	X1.5	0.640	0.361	Valid
	X1.6	0.546	0.361	Valid
	X1.7	0.510	0.361	Valid
	X1.8	0.736	0.361	Valid
	X1.9	0.644	0.361	Valid
	X1.10	0.807	0.361	Valid

Variable		*Pearson Correlation*	r-limit	Decision
	X1.11	0.546	0.361	Valid
Investigative Auditor Experience (X2)	X2.1	0.743	0.361	Valid
	X2.2	0.672	0.361	Valid
	X2.3	0.587	0.361	Valid
	X2.4	0.368	0.361	Valid
	X2.5	0.841	0.361	Valid
	X2.6	0.685	0.361	Valid
	X2.7	0.697	0.361	Valid
	X2.8	0.748	0.361	Valid
	X2.9	0.548	0.361	Valid
Effectiveness of Investigative Audit Procedures in Proving Fraud (Y)	X3.1	0.658	0.361	Valid
	X3.2	0.703	0.361	Valid
	X3.3	0.754	0.361	Valid
	X3.4	0.674	0.361	Valid
	X3.5	0.521	0.361	Valid
	X3.6	0.704	0.361	Valid
	X3.7	0.767	0.361	Valid
	X3.8	0.788	0.361	Valid
	X3.9	0.670	0.361	Valid
	X3.10	0.599	0.361	Valid

The results of the calculation of the Pearson correlation value of each statement item in the questionnaire obtained with the help of SPSS 25 for Windows show that the calculation of the Pearson correlation value of each question item is above 0.361. This means that all statement items in the questionnaire can be said to be valid.

Reliability Test

The reliability test aims to determine the level of consistency of the questionnaire used by the researcher, so that the questionnaire is reliable even though the research is carried out repeatedly with the same questionnaire at different times. The measuring instrument to be used is Cronbach Alpha, the reliability of a variable is said to be good if it provides a Cronbach Alpha value> 0.60, then the variable instrument is reliable (reliable). If the Cronbach Alpha value <0.60, then the instrument being tested is not reliable (not reliable). The results of the Cronbach Alpha value test are as follows:

Table 6: Reliability test results

No	Variable	Cronbach's Alpha	Description
1	Investigative Auditor Ability (X1)	0.812	Reliable
2	Investigative Auditor Experience (X2)	0.824	Reliable
3	Effectiveness of the Implementation of Audit Procedures in Proving Fraud (Y)	0.856	Reliable

Based on the results of the reliability test in Table 6 above, all variables have a Cronbach Alpha value> 0.60, so it can be concluded that the instruments used in this study are reliable.

Coefficient of Determination (R2)

The R Square value is 0.290 or 29%. Which means that the percentage of influence of the Investigative Auditor Ability and Investigative Auditor Experience variables) on the effectiveness of the implementation of audit procedures in proving fraud is 29%. While the remaining 71% is influenced or explained by other variables not included in this research model.

Table 7: Coefficient of determination (R2)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.539[a]	.290	.238	3.28233

a. Predictors: (Constant), Investigative Auditor Experience (X2), Investigative Auditor Ability (X1)

Discussion

The Effect of Investigative Auditor Ability on the Effectiveness of Implementing Investigative Audit Procedures in Proving Fraud

Based on the results of statistical testing, it shows that the beta coefficient value of the investigative auditor's ability is not equal to zero ($\beta 1 \neq 0$). So that the first hypothesis (Ha1) is accepted, which means that the ability of investigative auditors affects the effectiveness of the implementation of investigative audit procedures in proving fraud at the Aceh BPKP Representative.

The ability of investigative auditors at the Aceh BPKP Representative has an influence on the effectiveness of the implementation of audit procedures in proving fraud, this shows that auditors must have abilities such as understanding the standard operating procedures for investigative audits so that the audit is more focused and reduces the risk of errors. In addition, auditors must also pay attention to the audit techniques used in obtaining and evaluating competent evidence as a basis for decision making. Investigative auditors are also required to know and understand the laws and regulations relating to the cases handled, especially the law on eradicating corruption.

Auditors who carry out investigative audits are a combination of lawyers, criminologist accountants, and detectives. Therefore, auditors who carry out investigative audits must have unique abilities, namely in addition to technical expertise, they must also have the ability to collect facts from various witnesses in a fair, impartial, valid (following the provisions of the law) and accurate manner and be able to report these facts accurately and completely.200

The Effect of Investigative Auditor Experience on the Effectiveness of Implementing Investigative Audit Procedures in Proving Fraud

Referring to Table 3, there is no significant impact of x2 on y (sig > 0.05). So, the Second hypothesis (Ha2) is not accepted, which means that the experience of investigative auditors is no significant affects the effectiveness of the implementation of investigative audit procedures in proving fraud at the Aceh BPKP Representative.

The experience of investigative auditors at the Aceh BPKP Representative has an influence on the effectiveness of the implementation of audit procedures in proving fraud, this shows that the experience of auditors will increase due to frequent audit tasks so that the more experience they have will make it easier to select information or evidence that is relevant to the case being handled. In addition, the more experience the auditor has, the more professional he will be in detecting and analyzing problems because an investigative auditor is required to be able to prove the presence or absence of fraud (Hidayat,2017)

Conclusion and suggestion

Hypothesis testing tested using multiple linear regression tests that have been described in the previous chapter, can be concluded as follows:

1. The ability of investigative auditors affects the effectiveness of the implementation of audit procedures in proving fraud. Judging from the results of statistical testing which shows that the beta coefficient value of the investigative auditor's ability is not equal to zero ($\beta 1 \neq 0$). This means that the effectiveness of the implementation of audit procedures in proving fraud is influenced by the ability of investigative auditors.
2. The experience of investigative auditors has no effect on the effectiveness of the implementation of audit procedures in proving fraud. Judging from the results of statistical testing which shows that the beta coefficient value of the investigative auditor's experience is not equal to zero ($\beta 2 \neq 0$). This means that the effectiveness of the implementation of audit procedures in proving fraud is influenced by the experience of investigative auditors.

Suggestions for future research are to examine the influence of contextual factors, such as organizational culture and industry regulation, on the effectiveness of investigative audit procedures. Such research would provide a more comprehensive understanding of how these contextual factors affect investigative audit practices and add other variables such as the pressure of obedience.

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ID 315
The Influence of Company Size, Ownership Concentration, Auditor Reputation and Risk Management Committee on Enterprise Risk Management Disclosure 2011-2021

Bintang Yosaria[1], Nyak Shafika Ray[1], Talbani Farlian[2] and Fifi Yusmita[3]*

[1] International Accounting Program-IBEP, Faculty of Economics and Business, University of Syiah Kuala-Indonesia; bintangyosari14@gmail.com, shafikaray@gmail.com
[2] Associate of Professor IBEP, Faculty of Economic and Business Universitas Syiah Kuala-Indonesia; t_farlian@usk.ac.id
[3] Corresponding Lecture, Faculty of Economic and Business Universitas Syiah Kuala-Indonesia; fifiyusmitaaceh@usk.ac.id

* Correspondence: fifiyusmitaaceh@usk.ac.id

Abstract

The purpose of this study is to look at the impact of firm size, ownership concentration, auditor reputation, and risk management committee on enterprise risk management disclosure in Indonesian banking organizations from 2011 to 2021. Purposive sampling was utilized to choose the sample, and 41 banking businesses were collected for the period 20112021, for a total sample size of 164 samples in this study. Panel data regression analysis with EViews version 10 was employed as the data analysis method. Firm size, ownership concentration, auditor reputation, and the risk management committee all have a substantial impact on enterprise risk management disclosure, according to the findings of the study. Firm size has a large beneficial effect on enterprise risk management disclosure, while ownership concentration has a considerable negative effect. Meanwhile, the auditor's and risk management committee's reputations have no bearing on enterprise disclosure.

Keywords: Enterprise risk management, Ownership concentration, Auditor's reputation, Risk management committee, Company size

Introduction

The business activities of the organization, as well as banking, will continue to change. A bank, as defined by Banking Law No. 10 of 1998, is a financial entity that collects public funds in the form of savings and distributes them to the general public in the form of credit and/or other forms in order to improve the general public's standard of living. Banks will not be able to avoid various forms of risks when conducting their business activities due to the uncertainty that exists. This will have an impact on management and operational quality, as stated in the annual report. It is possible to say that a corporation is functioning effectively in risk management if it has a high level of risk management maturity (CRMS Indonesia, 2017).

Risk management disclosure is critical, and it must be included in the annual report. *Enterprise Risk Management* (ERM) is a method for identifying, measuring, and mitigating emerging risks in all of the company's activities. The amendments to Bank Indonesia Regulation Number 5/8/PBI/2003 are stated in Bank Indonesia Regulation Number

11/25/PBI/2009 that tires must apply risk management actively, both for individual banks and for banks in consolidation with subsidiaries

Source: CRMS Indonesia (2017)

Figure 1: Maturity of Risk Management by Industry in 2017

Figure 1 shows that the financial sector has the highest level of risk management maturity in 2017, which is 4.63%. This indicates that the financial sector has and implements adequate regulations, so that the level of risk management maturity is higher than other sectors. Banks are a sub-sector of this financial sector. The bank is running a management and operational quality improvement program.

It is known that Indonesia is a country with the most banking crimes by skimming. In 2015 there was a skimming case where the perpetrators of the skimming case came from outside Indonesia who were members of an international crime syndicate (CNN Indonesia, 2015). The skimming case that happened in 2018 was a skimming case at Bank Mandiri Sub-Branch Office (KCP) Surabaya where as many as 28 customers became victims of banking crimes by a gang of Eastern European citizens who lost their money mysteriously up to tens of millions of rupiah (CNN Indonesia, 2018).

The case of manipulation of financial statements carried out by PT Sunprima Nusantara Financing (SNP Finance) which experienced bad loans of Rp. 4.07 trillion against 14 banks that occurred in 2018. One of the 14 banks is Bank Mandiri, which has distributed loans of Rp. 4 trillion to SNP Finance (CNBC Indonesia, 2018). The SNP Finance case is considered to have tarnished the banking system's reputation, because many of those involved in problems with SNP Finance are actually good banks with good risk management. This proves that even though banks have good risk management, banks are still unable to avoid the risks of uncertainty and conflicts of interest that occur.

These problems occur because of the lack of control related to risks that occur in banking and corporate governance in banking is not managed properly and there are weaknesses in risk management disclosure. One of the supporting factors is the difference in interests (*agency*). Therefore, risk management disclosure will assist in making investment decisions and managing the impact of risks that occur or avoid possible risks in Indonesian banking.

There are multiple factors that influence *enterprise risk management* disclosure, according to a previous study on the subject. From 2011 to 2021, the purpose of this study was to examine the impact of *company size*, *ownership concentration*, auditor *reputation*, and the *risk management committee* on *enterprise risk management* disclosure in banking companies listed on the Indonesia Stock Exchange. The inclusion of these factors is due to differences in previous studies.

Methodology

This research uses a quantitative method because of data research is in the form of numbers. This type of research is research descriptive and verification. This research is also causal, namely research that is carried out if the researcher wants to describe the cause of a problem, either through experiments or non-experiments (Indrawati, 2015:117). This research uses research time cross section and time series.

Operational Definition and Measurement of Variables Independent Variable

The independent variables or independent variables included in this study are the size of the company, the concentration of ownership, the reputation of the auditor, and the risk management committee

Company Size

Corporation size is the size of a company that demonstrates its riches by utilizing labour, production, and capital capability (Tarantika & Solikhah, 2019). The larger a corporation is, the more commercial operations it has and the greater the risk of unpredictability. The larger the size of the company, the disclosure enterprise *risk management* should be wider for transparency of information to *stakeholders.* Company size can be formulated as follows (Sarwono et all, 2018):

Company Size = Ln Total Assets

Ownership Concentration

The concentration of ownership shows that the majority shareholder or the largest shareholder of the company controls the company's management and demands that the company be more transparent in disclosing wider risk information (Agista & Mimba, 2017). The greater the level of concentration of ownership in the company, the stronger the company's demands to be broader in disclosing the risks that the company may face. In calculating the concentration of ownership in the company, it can be expressed by the largest percentage of ownership with the following formula (Oktavia & Isbanah, 2019):

KK = (Total Share Ownership Largest)/(Total Company Shares) x 100%

Auditor Reputation

The Big Four (Big Company) provide principles for implementing Good Corporate Governance and can aid internal audit in boosting the efficacy of risk management and evaluation so that the company's supervision and risk assessment are of higher quality (Kumalasari et al., 2014).

The extent of disclosure and implementation of enterprise risk management will be more important to a corporation that implements the Big Four (Marhaeni & Yanto, 2015). *To quantify auditor reputation, a dummy variable is used with the constraint that if a company uses an external auditor from or affiliated with the Big Four, it is assigned a value of 1, whereas if a company does not use an external auditor from or affiliated with the Big Four, it is assigned a value of 0.*

Risk Management Committee

Banking is obligated to execute the principles of GCG in every business activity, according to Bank Indonesia Regulation No. 8/4/PBI/2006 on Implementation *Good Corporate Governance* (GCG) for Commercial Banks. In order to put these ideas into practice, the board of directors of a bank must establish a risk management committee (*Risk Management Committee*/RMC). Existence assists the firm in identifying the risks it faces and improving the quality of risk assessment and supervision in the hopes of enhancing the company's reputation (Trinanda & Anisykurillah, 2017).

RMC is measured using the variable dummy, with a value of 1 if there is an RMC in the company and a value of 0 if there is no RMC in the company.

Dependent Variable

The disclosure of *Enterprise Risk Management* is the dependent variable or dependent variable in this study (ERM). To optimize business value, ERM is a comprehensive and integrated framework for managing credit risk, market risk, operational risk, economic capital, and risk transfer (Rustam, 2017:11). Measurement of *enterprise risk management* can use the ERM index, namely (Adam *et all*, 2016).

ERM Index = (total number of disclosures)/108 x 100%

Population and Sample

For the 2015-2018 period, the population in this study is banking firms listed on the Indonesia Stock Exchange, with a total population of 43 companies whose information is available on the StockOK website (2017), which updates the population of public companies in Indonesia.

Study Sample

Table 1: Sampling Criteria

No.	Sampling Criteria	Amount
1.	Banking companies listed on the Indonesia Stock Exchange period 2015-2018	43
2.	Banking companies delisted on the Indonesia Stock Exchange period 2015-2018	(1)
3.	Banking companies that inconsistently publish annual reports in 2015-2018	(1)
Number of research sample companies		41
Total research data (41 x 4 years)		164

Data analysis

The data processing tools used in this study were *Microsoft Excel*, SPSS 25, and EViews version 10.

Classic Assumption

The purpose of this traditional assumption test is to determine and assess the viability of the regression model utilized in this research.

Multicollinearity Test

The multicollinearity test determines whether a link between the independent variables was discovered by the regression model (independent). There should be no correlation between the independent variables in a decent regression model. The correlation of each variable may be displayed using this test. (Ghozali, 2018)

Heteroscedasticity Test

The heteroscedasticity test checks if the residuals of one observation and the residuals of another observation in the regression model have the same *variance*. Homoscedasticity or Heteroscedasticity does not occur in a decent regression model (Ghozali, 2018:137). The *white test* was used in this investigation. The value of *Obs*R squared*, which has a *Chi-square* probability value greater than 0.05 or 5%, is used to make decisions with the *white test*. As a result, either the alternative hypothesis H_0 or the absence of heteroscedasticity is accepted.

Panel Data Regression Analysis

This panel data is a combination of *time series* data and *cross section* data, where the *time series* is a collection of observations within a certain time span. While the *cross section* is data collected within a certain period from the sample (Widarjono, 2018:9). $Y = a + {}_1X_1 + {}_2X_2 + {}_3X_3 + {}_4X_4 + e$ Description:

Y = ERM Disclosure
X1 = company size
X2 = concentration of ownership
X3 = Auditor reputation
X4 = Risk Management Committee (RMC)
e = confounding variable (error term)
Y = ERM Disclosure

Panel Data Regression Estimation Method

There are various methods for estimating regression models with panel data that are regularly utilized, including (Widarjono, 2018:365-371):

Common Effect Model

Combining time series with *cross section* data is the simplest method for estimating panel data.

Fixed Effect Model

The *fixed effect* model technique uses dummy variables to capture changes in intercepts while estimating panel data.

Random Effect Model

Random effects are used to address the *fixed effect* method's drawback of using *dummy variables* to create uncertainty in the model.

Panel Data Regression Method Selection Chow *test* The criteria that can be used are as follows:

H_0: Common Effect Model

H_1: Fixed Effect Model

If the probability value (*cross-section* F) < 0.05 then H_0 is rejected or panel data regression does not use the *common effects* model, but if the probability value (*cross section* F) > 0.05 then H_0 is accepted or panel data regression uses the *common model effect* (Widarjono, 2018:373).

Hausman test

The criteria that can be used are as follows: H_0: Random Effect Model H_1: Fixed Effect Model

H_0 is rejected if the probability value (random *cross-section*) is less than 0.05, and panel data regression does not use a *random effects* model if the probability value (random *cross-section*) is greater than 0.05, but H_0 is accepted if the probability value (random *cross-section*) is greater than 0.05. (Widarjono, 2018:375-376).

Lagrange Multiplier Test

The criteria that can be used are as follows:

H0: Common Effect Model H1: Random Effect Model

If the probability value (*Breusch-Pagan*) < 0.05 then H_0 is rejected or panel data regression does not use the *common effects* model, but if the probability value (*Breusch-Pagan*) > 0.05 then H_0 is accepted, or panel data regression uses the *common effects* model.

Determination Test

Coefficient determination is the coefficient that explains the relationship between the dependent variable and the variable independent (Widarjono, 2018:27). As for formula used are as follows:

$KD = r^2 \times 100\%$ Description: KD: Coefficient of determination r^2: Correlation coefficient

The value of the coefficient of determination is 0 R_2 1, if the coefficient of determination is getting smaller (close to zero) it means that the independent variable has no effect on the dependent variable at all.

Hypothesis test

F Statistical Test (Simultaneous Effect Test)

The simultaneous joint effect test is used to determine whether the independent variables have a joint effect on the dependent variable (Ghozali, 2018:179). If the significance value is less than or equal to 0.05 and F count > F table, H_0 is refused and H_1 is approved. This means that the independent variable has a simultaneous effect on the dependent variable. If the significance value is more than 0.05 and F count F table, H_0 is accepted and H_1 is refused. As a result, H_0 is approved, but H_1 is rejected. This means that the independent variable has no effect on the dependent variable simultaneously.

Statistical t Test (Partial Test)

To determine the effect of each independent variable on the dependent variable, the partial test is used (Ghozali, 2018:179). H0 is rejected and H1 is accepted if the significance value is less than 0.05 and t count > t table. This indicates that the independent variable has a considerable impact on the dependent variable to some extent. H0 is approved and H1 is rejected if the significance value is larger than 0.05 and t count t table. This indicates that the independent variable has just a minor impact on the dependent variable.

Results and Discussion

This study aims to determine the effect of the independent variable on the variable dependent. The dependent variable in this study is *Enterprise Risk Management* (ERM).

Table 2: Descriptive statistical analysis

	Enterprise risk Management	Company size	Ownership Concentration	Reputation Auditor	Risk Management Committee
Mean	0.7237	31.52	0.5480	0.7424	0.9773
Median	0.7222	31.53	0.5329	1	1
Minimum	54.63%	28.31	15.62%	0	0
Maximum	86.11%	34.80	99.00%	1	1
Std. Dev	0.0719	1.6952	0.8316	0.4431	0.0730
N	132	132	132	132	132

Source: Processed secondary data (2019)

The independent determinants in this study are *company size*, *ownership concentration*, *auditor reputation*, and *the Risk Management Committee* (RMC).

Panel data regression was utilized in this investigation with a sample of 41 banks, but only 33 were used since banking data contains eight *outliers*, namely banks with business codes AGRO, AGRIS, ARTO, BACA, BBHI, BBYB, BNBA, and DNAR, which could not be included in this study.

Descriptive Statistical Analysis

Descriptive statistical analysis on research this used to calculate *the effect of the variables of firm size, ownership concentration, auditor reputation, and Risk Management Committee* (RMC) on *Enterprise Risk Management* (ERM) disclosures.

In Table 2, it can be seen that the average value (*mean*) on the dependent variable of *Enterprise Risk* Management (ERM) disclosure is 0.7237 with a *median* value of 0.7222, a minimum value of 54.63% and a maximum value of 86.11%. The firm size variable has an average value (*mean*) of 31.52 with a *median* value of 31.53, a minimum value of 28.31 and a maximum value of 34.80. This means that the data on the independent variable company size does not vary or group. The ownership concentration variable has an average value (*mean*) of 0.5424 with a *median* value of 0.5329,

Table 3: Multicollinearity test results

	Company Size	Ownership Concentration	Auditor Reputation	Risk Management Committee
Company Size	1.000			
Ownership Concentration	0.054	1.000		
Auditor Reputation	0.410	-0.058	1.000	
Risk Management Committee	0.086	-0.146	0.148	1.000

Table 4: Heteroscedasticity test results

Heteroskedasticity Test: White			
F-statistics	1.131142	Prob. F(4,127)	0.3449
*Obs*R-squared*	4.540922	Prob. Chi-Square (4)	0.3377
Scaled explained SS	2.252941	Prob. Chi-Square (4)	0.6893

Source: EViews version 10 output results

15.62 percent is the least figure, while 99 percent is the maximum value. This indicates that the data on the independent variable ownership concentration changes or is not grouped.

The auditor reputation variable has an average (*mean*) value of 0.7424 and a median value of 1. This indicates that the data on the independent variable auditor repute shows no variation or grouping. On the other hand, the *Risk Management Committee* (RMC) variable has an average (mean) value of 0.9773 and a median value of 1. The data for the independent variable *Risk Management Committee* is not altered or structured in this manner.

Classic assumption test of multicollinearity test

The results in Table 3 are based on the results of the multicollinearity test.

There is no independent variable with a correlation coefficient value of less than 0.9, according to the comparison of the correlation coefficient values of each independent variable. As a result, it can be argued that there is no multicollinearity in the study data or that there is no link between the independent variables.

Heteroscedasticity Test

The *White test* was used to determine the heteroscedasticity test findings based on Table 4. The probability value of *Chi-Square Obs*R squared* > 0.05, according to the table above. As a result, it can be inferred that there is no difficulty with heteroscedasticity in this regression model.

Chow test.

The *cross-section* probability F 0.0000 is less than the 0.05 significance level, according to Table 5. As a result, the Chow test results back up H1, i.e., that the *fixed effect* model is better than the *common effect* model.

Table 5: Chow Test Results

Redundant Fixed Effects Tests

Effects Test	**Statistics**	**df**	**Prob.**
Cross-section F	16.593813	(32.95)	0.0000
Cross-section Chi-square	248.882923	32	0.0000

Source: EViews version 10 output results

Panel Data Regression Analysis

Hausman test

Table 6 shows that the results of the random *cross-section* probability of 0.0012 are less than the significance level of 0.05. As a result of the Hausman test results, the *fixed effect* model, or H1, is the superior model to use in this inquiry.

Table 6: Hausman Uji Test Results

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	**Chi-Sq. Statistics**	**Chi-Sq. df**	**Prob.**
Cross-section random	18.10558	4	0.0012

Source: EViews version 10 output results

Panel Data Regression Results

The panel data regression equation can be formulated as follows.

$$Y = 0.2948 + 0.0340\ x_1 + 0.0922\ x_2 + 0.0169\ x_3 + 0.0098\ x_4 + e$$

Table 7: Coefficient of Determination Test Results (R^2)

R-squared	0.606740	*Mean dependent var*	0.
Adjusted R-squared	0.594354	*SD dependent var*	0.
SE of regression	0.046704	*Akaike info criterion*	- 3
Sum squared resid	0.277016	*Schwarz criterion*	- 3
Likelihood logs	219.6880	*Hannan Quinn Criteria.*	- 3
F-statistics	48.98536	*Durbin-Watson stat*	0.
Prob(F-statistic)	0.000000		

Source: EViews version 10 output results

Table 8: T test results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Company Size	0.034	0.002	12.873	0.00
Ownership Concentration	-0.092	0.020	-4.580	0.00
Auditor Reputation	-0.016	0.010	-1.577	0.11
Risk Management Committee	-0.022	0.047	-0.468	0.64
Committee	-0.276	0.092	-2.980	0.00

Hypothesis test

Coefficient of Determination (R^2)

Table 7 shows that the adjusted *R squared* value is 0.594354, or 59.43%. This shows that the independent variables of *company size, ownership concentration, auditor reputation,* and *risk management committee* may explain the dependent variable, namely disclosure *enterprise risk management* as big as risk 59.43 percent. Other factors not considered in this study have an impact on the remaining 40.57 percent. Source: EViews version 10 output results

Simultaneous Testing (F Test)

The probability value *F-statistics* is 0.0000, as shown in Table 8. When the likelihood (*F-statistic*) is less than 0.05, H0 is rejected and H1 is accepted. As a result, it can be concluded that *company size, ownership concentration, auditor reputation*, and the *risk management committee* all have a simultaneous (combined) effect on *enterprise risk management* disclosure in banking companies listed on the Indonesian Securities Exchange for the 2011-2021 period (IDX).

Partial Test (t Test)

Table 9 shows that the probability value for company size is less than 0.05, i.e. 0.0000, with a positive regression coefficient of 0.0344, indicating that H_0 is rejected and H_1 is accepted. As a result, it can be inferred that the size of the organization has a beneficial impact on *enterprise risk management* disclosure. The probability value of the ownership concentration is less than 0.05, i.e. 0.0000, with a negative regression coefficient of -0.0925, indicating

that H_0 is rejected and H_1 is approved. As a result, it may be argued that ownership concentration has a detrimental impact on *business risk management* disclosure. H_0 is accepted and H_1 is refused because the auditor's reputation has a probability value more than 0.05, specifically 0.1172 with a negative regression coefficient of 0, 01624 shows that H_0 is accepted and H_1 is rejected. As a result, the reputation of the auditor has no bearing on the disclosure of *business risk management*. H_1 is approved and H_0 is refused, according to the *risk management committee*, which has a probability value larger than 0.05, which is 0.6405 with a positive regression coefficient of 0.022428. As a result, it may be stated that the *risk management committee* has no influence on *corporate risk management* disclosure.

Conclusions, Implications, and Limitations

According to descriptive analysis and testing using panel data regression models, the dependent variable of *Enterprise Risk Management* (ERM) disclosure in banking organizations has an average *enterprise risk management* disclosure of 78 out of 108 items and data that does not change or group. Meanwhile, the independent variable size of banking firms has increased in value from 2011 to 2021, indicating that the banking companies in the research sample are capable of increasing asset value every year.

The independent variable concentration of ownership in banking companies has a value that tends to decrease, which means that the concentration of ownership in banking companies decreases every year. The independent variable is the reputation of banking company auditors in 2011 to 2019 there are 25 banking companies that use external auditors who come from or are affiliated with the Public Accounting Firm (KAP) The *Big Four*. While the remaining 8 banking companies do not use external auditors who come from or are affiliated with KAP The *Big Four*. However, in 2021, two banking businesses with the codes BABP and MAYA began using external auditors who were not linked with or from KAP The *Big Four*. There are 30 banking businesses that have discovered the presence of a *risk management committee* whose information is contained in the company's annual report for the independent variable *risk management committee* (RMC). The remaining three banking companies did not have a *risk management committee*, according to the information in the company's annual report. Simultaneous testing demonstrates that *firm size, ownership concentration, auditor repute,* and *the Risk Management Committee* (RMC) all have an impact on enterprise risk management disclosure. So that the company's *enterprise risk management* disclosure decision-making

can take into account the combined use of these variables. The size of the organization has a beneficial effect on the disclosure of *enterprise risk management*, according to partial testing. This is in line with the research's goals. In the disclosure of *enterprise risk management*, the size of the company can be utilized as a reference. The greater the company's size, the more information about its *enterprise risk management* is made public.

According to preliminary tests, ownership concentration has a negative impact on *enterprise risk management* disclosure. This isn't in keeping with the study's goals. The concentration of ownership can be used as a reference in the disclosure of *enterprise risk management*. The greater the transparency of enterprise risk management, the lower the concentration of ownership in a company, because the organization will seek to attract investors by increasing transparency.

The auditor's reputation has little effect on the disclosure of *corporate risk management*, according to partial testing. This isn't consistent with the study's objectives. Because there are still samples that use the *Big Four* KAP but have a small enterprise *risk management* disclosure value, and companies that do not use the *Big Four* KAP have a large *enterprise risk management* disclosure value, the auditors' reputation cannot affect the extent of the company's *risk management* disclosures.

The *risk management committee* has little effect on the disclosure of *corporate risk management*, according to preliminary tests. This isn't consistent with the study's objectives. Companies who already have a *risk management committee* will continue to focus on *enterprise risk management* transparency in order to persuade investors to invest in their stock.

Because of the variances in industry settings, the results of this study can't be generalized to other types of industries. Future studies are likely to incorporate additional independent variables such as *leverage, the size of the board of commissioners, institutional ownership, the chief risk officer,* and *other proxies* that may affect *enterprise risk management* disclosure.

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Theme: Logistics & Supply Chains, Marketing, and Tourism & Hospitality

ID 30
Optimizing Depot: Efficiency and Productivity for Enhanced Sustainability Operations at Port Klang: A Comprehensive Research Investigation

Mohamad Ghozali Hassan[1]*, Lee Sze Tong[2], Wong Soo Wen[3] and Ryan Allwie Khor Yoong Zing[4]

[1] School of Technology Management and Logistics, College of Business,Universiti Utara Malaysia, 06010, Sintok, Kedah, Malaysia

* Correspondence: ghozali@staf.uum.edu.my

Abstract

Longer wait times as a result of inefficient gate entrance procedures have a detrimental influence on the port's overall operating efficacy. The prolonged waiting periods not only hinder the prompt transportation of products but also lead to higher operational expenses for shipping firms, so negatively impacting the port's overall competitiveness. This study aims to explore the causes of depot congestion and makes recommendations for improving effectiveness. This study takes a qualitative approach, with in-depth interviews serving as the main means of gathering data. Interviews with a sample of six Port Klang depot operation businesses will be conducted to learn more about their viewpoints and experiences about the issues causing depot congestion. The research looks at the connections between port operations and several independent factors including information systems, gate operations, operational handling, employee-related concerns, and facility and equipment management. The findings of the research are expected to explore the problems related to the independent factors that might cause congestion in Port Klang's depot. Moreover, the research will investigate and propose practical suggestions for improving the efficiency of the operation within the depot. By delving into the practical aspects of depot operations, the research aims to make a meaningful contribution to existing literature in the field. The findings from this study are expected to offer valuable, real-world insights that can inform strategic decision-making, improve operational practices, and ultimately optimize the overall efficiency of depots within the Port Klang maritime ecosystem

Keywords: Depot congestion, Long waiting, Operational effectiveness, Port Klang, Waiting hours

Introduction

Prioritizing sustainable supply chain and logistics methods has increased recently due to the global pursuit of resource optimization and increased environmental consciousness. Because they are essential nodes in the logistics network, port facilities are crucial to this revolutionary change. This study focuses on improving the Port Klang depot to increase output and effectiveness, acknowledging its crucial function as a busy maritime entry point in the larger supply chain. One of Malaysia's most important international trade hubs, Port Klang, requires a careful analysis of its operational aspects, especially the depots that manage cargo throughput. Finding a balance between economic efficiency and environmental sustainability emphasizes the need to evaluate Port Klang's depot operations. (Kamarzaman, n.d.).

By carefully examining the variables affecting Port Klang's depot productivity and efficiency, this study seeks to close this disparity. The aim is to pinpoint actions that lead to traffic problems while promoting the general purpose of sustainable port administration. The study's findings will be advantageous not only to the stakeholders in Port Klang but also to port facilities across the globe, helping them strike a balance between environmental responsibility and economic operations. The industry and scientific communities are becoming more interested in improvement techniques because of the growing size of vessels and the stress they place on landside operations at container ports,

particularly during peak truck arrivals (Chen et al., 2016). Variations in truck traffic can be problematic for depot gate capabilities since they can cause either overcrowding or shortages, which can increase labour expenses or lengthen wait times. This makes the gates more congested, which affects how well empty container depots and other port operations operate (Lee et al., 2019).

The growing size of vessels and the resulting pressure on landside operations at container terminals, particularly during peak truck arrivals for container handling, has sparked increased interest in improvement strategies within both the industry and research communities. Due to significant fluctuations in truck traffic, depots gate and capacities often face challenges of being either excessively high or insufficient, resulting in elevated labour costs for the terminal or prolonged waiting times for trucks. This, in turn, contributes to congestion at the gates. This phenomenon has affected the performance of empty container depots, and other companies in the port. There is an increase in emissions within the port area due to the truck engines running for extended periods during queues or traffic jams. The port drayage sector is significantly affected by these trends because of its focus on transportation within the port and reliance on container terminals as primary sources and recipients of drayage transports. Furthermore, drayage truck drivers generally get paid based on the number of daily trips that they can done. Long wait times cause drivers to make fewer trips each day, which puts them in a difficult financial situation. (Lange et al., 2017).

This research aims to investigate the critical challenges impacting the efficiency of warehouse operations within a logistics company, with three primary research objectives. The first objective is to analyse the status of depots at Port Klang. The second objective is to identify key factors contributing to truck congestion in Port Klang depots. The ultimate goal is to propose recommendations and solutions that can effectively reduce truck congestion and enhance the overall efficiency of port depots.

While the qualitative research investigation's findings provide a direction for improving Port Klang's depot operations. Port authorities and depot operators can improve workflow efficiency and simplify procedures by implementing targeted interventions aimed at tackling the underlying causes of congestion. Comprehending these variables also directs the planning and allocation of infrastructure funds, enabling the prioritisation of enhancements in regions experiencing bottlenecks to enhance throughput. The findings also assist in legislative changes that would guarantee sustainability and adherence to industry norms. Furthermore, training programs may provide depot employees with the skills to mitigate congestion, while collaborative initiatives foster innovative solutions among industry stakeholders. Ultimately, putting these ideas into practice will improves sustainability, productivity, and efficiency in a noticeable way, strengthening Port Klang's standing as a major marine centre.

Literature review

Port operation

Port operations comprise a range of duties pertaining to the supervision and enabling of ships, cargo, and passenger movements within a seaport. These roles are essential to seaports' efficient operation and play a key role in facilitating international trade and business. Three primary categories can be used to group the many aspects of port operations: vessel operations, cargo operations, and passenger activities. Cargo operations are the complex procedures for handling cargo, which include the loading and unloading of products from ships, storage plans, and internal cargo movement within the port grounds (Mohd Rozar et al., 2023).

Employee issues

Employee challenges include problems or risks that could affect how well a person does their work or if they are in line with the company's policies and values. These difficulties range in severity from less serious issues like harassment, discrimination, and breaches of health and safety regulations to more serious ones like absenteeism, communication barriers, and interpersonal disputes. Other examples of staff difficulties include poor quality work, decreased output, and failure to reach goals. It is crucial for companies to address employee concerns in a timely and efficient manner to maintain a positive work atmosphere, ensure regulations are followed, and support workers' welfare and job satisfaction. Employee difficulties may be resolved by methodically recording performance concerns, offering assistance and training, and, if necessary, enforcing disciplinary actions (Lee et al., 2019)

Operation handling

The container depot handles containers in a systematic manner across four service-based sections. The operator ensures a smooth container movement flow, improving loading and unloading efficiency. The first section stores well-maintained (AV) containers for short or long durations, using reach stackers to stack them from 5 to 9 levels. This

area is further categorized by shipping companies, applying a first-in, first-out (FIFO) stacking method to prevent prolonged storage. Containers in poor condition identified during inspections go to the maintenance section. The operation staff compiles a repair list, seeking approval from the administration department and the container owner. After approval, damaged containers undergo repair and painting before returning to the storage section.

Containers found dirty or stained are placed in the cleaning section. The operation staff documents cleaning requirements, seeking approval from the administration department and the container owner. Cleaning services, using specific detergents tailored to stains, proceed only upon approval from the container owner (Tan et al., 2020).

Gate operation

Upon a truck arrival at the depot with an empty container, the initial procedure is to gate-in. Before proceeding through the gate, waiting time often occurs due to queues. Upon reaching the gate, the truck driver parks the vehicle and enters the depot administration area, where verification is conducted for the truck driver's ID and the owner of the empty container. The depot operator will then decide which stack the container will be placed in. The hauler driver must use the system to alert the depot operator in advance of their arrival in order to obtain authorization for gate-in. The truck driver will receive a ticket or card for gate access upon arrival and departure after completing the required inspections. (Zachrisson & Naperotti, 2018).

Information

Adopting cutting-edge technology and maintaining reliable information flow are important to effectively manage containers in Port Klang (Yeo, 2015). Utilizing RFID technology and real-time updates to facilitate efficient communication can help reduce wait times and make the most of available parking lot resources. In addition, collaborative efforts and synchronized planning and decision-making between companies can also enhance the overall logistics process.

Facility and equipment

Nasir (2014) takes into account the dynamic interactions between key players in the depot ecosystem in addition to the physical infrastructure when evaluating the status of depots. Infrastructure and facilities, such road networks and gate access, are unquestionably important components that influence the effectiveness of freight movement and the overall performance of operations. According to Nasir's research, a depot's ability to operate depends not just on these material components but also on the interpersonal relationships between the many stakeholders. In this sense, "others" refers to the complex network of connections and exchanges between various parties, such as terminal operators, shipping lines, freight forwarders, and customs agencies. Effective connections between these important parties are essential for cooperative problem-solving and efficient operations. This could entail efficient lines of communication.

Theoretical framework

This study is based on research on the factors that cause depot congestion and how they relate to port operation performance. The research framework is being proposed as below Figure 1.

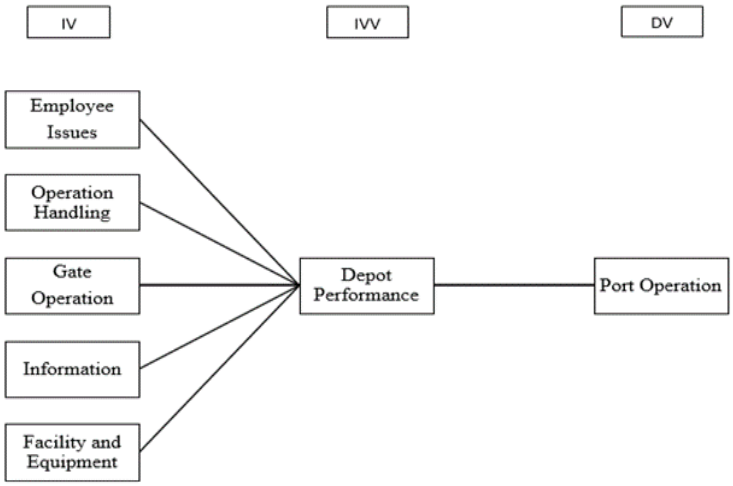

Figure 1: Theoretical Framework

Methodology

Research design

The comprehensive strategy or blueprint for executing a research investigation is termed the research design. It outlines the goals and objectives of the study, detailing the protocols and methodologies to be employed for data collection and processing. Due to its role in guiding the entire research process and ensuring a systematic and rigorous execution of the study, research design holds paramount importance.

We utilize qualitative research design as it was deemed most suitable in this paper. Qualitative research is a methodological approach that focuses on exploring and understanding the complexity of human experiences, behaviours, and phenomena. It employs non-numerical data, emphasizing subjective insights and context. Qualitative research design involves techniques such as interviews, observations, case studies, and content analysis to gather rich, in-depth information (Busetto et al., 2020).

Population and sample of study

"Population" in the context of statistics refers to the entire group of people or objects being studied. This might apply to a variety of things, including a country, a collection of people with similar traits, or any topic of interest for investigation. For the purposes of our research, the population consists of all the Port Klang depots that are actively involved in logistics and cargo handling. On the other hand, a "sample" is a subset that is taken for data gathering from the larger population. We deliberately chose a subset of depot companies because of the complex structure and size of the port as a whole. This selection assures a more focused and precise investigation without compromising its depth.

The goals and context of the study have an impact on the "unit of analysis" selection. For example, in health-related study, a single individual may be the unit of analysis, but in behaviora7l studies, animals may be the subject. Effective data collection and analysis depend critically on the selection of analysis unit. We have decided to analyse each selected company in depot as the unit of study in our research, which allows us to thoroughly examine the experiences, procedures, and probable causes of congestion. This methodology enables well-informed decisions to be made with the goal of improving sustainability and efficiency (Bengtsson, 2016).

Sample and sampling method

According to Turner (2020), a smaller group is utilized for data gathering since it is not practical to cover the whole population of interest in a research endeavour. There are two primary types of sampling techniques: probability sampling, in which each subject in the target population has an approximate chance of being selected for the sample (Kowalewski et al., 2015). The second method is the non-probability sampling method, where the sample population is selected in an unsystematic process that does not guarantee equal opportunities for every subject in its target population. Therefore, researchers have applied non-probability sampling method in this research.

The Port Klang Authority (PKA), an official agency that oversees operations in Port Klang, has provided guidance and recommendations for the sample selection. Due to the broad variety of companies which have different specialization that operate at the port, the PKA's advice guarantees that the chosen company has extensive knowledge and expertise pertaining especially to depot operations. Consequently, this selected sample serves as a useful resource for understanding the procedures and problems associated with this facet of port operations. This focused strategy, approved by the PKA, improves the study's results' applicability and relevance to the larger Port Klang environment. There are six companies recommended by the PKA as the respondents for this research. The companies are the players and running their daily operation in the Port Klang container depot. Therefore, the companies would have better insights into the investigated issue. As a result, various responses and insights from the sample may be used to address the study's theoretical framework. This research will be conducted with several questions related to the truck congestion factors, as well as the strategy to solve this problem. The question will be answered by an individual who is from the company's management team.

Questionnaire design

To conduct this research, a questionnaire with interview questions has been developed for the company management team to evaluate the factors influencing Port Klang's depot performance. Based on Table 1, the questionnaire was created through the adapt and adopt process from various articles. The interview questionnaire consists of section A, Section B, Section C with altogether 26 questions. Section A consists of four questions to respondent information. Section B comprises of the factors that lead to truck congestion in container depot. The factors include employee issues, operation handling, gate operation, information, facility and equipment. On the other hand, Section C consists of three questions to collect respondent's perspective on strategy to solve the problem. In ensuring the validity and reliability of the questionnaire, we consulted with the collaborating company and PKA. With the assistance of these discussions, we were able to modify our interview questions to accurately reflect depot operations and industry standards. We improved the validity of our study by ensuring clarity and relevance through the incorporation of expert opinion. Furthermore, by including both parties, the questionnaire's reliability was enhanced because industry viewpoints agreed on the interview technique. These steps demonstrate our dedication to deliver reliable study findings aligned with the complexities of depot operations in Port Klang.

Table 1: Survey Item

Variable	Item code and description	Source
Employee Issues (EPI)	EPI1 Competence of manpower	Zain, R. et al. (2016)
	EPI2 Rarely meeting or communicating between parties	
	EPI3 Employees vulnerable to health and safety risks at workplace and during work hours affecting port operation	
Operation Handling (ORH)	ORH1 Are the resources (employee, machine and other equipment) sufficient to handle the demand	Zain, et al. (2016), Bolat (2020)
	ORH2 Are the containers segregated properly in terms of grades, size, type etc	
	ORH3 Poor operating speed	
Gate Operation (GTP)	GTP1 Distribution of truck volume by hours	Chang (2009)
	GTP2 Distribution of truck volume by quarter	
	GTP3 Average queue length per minutes	
	GTP4 Average waiting time per truck in minutes	
Information (IF)	IF1 Inaccurate information (for example, information on container serial number, depot's location)	Zain, et al. (2016), Bolat (2020)
	IF2 Information of container movement is not updated in the system; unable to trace the location of the container or lack of system's ability to trace the container	
	IF3 Consistency in the distribution of accurate information	
	IF4 Issuing information on time	
Facility and Equipment (FNE)	FNE1 The port experienced shortage of trucks for container deliver	Zain,et al. (2016), Mwita Magibho (2017)
	FNE2 Insufficient unloading infrastructure has caused delays or inefficiencies in the unloading process	
	FNE3 Breakdowns of machines at the port	

Data collection procedure

In this research, researchers employ qualitative research approach to collect the data from respondents. Qualitative research approach is more suitable to apply in this research than quantitative research approach as it allows researcher to investigate and offers further insights of real-world issues. Compared to quantitative research approach, qualitative research collects respondent's views, behaviour, and experiences. Rather than addressing how many or how much, it addresses how and why (Tenny et al., 2022). The target respondents for this research are the companies that are involved in depot operation in Port Klang. Researchers have conducted online interviews with the six-company representatives through Webex. Before the interview, the questionnaire has been sent to the company representative for review purpose. The purpose of the interview session is to collect the perception and experience of truck congestion issues in Port Klang container depot. The interview session will go through with six company representatives. After receiving feedback and information from the respondents, the researchers will transcribe it for the analysis purpose.

Findings

In this research, we use Table 2 thematic analysis which is a methodical and iterative procedure for finding, examining, and summarising patterns within textual or visual material. Finding patterns or themes in qualitative data is known as thematic analysis. According to Braun & Clarke (2006), as it "provides core skills that will be useful for conducting many other kinds of analysis," it is the first qualitative approach that should be learnt. Take a thorough dive into the interview data and create preliminary codes to capture key information. These codes were then categorised into overarching themes that represented recurrent concepts or patterns. To make sure these themes appropriately represent the data and align with the main study topics, the researchers continuously evaluate and improve them. After that, each subject was given a definition, given a descriptive name, and had pertinent data samples to back it up. The final analysis is given as a thorough report that offers a thorough grasp of the themes found and their significance.

Table 2: Thematic Analysis Based on Three-Level Coding Table

1st Order Themes (Open Coding)	2nd Order Themes (Axial Coding)	Aggregate Themes (Selective Coding)
"…delays at the entrance can occur when drivers don't adhere to their scheduled appointment times". (A) "…they intentionally delay their trucks, as they find it frustrating to wait at the counter and stacker every time they load or unload cargo." (E)	Employee behaviour	Employee Issues
"…Direct communication with hauliers is not our usual practice; instead, we interact indirectly through Cargo Move" (F) "…I concur. In response to issues, we promptly conduct ad hoc meetings with employees to identify and implement corrective actions" (B)	Infrequent communication between depot and employees	
"…. Last-minute notifications can lead to time being wasted in finding substitutes." (A) "Neglecting these precautions can lead to accidents, and depending on their severity, they could significantly impact depot operations." (F)	Exposure to safety and health risk	
"…We're in need of additional machinery, particularly a lifting mechanism to streamline container handling." (A) "…continuous operational cycle leaves minimal time for maintenance and is contributing to increased instances of breakdowns, disrupting our overall operations." (B) "…. The impending expiration of permits for numerous foreign workers could result in difficulties renewing them, potentially leading to a shortage." (B) "…While our current workforce suffices, challenges may surface in instances like attendance or discipline issues." (F)	Resources sufficiency	Operation Handling
"…the depot might overlook certain details, such as checking for any holes in the containers" (A)	Containers segregation	
"…Drivers commonly express dissatisfaction with the desire to switch shifts, such as in the evening when the morning shift has concluded." (A)	Poor operating speed	

1st Order Themes (Open Coding)	2nd Order Themes (Axial Coding)	Aggregate Themes (Selective Coding)
"…depots face challenges with container resources have a shortage in their depot." (C)		
"…Be prepared for a potential wait, as it usually takes about an hour for them to confirm the booking." (A)	Waiting time	Gate Operation
"Providing accurate information about the container and assigning the right driver is crucial for preventing delays at the depot." (A) "… particularly concerning booking details, may result in disparities between the actual booking and the information received" (B) "…upon entering, no units are available. This hints at potential miscommunication between the shipping line and the depot" (C) "…There are instances where the booking volume differs from the information provided by the liner." (D) "…inaccurate information reaching the operations team can lead to complications. Seeking information from higher authorities may result in delays." (E) "…If internal communication fails or breaks down, numerous issues can arise. On the external front, predicting communication problems is challenging." (F)	Lack of information and communication	Information
"…Delays in updating the location in the system can result in drivers failing to reach the correct destination." (E) "…this system only provides the status, such as whether it's damaged, undergoing washing, or being repaired" (F)	Online container tracking facility	
"…. Some depots are swift, while others might have a slightly slower pace." (A) "…If relocation containers are not promptly updated in the system, it can cause delays in the process." (E)	Depot information timeliness	
"…additional stacker is necessary to accommodate the demand for container trading." (B) "…still unable to meet the demand in Port Klang." (C) "…container handling equipment is still insufficient to meet the demand." (D) "…during high-demand periods, we will need additional resources." (F)	Sufficiency of container handling equipment	Facility and equipment
"…additional stacker is necessary to accommodate the demand for container trading." (B) "…still unable to meet the demand in Port Klang." (C) "…during high-demand periods, we will need additional resources." (F)	Shortage of equipment	
"…Breakdowns are rare due to consistent and regular maintenance." (A) "…During heavy movement periods, the two older units tend to experience breakdowns more frequently." (B) "…breakdown issues are infrequent." (E) "…When the usage volume is high, the frequency of breakdowns also increases." (F)	Frequent breakdown of machines	
"…but there's a consistent delay in preparing the designated area for container drop-off." (A) "…If it takes a bit of time for the space to be used for unloading small containers." (E) "…depot occasionally directly transfers containers to vessels, causing hauliers to wait." (F)	Insufficient on loading and unloading	

Employee issues; employee behaviour, infrequent communication between depot and employees, exposure to safety and health risk

Three prominent secondary themes have surfaced from our investigation of employee issues in the context of depot operations. The initial subject, "Employee Behaviour," highlights the difficulties posed by drivers who fail to keep to their appointed schedules. Intentional truck delays, motivated by the annoyance of having to wait at the counter

and stacker while goods are being loaded or unloaded, are the cause of the entry delays. The secondary subject, "Infrequent Communication between Depot and Employees," highlights a communication breakdown between hauliers and the depot. Ad hoc meetings are held swiftly in response to difficulties, acknowledging the necessity for responsive measures. The third subject, "Exposure to Safety and Health Risk," highlights the possible dangers of receiving notices at the last minute, which might make it difficult to identify alternatives and result in time loss. When safety procedures are disregarded, accidents may occur, ranging in severity, which may influence depot operations.

Operation handling; resources sufficiency, containers segregation, poor operating speed

There are three significant themes that have arisen from the operation handling. The “resources sufficiency” secondary order themes, emphasizes the challenges caused by insufficient tools and machines. Equipment that is inefficient and makes it challenging to raise and lower containers is the cause of operational restrictions. "Containers Segregation," the second topic, highlights how important it is to systematically arrange containers based on their size, sort, and grade. Efficient loading and unloading procedures and the prevention of misunderstandings depend on appropriate segregation. "Poor Operating Speed," the final topic, identifies problems with shift shifts and equipment shortages that reduce the depot's overall speed and productivity.

Gate operation; waiting time

When it comes to gate operations theme, waiting time becomes a relevant aspect that might impact how successful a depot is. Extended wait periods at the gate might cause operational snags that affect the logistics flow as a whole. Long wait periods are especially problematic when vehicles run late to deliver or pick up containers. To solve this issue, a thorough examination of gate operations is necessary to identify the bottlenecks that are contributing to longer wait times. Reducing wait times and increasing the efficiency of gate operations may require the use of advanced scheduling systems, streamlining gate procedures, and fostering better communication between gate operators and drivers.

Information; lack of information and communication, online container tracking facility, depot information timeliness

Three prominent secondary themes have surfaced from our investigation of information theme. In order to avoid delays, the first second order, "Lack of information and communication," emphasises how crucial it is to give correct information regarding containers and designate the appropriate driver. The widespread influence of information gaps on operational efficiency is demonstrated by discrepancies between booking details and real information, possible misunderstanding between the shipping line and the depot, and issues resulting from erroneous information reaching the operations team. While for "Online container tracking facility," focus on the significance of timely updates in the system to prevent drivers from failing to reach the correct destination and provides insights into the limited scope of the system in offering detailed status information. The third theme, "Depot information timeliness," points to variations in the pace of information updates across different depots and the potential delays caused by the lack of prompt updates in the system for relocating containers. When taken as a whole, these themes shed light on the complex issues surrounding information management in depot operations and highlight the need for methods to improve the timeliness, accuracy, and communication of managing vital information.

Facility and equipment; sufficiency of container handling equipment, shortage of equipment, frequent breakdown of machines, insufficient on loading and unloading

Four major second-order topics emerged from the examination of issues with facility and equipment management in depot operations. In order to fulfil the need for container trade, especially during peak times in places like Port Klang, the first subject, "Adequacy of container handling equipment," emphasises the need for more stackers. The second subject, "Shortage of Equipment," emphasises the necessity of more resources during peak operating hours and the continuous need for additional stackers to address the continued inability to satisfy demand in Port Klang.

"Frequent breakdown of machines," the third subject, highlights the benefits of routine maintenance in lowering failures. It does point out, though, that older systems could malfunction more frequently during times of rapid movement, and that usage volume, especially during times of high demand, affects the incidence of malfunctions overall. "Insufficiency in loading and unloading processes," the fourth subject, highlights hauliers' delays in getting designated places ready for container drop-off, using space for small container unloading slowly, and occasionally transferring containers directly to boats. The difficulties in controlling and maintaining container handling machinery as well as streamlining loading and unloading procedures within depot operations are all highlighted by these topics

that have been discovered. Improving the general effectiveness and responsiveness of depot facilities requires successfully tackling these issues.

Conclusions

In order to further this field, future research initiatives could surpass some of the mentioned limitations. A long-term investigation would provide a deeper comprehension of how depot issues have evolved over time. The results' generalizability might be improved by increasing the sample size to encompass a wider range of companies and stakeholders in the Port Klang logistics network. A mixed-methods approach, which considers both quantitative and qualitative data, may also yield a more thorough and advanced study. An even deeper understanding would examine the ways in which traffic congestion and depot operations are impacted by outside variables, such as new legislation or technological developments. To increase our understanding and create more practical plans for enhancing depot operations, these suggestions ought to be incorporated into further studies.

To sum up, this study offers an examination of the difficulties faced by Port Klang's operations concerning depot optimisation. Employee concerns, operation handling, gate operations, information flow, and facility and equipment are among the important independent factors identified by the research. The analysis's conclusion suggests that every respondent mostly agreed that a key element contributing to traffic problems and negatively affecting the depot's overall efficiency is misunderstanding. Simultaneously, the study has tackled possible problems related to personnel, operations management, gate operations, information exchange, and facilities and machinery that might cause congestion in Port Klang's depot. As a result, those involved may increase productivity, lessen traffic, and eventually improve port depot performance. This study not only contributes valuable insights to existing literature but also suggests feasible recommendation for stakeholders that involved in Port Klang operation to navigate these challenges and achieve efficient and sustainable logistics.

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ID 31
Technology Acceptance Model in Port and Haulage Operations towards Sustainability: A Case Study on Cargomove System Implementation in Port Klang

Mohamad Ghozali Hassan[1]*, Ooi Jenvie[2], Ng Ji Ying [3] and Chew Chia Hooi[4]

[1] School of Technology Management and Logistics, College of Business, Universiti Utara Malaysia, 06010, Sintok, Kedah, Malaysia

* Correspondence: 1ghozali@staf.uum.edu.my

Abstract

As the global economy increasingly relies on efficient and sustainable port operations, the adoption of advanced information systems becomes critical. The purpose of this study is to gain insight into the sustainability of the Technology Acceptance Model (TAM) in the context of information system implementation, with a particular focus on its impact on streamlining port operations. The case study focuses on CargoMove System implementation in Port Klang, a strategic maritime hub where the integration of innovative technologies has the potential to improve operational efficiency while also addressing environmental, economic, and social issues. The study uses a qualitative interview and thematic analysis approach to investigate the perceptions and experiences of key stakeholders involved in Port Klang port operations. The Technology Acceptance Model is used as the theoretical framework, with a particular emphasis on Perceived Ease of Use (PEOU), Perceived Usefulness (PU), Attitude Towards Use (ATU), Behavioural Intention to Use (BITU), and their impact on environmental sustainability, economic cost savings, and social sustainability. The findings are expected to provide insights into the effectiveness of the TAM such as CargoMove System in the unique context of port operations, providing a nuanced understanding of how technology acceptance influences sustainability goals. In a nutshell, the case study aims to identify challenges and opportunities specific to Port Klang, as well as provide practical recommendations for improving information system implementation and maintaining sustainability over the long term.

Keywords: Cargomove system, Port Klang, Port operation performance, Sustainability, Technology acceptance model

Introduction

According to Port Klang: Most Busiest Port in Malaysia (n.d.) stated that Northport and Westport are the two ports that make up Port Klang. With a 2021 container volume of 13.6 million twenty-foot equivalent units handled, Port Klang is a key player in the management of Malaysia's ports and logistics industry. Port Klang is the largest port in Malaysia handles 38% of the country's international maritime freight and serves as the gateway to Kuala Lumpur located 37 km away (JetsetJ, 2024). Every terminal has fully functional amenities to meet the needs of daily operations. Whereas Northport concentrates primarily on container and traditional cargo operations, Westport concentrates on services including on dock depots, bunkering, and warehousing. Along with dealing with over 500 ports worldwide, the port maintains economic ties with over 200 countries. (Port Klang: Most Busiest Port in Malaysia, n.d.) Malaysian ports are regarded as being less productive than rivals like the Port of Singapore because of their antiquated infrastructure (Beleya et al., 2020). Therefore, IT plays a vital role in the far East-Europe trade route (Port Klang Authority, 2023).

This study uses a qualitative approach involving six Port Klang-based companies to assess the long-term viability of deploying the CargoMove System to optimize pick-up or drop-off container processes in ports and depots. The study examines the effects of perceived ease of use (PEOU), perceived usefulness (PU), attitude towards use (ATU), and behavioural intention to use (BITU) on the environment, the economy, and society using the Technology

Acceptance Model. The purpose of the qualitative interviews is to gather perspectives from significant stakeholders to help policymakers and port management make decisions. A major focus will be on improving the long-term efficiency of port operations. The main objective is to provide important information about how technical acceptability and sustainability relate to each other in the port environment. This study report has four research questions:

RQ1: How well does the Technology Acceptance Model (TAM) framework fit the unique operational and environmental context of Port Klang for pick up/drop off containers in ports and depots?

RQ2: What is the relationship between technology acceptance, as measured by Technology Acceptance Model (TAM) constructs, and the sustainability dimensions (environmental, economic, and social) of port operations at Port Klang for pick up/drop off containers in ports and depots?

RQ3: What are the key factors influencing the willingness of port personnel, IT staff, and stakeholders to accept and use information systems for streamlining operations in Port Klang for pick up/drop off containers in ports and depots?

RQ4: How does this case study of Port Klang contribute to the broader academic understanding of the interplay between technology acceptance and sustainability in the port industry for pick up/drop off containers in ports and depots?

Problem statement

Port Klang has encountered challenges in the limited adoption of information systems, technology acceptance, and economic sustainability. Dependence on traditional manual processes in port operations has resulted in inefficiencies, delays, and environmental impacts. Despite efforts to transition to online processing, the percentage of manual processing involving paper documents remains high. Inefficient manual processes not only cause delays, but they also have an environmental impact. For example, excessive paperwork can lead to increased paper consumption, which contributes to deforestation and other environmental issues. Ports are using a variety of cutting-edge technology and are progressively integrating information system improvements throughout the whole value chain. For example, blockchain, the Internet of Things, automated and robotic systems, and so on. This allows technical, commercial, and sustainable variables to have an impact in port and haulage operations. Consequently, ports need to implement cutting-edge information systems to increase their capacity and productivity. The percentage of manual processing involving paper documents is still large, even with the progressive transition from manual to online processing brought about by information systems and port automation (ESCAP, *2021)*. Building consensus among historically disjointed port users who frequently compete for market share is a major difficulty in port management. There is no one-size-fits-all approach to information system adoption, even though many organisations now utilise the CargoMove system. It takes a lot of work to adapt these systems to the operational and cultural conditions of the area (Rodrigue et al., *2020)*. A tactical approach is needed to overcome these obstacles, one that entails a move towards modern information systems through focused investments and thorough training for port personnel.

Meanwhile, technology acceptance and user resistance are another concern in port and haulage operations that requires effective communication and stakeholder involvement to highlight benefits and dispel concerns. Users, including stakeholders, may be hesitant to adopt new technology due to factors such as lack of familiarity, training, or perceived usefulness. In this era, an information system needs to be accepted to be effectively implemented in the workplace. Poor individual and organizational performance as a result of inadequate use of information technologies may cause job discontent and layoffs. The adoption of new information systems is severely hampered by the persistent problem of user acceptance. Users who reject organizationally based information systems jeopardize the performance of port and haulage operations, as improving work performance is the main goal of these systems. As a result, a key element influencing whether information systems are introduced successfully or not is their level of acceptance. Increasing the efficiency of information systems requires individuals in organizations to embrace and continually use them (Daud et al., *2014).*

Furthermore, the lack of economic sustainability and efficiency concerns highlight the importance of cost-benefit analyses, continuous improvement, and collaboration with stakeholders. There is much of anxiety over the customs information system malfunction at Westport in Port Klang. A temporary manual cargo clearance alternative has been implemented by the Customs Department, which is actively resolving the problem. Hauliers have reported significant financial losses due to the port's severe daily congestion. (Tenaga Nasional, *2016)*. As a result of their outdated systems, Malaysian ports are thought to be less efficient than those of their competitors, such as the Port of Singapore (Beleya et al., *2020)*. Due to their relatively nearness to the ports, container yards in Malaysia are limited

in space. The movement of incoming and outgoing containers makes delays in the delivery of goods to consignees worse, as does inefficiency in the clearing process (Damiri, *2008).* Besides that, inefficient manual processes, such as paperwork, help to degrade the environment. Excessive paper consumption contributes to deforestation and increased carbon emissions from paper production and disposal. Delays in port operations also cause longer transit times for ships, which leads to increased fuel consumption and emissions, contributing to environmental pollution.

Literature review

Port operation performance (POP)

The dependent variable (DV) of this research is Port Operation Performance (POP). Based on Chapter 6.3 – Port Effectiveness | Port Economics, Management and Policy (2020), performance is the ability of port operations to be carried out in a way that satisfies both the needs of port users and the goals set by owners and suppliers of services. Effectiveness and efficiency are the two interrelated components of port performance. According to Venkatesh (2000), a thorough framework for gathering, analysing, and sharing data necessary for port management decision-making is provided by Management Information System (MIS). The purpose of information systems for port management is to facilitate the administration and planning of port operations. By implementing in place a Port Management Information System, ports can gain a competitive advantage in terms of stakeholder involvement, customer service, and overall operational effectiveness (Port Management Information Systems (PMIS), n.d.). When taken as a whole, these components provide policymakers with vital information about how port governance fits into overall national strategic objectives. A third essential element that emerges is the ability to withstand disruptions (Pallis & Notteboom, 2020). Besides, a crucial metric for assessing port operation performance is container volume or throughput if ports strive to maximize throughput. Ports must conduct regular performance reviews to improve their operations. In general, ports can evaluate their competitive edge, efficiency, effectiveness, year-over-year comparisons, target accomplishments, and promotion to draw in new clients and grow their business through performance measurement (Tongzon, 1995). Meanwhile, port operation performance is often correlated with the size of the hinterland, regional economic growth, product composition, international economic standing, trade-friendly governmental regulations, landside infrastructure, population, and cultural elements. Since performance reflects an organization's objectives, clientele, and market conditions, it is essential for efficient organizational management (Karnoji & Siddaramaiah, 2016).

Perceived ease of use (PEOU)

The first independent variable (IV1) in this study is perceived ease of use (PEOU). Perceived ease of use is the degree to which a person believes that using a specific piece of technology is simple. A person's willingness to use technology increases with their perception of ease (Burgess & Worthington, 2021). Furthermore, the term perceived ease of use includes perceptions about decision-making. People are more likely to adopt new technology if they believe it is easy to use; but, if they perceive it is difficult to use, they may choose not to use it. Smoothness, comprehensibility, and simplicity are all characteristics of perceived ease of use. During the assessment process, the degree and frequency of user-system interaction are observed to indicate the system's usefulness (Jahangir & Begum, 2008). Meanwhile, the term "perceived ease of use" refers to how someone feels about how easy it is to utilize technology. Frequent use of a system indicates greater familiarity, ease of use, and user-friendliness. A range of factors influence users' perceptions of technology's ease of use (Venkatesh, 2000).

Perceived usefulness (PU)

The second independent variable (IV2) of this research is Perceived Usefulness (PU). Perceived usefulness is known as the degree to which a technology is thought to improve job performance. It expresses the user's belief that using a particular system will increase the quality of their work (Henderson & Divett, 2003). Furthermore, perceived usefulness refers to a person's perception of how a technology, or a particular technology, can improve the effectiveness and efficiency of their duties. It is the prospective user's subjective assessment of the likelihood that using the technology will improve performance on an individual or group level in an organizational setting. Perceived usefulness is embodied in operators' subjective evaluation of whether implementing a particular technology would improve performance (Bolodeoku et al., 2022). Moreover, a person's perception of a technology's value is referred to as perceived usefulness. A person's willingness to employ technology increases with the strength of their view of its utility. The term "perceived usefulness" describes how much faith a person has in something; if they believe it to be worthwhile and beneficial, they will use it; if not, they won't (Bregashtian & Herdinata, 2021).

Attitude towards use (ATU)

The third independent variable (IV3) of this research is Attitude Towards Use (ATU). Attitude towards use is known as whether a person responds positively or negatively to the target system, their attitude towards using it describes how they relate to and evaluate it concerning their work. It is a major factor influencing behavioural intention and directly influences the frequency of technology use (A.trayek & Hassan, 2013). After that, an individual's attitude towards use can be defined as their propensity to evaluate a particular entity in either a favourable or adverse view for how they integrate or employ that specific technology into their daily activities or jobs. This mentality has a direct impact on people's intentions to use technology. Aside from that, attitude towards use is described by compatibility, which encompasses lifestyle, technology, and self-service preferences. In its most basic form, it acted as a partial mediator in the relationship between perceived utility and intention to use, exerting little effect on a person's decision to utilize a certain technology. People who believed that new technology provided benefits were more likely to regard it positively (Bugembe, 2003).

Behavioural intention to use (BITU)

The fourth independent variable (IV4) in this study is behavioural intention to use (BITU). The term "behavioural intention to use" refers to the user's proclivity or desire to use or return to a particular object. The urge to use is a component of human psychology that involves focusing attention or gaining more pleasure from the thing, which may motivate people to attain their goals (Ramos-de-Luna et al., 2016). Furthermore, behavioural intention to use refers to a person's proclivity or desire to engage in certain behaviours, demonstrating their willingness to carry them out. In behavioural science, intention or preference indicates a motivation to carry out a given behaviour. In this research, behavioural intention refers to a person's propensity to use specific technologies to help them achieve their goals. The propensity to continue using technology and the desire to influence other users can predict how much a person will use it (newsunair, 2022). On the other hand, behavioural intention is a term used to describe how strongly a person intends to engage in a particular behaviour. It expresses a person's intent to use a specific technology, which influences how it is used. These are the motivating factors that influence behaviour; generally speaking, a stronger intention to act translates into a higher probability of doing so (Aditia et al., 2018).

Theoretical framework

Technology acceptance model (TAM)

A theoretical framework is a collection of existing concepts, models, and structures that serve as the foundation for fundamental understanding (Jansen, 2023). This study is based on research into the components of the Technology Acceptance Model (TAM) and their relationship to port operation performance (Anable, 2005). Based on CargoMove (2020), the Technology Acceptance Model (TAM) such as the CargoMove vehicle booking system allows hauliers to plan for their visits to the relevant terminals or depots. To help the port manage traffic at their gates, shorten haulier wait times, eliminate "futile trips," and provide real-time tracking via GPS and mobile apps, this enables the terminal or depot to know who is coming to pick up or drop off cargo before they arrive (CargoMove, 2020). According to the Technology Acceptance Model (TAM), perceived ease of use, perceived usefulness, attitude towards use, and behavioural intention to use are the four criteria that influence whether potential users will adopt a computer system (Thompson, 2019). Information technology adoption and use can have both short-term and long-term positive effects on individuals and organisations, including increased productivity, cost and time savings, and convenience (Marikyan & Papagiannidis, 2023). This model's primary characteristic is its focus on the opinions of possible users. The research framework is being proposed as below:

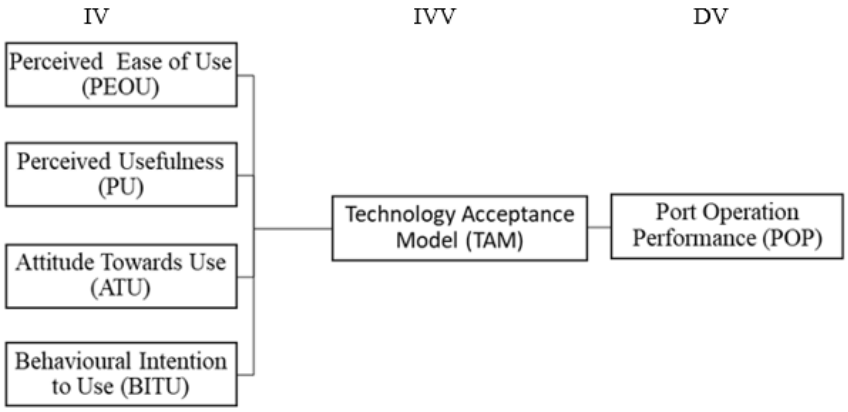

Figure 1: Conceptual framework showing the relationship between the independent variables (IV), moderating variable (IVV), and the dependent variable (DV)

Research methodology

Research methodology can be described as the systematic and scientific approach used to address a research question (Pediaa, 2017). The research design is crucial as it outlines the investigation's structure, serving as the "glue" for the study components (Akhtar, 2016). This study adopts a qualitative approach, utilizing online interviews conducted through platforms like Cisco Webex. Online interviews save time and resources, facilitating global interactions (Interview in Research: Types & Characteristics | StudySmarter, n.d.). The primary goal is to assess technology acceptance in information system implementation at Port Klang and its impact on streamlining port operations. The chapter outlines an interview questionnaire with three sections covering informant details, the technology acceptance model, and general insights on sustainability.

The research focuses on all container depots in Malaysia, with a specific examination of those in Port Klang to understand technology adoption dynamics and their impact on streamlining operations. The organizational level is the unit of analysis, considering an organization as a collective effort with established social structures and division of labour. The sample criteria are location. The sample includes container depots in Port Klang, Malaysia. This criterion ensures that the companies chosen are relevant to the research, which focuses on technology acceptance and its impact on streamlining port operations in that specific location. The sample comprises the availability of stakeholders within the selected companies, particularly members of the executive team. This criterion ensures that the chosen individuals have the necessary expertise and authority to deliver insights into technology acceptance and its impact on ports.

According to McCombes (2019), in exploratory and qualitative research, non-probability sampling approaches are frequently used. Under the category of non-probability sampling, all the keyholders are selected based on non-random criteria. Furthermore, the researchers chose purposive sampling for this study so that they could gather precise knowledge about a specific occurrence rather than making statistical inferences. The sample size for this study is six companies in Port Klang, as suggested by the Port Klang Authority (PKA). This is a result of the six companies' familiarity with the CargoMove system and their capacity to respond to its most recent application. To gather data, these inquiries will be addressed by members of the company's executive team, and eligible to serve as our respondents on behalf of the Port Klang.

Questionnaire design

The questionnaire will be conducted in Google Forms. There are a total of 18 questions spread over the 3 sections of the interview questionnaire including 6 questions in section A, 8 questions in section B, and 4 questions in section C. Section A is about the general information of informants, designed to gather information about the respondents. Section B contains the four parts of the study's independent variables. Section C is about general insights and sustainability, which aims to gather additional insights and information from the respondents. During preparing the questionnaire, the interviewers make sure that each section of the questionnaire serves its intended purpose. For example, make sure Section A collects relevant general information about the respondents. Similarly, make sure

Section B covers study's independent variables and Section C captures insights on sustainability. When interview responses are consistent and stable over time or under different conditions, researchers can be more confident in the information's accuracy and trustworthiness. This consistency shows the questionnaire items reliably measure the intended constructs, thereby increasing the overall validity of the research findings.

Table 1: Original Questionnaire from Source

Construct	Item code and Description	Source	Original Article
Perceived Ease of Use (PEOU)	PEOU1 The more advanced the technical infrastructure the company has; it becomes easier for its employees to use the system. PEOU2 The more experienced and exclusive employees for PCS, it gets easier for its employees to use the system, both of which make sense.	Keceli,Y., Choi, H.-R., Yoon,S.-C., & Aydogdu,Y.V. (2008)	https://www.researchgate.net/publication/228631714_A_Study_on_Adoption_of_Port_Community_Systems_According_to_Organization_Size
	PEOU3 When the information in an e-government website is accurate, valid, up-to-date, free of error, and precisely presented, citizens will use this information to implement their tasks.	Soud almahamid1, 2005-2010	https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=f4ebd3c58226492f7a999fef75a8b9e237a6f3b0
Perceived Usefulness (PU)	PU1 The present study has examined the effect of perceptions of social presence, social influence, accessibility, and training on perceived usefulness and the effect of these on self-reported usage of E-mail. PU2 Forecasts predict that communications technologies – generalized software/hardware products and services that enhance human communications.	Karahanna & Straub (1999)	https://www.sciencedirect.com/science/article/pii/S0378720698000962
	PU3 The educational digital game will enhance the effectiveness of learning.	Ghani, M.T.A., et al. (2019)	http://gbse.my/V5%20NO.14%20(MARCH%202019)/Paper-199-.pdf
Attitude towards Use (ATU)	ATU 1 Ikens wholesale mobile application is expected to provide benefits that directly impact the speed of work, performance improvement, benefits, productivity, and effectiveness, also do not cause troubles. ATU 2 Strong influence also occurs on Perceived Trust to Attitude Toward Using. Some very strong indications are in benevolence, communication, security, and confidentiality. Therefore, it can be concluded that the success of acceptance of Iken's wholesale mobile apps is largely determined by consumers‟ confidence in the perception of goodwill raised by Ikens from the intention of mobile app launch.	Indarsin, T.& Ali, H (2017)	http://gbse.my/V5%20NO.14%20(MARCH%202019)/Paper-199-.pdf
	AT3 When perceive a learning management system as one that gains more benefits and can improve their performance through use as well as is easy to use and free effort, they will have a positive attitude toward the system.	Averweg., et al. (2008)	https://digitalcommons.kennesaw.edu/cgi/viewcontent.cgi?article=1004&context=ajis
Behavioural Intention to Use (BITU)	BITU1 Blockchain has advanced technology to protect your personal information. BITU 2 The existing debate on whether blockchain can be adapted to these applications by examining the factors that influence user acceptance.	Lee,C.C., Kriscenski,J.C. & Lim, H.S. (2019)	https://www.researchgate.net/publication/335209893_AN_EMPIRICAL_STUDY_OF_BEHAVIORAL_INTENTION_TO_USE_BLOCKCHAIN_TECHNOLOGY
	BITU 3 I think we will build shore power systems in all new working areas of ports in the future	Gao et al. (2021)	https://converter-magazine.info/index.php/converter/article/view/629/595

Instrument development

A measurement device, such as a survey, test, or questionnaire, is called an instrument by researchers. It is also a device used in the development and testing of the study. All surveys in this study were adapted from original internet resources linked to the Technology Acceptance Model.

Response format

The response format is the method by which researchers collect responses from respondents. In this study, the researchers use unstructured response forms to acquire a better grasp of what the responder truly means when he answers a certain topic. These response formats are employed in qualitative research studies, especially when the researchers want to learn about the respondents' experiences and perceptions. (Sarah Mae Sincero, 2012)

Data collection procedures

Data collection is the process of acquiring, measuring, and analysing accurate insights for research objectives using established and recognized procedures. Data collection is also the process of acquiring information for a certain goal (Bhat, 2018). In this study, the researchers use a qualitative approach to conduct an online interview with six companies in Port Klang as our respondents. The researchers emailed interview questionnaires to the six company representatives for evaluation before the interview. Furthermore, the interview would collect experiences and perspectives on the Technology Acceptance Model implementation in Port Klang. After receiving feedback and information from respondents, the researchers will start attempting to analyse the findings.

Research findings

This study used thematic analysis to interpret the information gathered (Braun & Clarke, 2006). This required the transcription of interview recordings, followed by coding stages. Initially, the authors read and reread transcripts to identify potential themes. The second level of analysis required the authors to go over the initial codes. They aimed to retain the diversity of the original codes while developing overarching elements and higher-level sub-themes.

Table 2: **Thematic Analysis Based on Three-Level Coding Table**

1st Order Themes (Open Coding)	**2nd Order Themes (Axial Coding)**	**Aggregate Themes (Selective Coding)**
1. "…need for improvements in our operations, particularly in cargo transportation. (A) 2. "… primary communication system for hauliers and depots. While the system works, there is room for improvement to make it more user-friendly and provide more detailed information." (B)	System upgrade	Perceived Ease of Use (PEOU)
3. "…our port management information systems, such as the liner system, are designed to integrate data from various sources, resulting in a centralised platform for effective port operation monitoring and management." (A) 4. " to integrate all systems into one." (E)	Centralized system	
5. "… for real-time monitoring of cargo status and location, also aim for a single platform with automatic updates." (A) 6. "…fully committed to transparently sharing all data and reports throughout the entire supply chain." (C) 7. "…ability to filter incoming container types, which would allow us to accept or reject specific containers." (F)	Functionality and Synchronization	
1. "…communication between the depot and the haulier." (D) 2. "…provide necessary information, connections, and communication between haulier and depot in port operations such as pickup and drop off." (F)	Communication system	Perceived Usefulness (PU)
3. "… provides critical information to hauliers, allowing them to plan their visits in a systematic manner, check the status of depot congestion, and determine the best time to visit." (B) 4. "… create a user-friendly system that allows each user to efficiently plan and allocate their assigned tasks from the office for each booking" (C) 5. "…click accept button when there's no issue for return/pick up container" (D) 6. "…easy for operations staff to quickly update all movement data with a single system update." (E) 7. "…once a haulier has booked a time slot, the depot will accept or reject it." (F)	Improved Panning and Coordination	
8. "…allows personnel to monitor cargo's status and location in real-time." (A)	Real-time information	

1st Order Themes (Open Coding)	2nd Order Themes (Axial Coding)	Aggregate Themes (Selective Coding)
9. "…this information is quickly transmitted to all depot users, allowing them to receive real-time updates and adjust their plans accordingly." (B) 10. "…improves port operations by providing daily movement data." (D)		
11. "…depots can easily track delivered trucks by accessing driver information." (F) 12. "…ensuring transparency in accessing details is critical." (F)	Transparent details	
1. "…automation reduces the need for manual intervention, which saves time on routine tasks and reduces reliance on human labour." (A)	Automation for Efficiency and Time Saving	Attitude towards Use (ATU)
2. "…Haulage Depot Booking System (HDBS) is critical to ensuring effective planning for both hauliers and customers." (C) 3. "… facilitate and streamline movement in each area, ensuring a smooth operational flow." (E)	Performance Monitoring and Optimization	
4. "…CargoMove system is a reliable source of accurate information, the depot reserves the right to reject bookings if there are any discrepancies." (A) 5. "...integration of the CargoMove system with our depot system automates the verification and acceptance of the vast majority of reservations." (B) 6. "…Electronic Data Interchange (EDI) is a critical component in reducing errors and complaints, which contributes to our system's high quality." (C) 7. "…our experience has been primarily positive, showcasing the success of our systems and processes." (D) 8. "…positive, but we need to serve within 45 minutes because we have a KPI" (E) 9. "…combination, around 70% positive and remaining need to improve." (F)	Satisfaction of attitude	
1. "…implemented well-designed and structured training programmes in the port environment." (A) 2. "…currently rely on senior staff knowledge transfer in the absence of a formal training programme." (D) 3. "…terminal staff receive training on how to update and use the CargoMove system." (E) 4. …unless there are new features in the system, the senior will train the new employees. A support structure was also provided" (F)	Training Programs and Support Structures	Behavioural Intention to Use (BITU)
5. "…invest a significant amount of manpower to gain experience with the system." (F)	Intentions to Continue Using	
6. "…CargoMove system is a required tool for On Dock Depot operations, which streamlines information management within the terminal system." (B) 7. "…PKA facilitates discussions and offers mitigation strategies, emphasising the significance of embracing these changes." (C)	Mandatory and Enforcement by Authorities	

Discussion

In this study, we look at the long-term viability of the Technology Acceptance Model (TAM) when it comes to deploying information systems for optimizing port operations, specifically at Port Klang. The key themes investigated are perceived ease of use, perceived usefulness, attitude towards usage, and behavioural intention to use.

Perceived ease of use; system upgrade, centralized system, functionality and synchronization

For perceived ease of use, stakeholders exhibit varying perspectives, particularly concerning system enhancement. The initial subject "system upgrade" highlights the emphasis on the past change from physical pickup at depots to the current digital booking system, highlighting the need for improvements and a reduction in manual work for improved efficiency and data accuracy. The second subject "centralized system" emphasizes the significance of system integration in optimizing port operations. The third subject "functionality and synchronization" emphasizes the importance of information system simplicity, transparency, and enhanced functionality for efficient port operations. While system upgrades and centralization are deemed necessary, there is a stronger emphasis on functionality and synchronization, indicating a desire for advanced and integrated information systems.

Perceived usefulness; communication system, improved planning and coordination, real-time information, transparent details

In terms of perceived usefulness, the theme of Communication and Coordination emerges as crucial, emphasizing the CargoMove system's role in facilitating clear communication, real-time updates, and efficient coordination among stakeholders. The first subject "communication system" highlights CargoMove's user-friendliness that facilitates communication between depots and hauliers in Port Klang. The third subject "improved planning and coordination" emphasizes support for the system's ease of use, efficient planning capabilities, and reduction of manual errors. The third subject of "real-time information" highlights the system's contribution to smooth operation flow by providing a simple and effective cargo tracking interface that enables real-time monitoring and reduces logistics errors. Lastly, the subject of "transparent details" mentioned the system should make it simple for depots to access information about delivered lorries, including driver details, allowing for more efficient tracking and planning. Overall, improved planning and coordination receive high importance, while real-time information and communication are moderately emphasized.

Attitude towards use; automation for efficiency and time saving, performance monitoring and optimization, satisfaction of attitude

Stakeholders' attitudes towards system use centre on efficiency and automation. Firstly, the subject of "automation for efficiency and time saving" emphasizes the automation of the system streamlines various cargo-related processes, such as handling, documentation, and logistics, reducing the need for manual intervention. The second subject of "performance monitoring and optimization highlights depots can monitor and keep track of key performance indicators (KPIs) for container turn time. With the integration of GPS technology. The subject of "satisfaction of attitude" mentioned the system's positive attributes while emphasizing the significance of integration and continuous improvement. The CargoMove system is recognized for its time and labor-saving features. High satisfaction is expressed, particularly regarding efficiency and automation, while performance monitoring and optimization receive moderate emphasis.

Behavioural intention to use; training programs and support structures, intentions to continue using, mandatory enforcement by authorities

Regarding behavioural intention to use, stakeholders highlight the significance of training and support structures. The first subject "training programs and support structures" emphasizes that well-designed training programs and support mechanisms are considered critical for successful system implementation. The second subject "intentions to continue using" expresses optimism about continuous improvement and resource investment, indicating a commitment to ongoing system use. The third subject "mandatory and enforcement by authorities" highlights Port Klang Authority's proactive efforts to motivate logistics players towards embracing changes through facilitated discussions and training, which are driven by managerial directives. Overall, the availability of training programs and support structures significantly influences stakeholders' behavioural intention to use the CargoMove system in port operations. While authorities' mandatory enforcement is moderately emphasized, intentions to continue system use receive less focus within the context of behavioural intention to use.

In summary, stakeholders underscore the importance of functionality, synchronization, communication, coordination, efficiency, and automation in optimizing port operations through the implementation of the CargoMove system. Training and support structures play a crucial role in influencing behavioural intentions to use the system, with a moderate emphasis on regulatory compliance by authorities.

Conclusions

The study is significant as it provides practical insights into the sustainability of technology acceptance models in CargoMove system implementation at Port Klang for pick-up or drop-off containers in ports and depots. The findings are valuable for depots looking to optimize operations and adopt technology effectively, guiding managers in making informed decisions for long-term sustainability. The findings indicate a significant positive relationship between dependent variable and independent variables was found.

Limitations

While providing valuable insights into the sustainability of the technology acceptance model in Port Klang, this study has limitations that point to opportunities for future research. Notably, there is incomplete stakeholder

representation, with perspectives from government entities, local communities, and international shipping companies not fully captured. The use of an online questionnaire or online interview introduces potential reliability issues, as respondents may provide biased answers influenced by societal expectations or perceived researcher preferences. Additionally, time and resource constraints in conducting interviews, especially with numerous participants or specific populations, pose challenges in this research.

Future recommendations

To enhance the sustainability of the Technology Acceptance Model (TAM) in information system implementation for port operations in Port Klang, it is recommended to focus on integrating and centralizing systems. Explore opportunities for further integration of terminal, cargo move, liner, and depot systems to create a unified platform for improved efficiency. Implement ongoing training programs to address varied skill levels and concerns among stakeholders. Continuously invest in system upgrades like the CargoMove system to meet changing industry needs and collect regular user feedback for improvement. In this case, Port Klang Authority ought to gather input from companies utilising the CargoMove system and use that input as a guide to enhance the system's effectiveness. This is due to the possibility that a future CargoMove system that has been improved and adjusted may more accurately and realistically represent the Technology Acceptance Model.

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ID 200
Perceived Value, Trust, and Repurchase Intention in the Cosmetics Industry: Insights from Indonesia

Halimatussakdiah[1*], Syarifah Evi Zuhra[2], Thanawit Bunsit[3], Karmila[4], Rahmatussyifa[5]

[1] Syiah Kuala University; halimatussakdiah@usk.ac.id (HLA)
[2] Syiah Kuala University; syarifah.evizuhra@usk.ac.id
[3] Faculty of Economics and Business Administration, Thaksin university; .thanawit_dome@hotmail.com
[4] Syiah Kuala University; karmilagayo22@gmail.com
[5] Syiah Kuala University; rahmatssyifa03@gmail.com

* Correspondence: halimatussakdiah@usk.ac.id

Abstract

Awareness about beauty, cosmetics is a dominant choice mainly for women. This is a beneficial way for cosmetics industry to gain target market by producing valuable product to provide customer value, gain customer trust and initiate purchase and repurchase intention. This research measures the perceived value and trust impact toward cosmetics repurchase intention in Indonesia. Data for the study were collected from Wardah cosmetics customer in Banda Aceh, Indonesia. To reach the targeted respondents, the questionnaire was share with the author's mutual friends and contacts through WhatsApp media. A total 112 responses were collected. The data processing is partial least squares (PLS) structural equation modeling. The result conclude that perceived value and trust affect repurchase intention significantly. The findings provide practical implications and suggestion for future research regarding repurchase intention determinant in consumer behavior research.

Keywords: Perceived value, Trust, Repurchase intention

Introduction

The cosmetic industry is one of the fastest growing sectors in Indonesia and has consistently recorded double-digit growth in recent years. According to the Association of Indonesian Cosmetic (Perkosmi), the organisation currently has 400 members that own 760 cosmetic companies, 23 of which are large companies and the rest are SMEs. The Food and Drug Supervisory Agency (BPOM) noted that from 36,642 cosmetic products registered in Indonesia in 2014, 14,656 of them are domestic products and 4,485 of which are produced by SMEs. Cosmetic sales volume growth in the country has been underpinned by increased demand; particularly from middle class consumers. After all, the female population in Indonesia, the largest cosmetic users, has now reached 126.8 million people. Cosmetic products typically have specific target customers. These customers tend to be loyal to a particular brand. Therefore, the demand for cosmetic products is relatively stable (https://www.gbgindonesia.com).

Cosmetics are substances that are applied to the body to enhance appearance, particularly the face. Cosmetics include everything from skin care to hair styling. Products like cosmetics are becoming necessities for everyone, but especially for women. The use of skincare products is encouraged by current beauty trends. To satisfy people's requirements for cosmetics, a variety of cosmetic brands are created. Each brand uses a different slogan and method of product communication to inspire and help every customer fulfill their need for cosmetics. Effective communication is crucial for a business to draw in new clients and encourage recurring business. After processing the information about the product and learning about the brand, the buyer will choose to purchase the item. Customers will plan to repurchase if they are satisfied with the product and feel that it matches their needs, trust toward product (Uzir et al., 2021), and plan to repurchase (Meilatinova, 2021).

Customer perceived value is an important variable for predicting trust (Sullivan & Kim, 2018; Uzir et al., 2021). Perceived value is the predictor of repurchase intention (Chatzouglou et al., 2022, Ali & Bhasin, 2019). Trust is the predictor of repurchase intention (Meilatinova, 2021; Antwi, 2021; Al-Adwan et al., 2022; and Abubakar et al., 2017).

The goal of the study is to find out how perceived value and trust affect Indonesian consumers' intentions to repurchase cosmetics.

Literature review

Value is a sum of all factors subjective and objective, qualitative and quantitative that make up complete shopping experience (Ali & Bhasin, 2019), an assessment of benefits and costs (Sweeney & Soutar, 2001). Perceived value is a net balance of what consumes think they have given up in comparison to what they have received from buying goods or services (Zeithaml et al., 1988). Perceived value associated with perceived price and perceived product quality and consumers' intention for repurchase. Trust is defined as "a willingness to rely on an exchange partner in whom one has confidence (Moorman et al., 1992). Morgan & Hunt (1994) explain that trust exist when one party has confidence in an exchange partner's reliability and integrity, the belief that the needs of one party will be met through actions of the other party in the future. Previous research explain that trust is a determinant of repurchase intention (Meilatinova, 2021; Al-Adwan et al., 2022; Sharma et al., 2024). Repurchase intention is the process of an individual purchasing goods or services from the same firm (Hellier et al., 2003). Previous studies have empirically examined the impact of customer perceived value toward customer trust (Sullivan & Kim, 2018; Uzir et al., 2021). They clarify that a customer's perception of worth greatly influences their level of trust. Repurchase intention is significantly influenced by the perceived value of the customer (Ali & Bhasin, 2019; Chatzoglou et al., 2022; Sharmat et al., 2024). According to Cronin et al. (2000), perceived value can be used to forecast the likelihood of repurchasing. The intention to repurchase is significantly influenced by customer trust (Abubakar et al., 2017; Antwi, 2021; Aren et al., 2013; Dogra et al., 2023). Drawing from prior studies, three hypotheses were investigated:

H_1: Customer perceived value affect customer trust positively
H_2: Customer perceived value affect repurchase intention positively
H_3: Customer trust affect repurchase intention positively

The research model as shown in Figure 1.

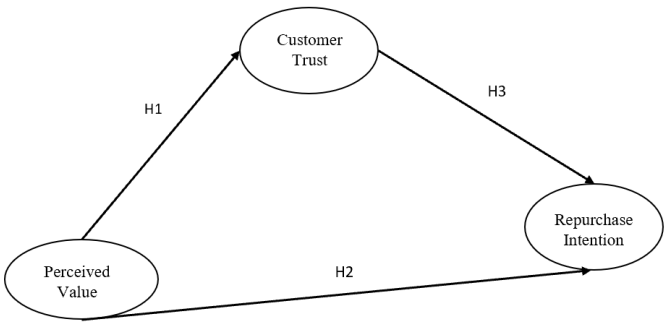

Figure 1: Research Model

Methodology

All measurement items were drawn from the literature. All items of construct were worded to cosmetic product to match the context of the study. All items were translated in Indonesian, back translated into English, then examined by the authors and face validity with expert. 14 indicator was identified for customer perceived value, customer trust, and customer repurchase intention. Five questionnaire items for customer perceived value indicators adapted from (Chatzoglou et al., 2022; Sullivan & Kim, 2018); four item for customer trust adapted from Sullivan & Kim (2018); five items for repurchase intention adapted various researchers (Al-Adwan et al., 2022; Meilatinova, 2021; Sharma et

al., 2024). All items of indicators were measured on a 5-point Likert scale from 1 (very strongly disagree) to 5 (very strongly agree).

Data for the study were collected from Wardah cosmetics customer in Banda Aceh, Indonesia. To reach the targeted respondents, the questionnaire was share with the author's mutual friends and contacts through WhatsApp media. The questionnaire was distributed for two weeks, total 112 responses were collected. Table 1 summarized the descriptive statistics for our demographic profile. Data processing for our study is partial least squares (PLS) structural equation modeling. As a component-based approach, PLS has recently been widely used in marketing (Hair et al., 2019). PLS employ to assess outer and inner model measurement (Ringle et al., 2015). To measure validity and reliability measure with outer model, and inner model to measure path coefficient, direct effect and indirect effect values from original sample, T-statistics and P-Value, R^2 (Duryadi, 2021).

Results and Discussion

Demographic Profile

All respondent are women, education level dominated by undergraduate (35.71%), respondent age dominated in range 28-37 years old (33.92%), marital status dominated by married women (61.60%). Respondent's occupation is dominated by employee (27.67%) and income range dominated in range IDR 5.000.000-IDR 6.999.000 (20.53%). Table 1 shown respondents demographic profile completely.

Table 1: Demographic Profile (n=100)

Variable	Characteristics	Frequency	Percentage
Education	Senior high school	15	13.39
	Diploma	27	24.11
	Undergraduate	40	35.71
	Master	19	16.96
	Doktor	11	9.82
Age	18-25	30	26.79
	26-34	38	33.93
	35-42	21	18.75
	43-50	18	16.07
	>50	5	4.46
Occupation	Student	27	24.11
	Employee	31	27.68
	Entrepreneur	29	25.89
	Housewife	25	22.32
Income (IDR)	IDR 1.000.000; s/d IDR 2.999.000	21	18.75
	IDR 3.000.000; s/d IDR 4.999.000	27	24.11
	IDR 5.000.000; s/d IDR 6.999.000	23	20.54
	IDR 7.000.000; s/d IDR 8.999.000	19	16.96
	IDR 9.000.000; s/d IDR 10.999.000	15	13.39
	>IDR 11.000.000	7	6.25
Total		**112**	**100**

Outer Model

Outer model output is shown at Figure 2. Outer model calculation shown that indicator loading factor >0.7, Cronbach alpha >0.7, composite reliability and average variance extracted >0.5 (Hair et al., 2019). The highest score indicator loading for customer perceived value is indicator "compare to other brand, Wardah cosmetics offers product items completely" with score 0.909 and the lowest score is "I like to purchase Wardah cosmetics" with score 0.832. The highest score loading factor for customer trust is indicator "overall, I trust the Wardah cosmetics" with score 0.867 and the lowest score is "I trust that cosmetics benefit is matches with my expectation" with score 0.836. The highest score loading factor for repurchase intention is indicator "I plan to continue purchasing Wardah cosmetics in the future" with score 0.896 and the lowest score is "I will repurchase Wardah cosmetics in the future" with score 0.854. Completely calculation of internal consistency and convergent validity is shown at Table 2.

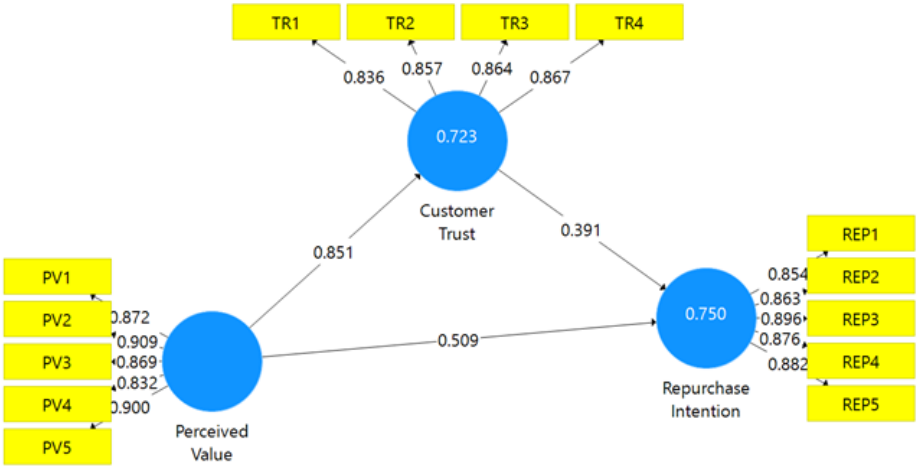

Figure 2: Outer Model

Table 2: Construct Measurement

Variable	Indicators	Loading	Alpha	CR	AVE
Perceived Value	Compare to other brand, Wardah cosmetics offers attractive price	0.872	0.924	0.943	0.769
	Compare to other brand, Wardah cosmetics offers product items completely	0.909			
	I feel, Wardah cosmetics price is reasonable	0.869			
	I like to purchase Wardah cosmetics	0.832			
	Wardah cosmetics has good quality	0.900			
Customer Trust	I trust that cosmetics benefit is matches with my expectation	0.836	0.878	0.881	0.732
	I trust on the quality of Wardah cosmetics	0.857			
	Promises made by the company about Wardah cosmetics benefit are reliable	0.864			
	overall, I trust the Wardah cosmetics	0.867			
Repurchase Intention	I will repurchase Wardah cosmetics in the future	0.854	0.923	0.942	0.765
	Wardah cosmetics is my first choice compare to another brand	0.863			
	I plan to continue purchasing Wardah cosmetics in the future	0.896			
	I will purchase more items Wardah cosmetics in the future	0.876			
	I will recommend Wardah cosmetics to others	0.882			

Table 3: Discriminant Validity

Constructs	Customer Trust	Perceived Value	Repurchase Intention
Fornell-Larcker Criteria			
1. Customer Trust	0.856		
2. Perceived Value	0.851	0.877	
3. Repurchase Intention	0.824	0.841	0.874

Table 3 displays the results of discriminant validity based on Fornell-Larcker criteria (Fornell & Larcker (1981). It asserts that the diagonal values of the correlation matrix are higher than the off-diagonal values. The findings indicate that AVE square roots exceed the cut-off and surpass the discriminant validity criteria, as shown in Table 3.

Inner Model

Inner model examines the structural model to asses beta values, t-statistics, standard deviations, p-values, R^2 and path coefficient. The output explains that hypothesis 1, 2, 3 were supported. Perceived value has positive significant effect toward customer trust with T-statistic value 25.955 and P-value 0.001, the hypotheses 1 is supported. Perceived value has positive significant effect toward repurchase intention with T-statistic value 5.050 and P-value 0.001, hypotheses 2 is supported. Customer trust has significant impact toward repurchase intention with T-statistic value 3.994, P-value 0.001, the hypotheses 3 is supported. The hypotheses result shown at Table 4.

Table 4: Hypotheses testing

Hypotheses	Beta	T- Stat.	P Values	Decision
Perceived value -> customer trust	0.851	25.955	0.001	Supported
Perceived value -> repurchase intention	0.501	5.050	0.001	Supported
Customer trust -> repurchase intention	0.391	3.994	0.001	Supported

The empirical model explanatory power was measured using R^2 values. The R^2 values of all the endogenous variables between 0-1 (Hair et al., 2019). Inner model output clarifies that 72.3% variance is clarified by customer trust ($R^2 = 0.72.3$), 75.0% of the variance is clarified by repurchase intention ($R^2 = 0.750$).

This findings demonstrate that customer perceived value have significant impact to customer trust and it will lead to repurchase intention. These finding also prove to be consistent previous literature. This outcome support the finding of Sullivan & Kim (2018) and Uzir et al (2021) who explain that customer perceived value support customer trust significantly. The next result explain that customer perceived value has significant effect toward repurchase intention, the finding support the previous research (Ali & Bhasin, 2019; Chatzoglou et al., 2022; Sharma et al., 2024). Customer trust has significant effect toward repurchase intention, this finding consistent with previous research (Abubakar et al., 2017; Al-Adwan et al., 2022; Antwi, 2021; Aren et al., 2013; Dogra et al., 2023).

Conclusions

The result of the study shown that customer perceived value has significant effect toward customer trust and repurchase intention, customer trust has significant effect toward repurchase intention. This study provide some important theoretical and managerial implications. In managerial term, this research suggests important managerial implications for practitioners. Customer perceived value and customer trust affect repurchase intention. These variables should be the main focus to cultivate repurchase intention. The result imply the comprehending consumer repurchase intention is important for businesses. To build customer trust, businesses should focus on customer perceived value, to initiate repurchase intention business should cultivate customer trust. Variable description show the highest value from each variable. The highest value from variable customer perceived value is “compare to other brand, Wardah cosmetics offer product items completely”; the highest value from variable customer trust is “overall, I trust the Wardah cosmetics”; the highest value from variable repurchase intention is “I plan to continue purchasing Wardah cosmetics in the future”. This output could be insight for business cosmetics to offer various item product for face and body care, build customer trust with quality, and attract customer to repurchase product and product line as their daily cosmetics. As a result, it will provide benefit for business to sustainable and profitable.

This research suggests applications for both scholars and practitioners. In order to attain repurchase intention, practitioners should establish a memorable product, foster consumer trust, and offer greater perceived value to customers. Scholars will find that this research adds to the body of knowledge on marketing, validates earlier findings, and demonstrates the significance of perceived value, trust, and repurchase intention as research variables. The limitatiton of the research, the research conducted in Indonesia with limited sample, future research may conducted at other country with larger sample. Future studies should explore variables to predict repurchase intention, such as customer experience, customer satisfaction and loyalty.

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ID 208
Impacts of Brand Equity and Customer Satisfaction on EWOM and Repurchase Intentions: A Case Study of Nigerian Cosmetics and Beauty Industry

Taiwo Bolanle Busari[1]*, Sasithorn Suwandee[2] and Suwat Suwandee[3]

[1] Kasem Bundit University; bolataiwo55@gmail.com
[2] Kasem Bundit University; sasithorn.suw@kbu.ac.th
[3] Kasem Bundit University; suwat@kbu.ac.th

* Correspondence: bolataiwo55@gmail.com

Abstract

This study aims to explore the influence of brand equity and customer satisfaction on electronic word-of-mouth (EWOM) and repurchase intentions within Nigeria's cosmetics and beauty sector. Through this exploration, valuable insights are provided for businesses operating in Nigeria's cosmetics and beauty industry, illuminating the complex dynamics that shape consumer behaviour in this sector. The study encompassed 325 respondents who are the customers of the selected cosmetics company in Nigeria via self-administered questionnaire. The study employed linear regression to reveals the positive effect of brand equity on customer satisfaction. Moreover, substantial influences of customer satisfaction and brand equity on EWOM are apparent. Notably, customer satisfaction prominently drives EWOM intentions and repurchase intention compared to brand equity. These findings emphasise the pivotal role of customer satisfaction and brand equity in shaping consumer behaviour within the beauty industry. This study highlights the vital role of customer satisfaction and brand equity in Nigeria's cosmetics and beauty industries. Recommendations include implementing robust satisfaction programmes, strategic brand equity management, leveraging EWOM, and fostering community engagement to strengthen the market position and drive sustainable growth.

Keywords: Brand equity, Customer satisfaction, EWOM, Repurchase intentions, Nigerian cosmetics industry

Introduction

With a population of over 200 million, Nigeria provides a large consumer market for cosmetic products. This leads the Nigerian cosmetics and beauty industry a thriving sector within the country's economy, driven by rising consumer demand for personal care products. In this competitive subject area, the concepts of brand equity and customer satisfaction play pivotal roles in shaping consumer behaviour, influencing electronic word-of-mouth (EWOM), and fostering repurchase intentions (Ojo et al., 2020). As consumers increasingly seek quality and reliability in their beauty purchases, businesses must prioritize building strong brand equity and ensuring high levels of customer satisfaction to maintain a competitive edge in the market.

Brand equity represents the intangible value associated with a brand, encompassing consumers' perceptions, attitudes, and associations towards the brand. In the context of the cosmetics and beauty industry, where brand image and reputation hold significant sway over consumer preferences, the establishment and maintenance of strong brand equity are paramount (Atilgan et al., 2005). A brand's equity not only influences consumers' purchasing decisions but also serves as a foundation for fostering loyalty and advocacy among customers (Freling & Forbes, 2005).

Moreover, customer satisfaction stands as a cornerstone of brand success, serving as a barometer of consumers' overall experience with a brand's products or services (Bennett and Rundle-Thiele, 2021). Satisfied customers are more likely to become loyal patrons, advocate for the brand, and engage in positive word-of-mouth communication. In the context of the cosmetics and beauty industry, where product efficacy, quality, and sensory appeal are dominant,

ensuring high levels of customer satisfaction is imperative for sustaining competitiveness and driving business growth (Bojei & Hoo, 2012).

In recent years, the advent of digital technologies and social media platforms has transformed the way consumers interact with brands and share their experiences with others (Mangold & Faulds, 2009). Electronic word-of-mouth (EWOM), defined as the dissemination of brand-related information through online platforms such as social media, blogs, and review websites, has emerged as a powerful force shaping consumer perceptions and purchase decisions (Chen et al., 2011). In the context of the cosmetics and beauty industry, where visual appeal and social influence play significant roles, positive EWOM can amplify brand visibility, attract new customers, and reinforce existing relationships (Bickart & Schindler, 2001).

Furthermore, repurchase intentions signify the probability of consumers to engage in repeat purchases from a specific brand. Within the cosmetics and beauty sector, where recurring purchases prevail, comprehending the determinants affecting repurchase intentions is crucial for nurturing enduring customer connections and fostering sustainable revenue expansion (Bennett & Rundle, 2022). Understanding these factors empowers businesses to tailor their strategies effectively, fortify customer loyalty, and cultivate a loyal customer base for sustained success in the competitive marketplace.

Against this framework, this study aims to investigate the impacts of brand equity and customer satisfaction on electronic word-of-mouth (EWOM) and repurchase intentions within the Nigerian cosmetics and beauty industry, Aquinia and Soliha (2020). By examining these relationships, the study seeks to provide insights that can inform strategic decision-making and enhance the competitiveness of businesses operating in this dynamic sector. Through a comprehensive analysis of these key constructs, this research endeavours to contribute to the existing body of knowledge and offer practical implications for industry practitioners and stakeholders.

Literature Review

Brand Equity

Brand equity encompasses the perceived value and strength of a brand, influencing consumer behavior and brand-related outcomes. In the cosmetics and beauty industry, Vo and Dinh, (2020), where brand image and reputation are significant, studies have highlighted the significance of brand equity in driving consumer preferences, loyalty, and purchase decisions. Research suggests that strong brand equity leads to higher brand awareness, perceived quality, and brand associations, ultimately resulting in increased customer loyalty and positive word-of-mouth, Aquiniaa and Soliha (2020). Factors such as brand reputation, product quality, brand communication, and consumer experiences contribute to brand equity in the cosmetics and beauty sector. Understanding and managing brand equity are essential for businesses to maintain a competitive edge and achieve sustainable growth in this dynamic industry.

Customer Satisfaction

Customer satisfaction reflects customers' perceptions and evaluations of their experiences with a brand's products or services (Zahari et al., 2008). In the cosmetics and beauty industry, where sensory appeal, product efficacy, and personalized experiences are crucial, achieving high levels of customer satisfaction is imperative for building brand loyalty and driving repurchase intentions. Studies have shown that satisfied customers are more likely to become brand advocates, engage in positive word-of-mouth, and exhibit greater loyalty to the brand (Kotler & Armstrong, 2020). Factors influencing customer satisfaction in the cosmetics and beauty industry include product quality, effectiveness, pricing, customer service, and overall brand experience. Understanding customer needs and preferences and delivering exceptional experiences are key strategies for enhancing customer satisfaction and fostering long-term relationships with consumers (Shin & Elliot, 2001).

Electronic Word-of-Mouth (EWOM)

Electronic word-of-mouth (EWOM) refers to the dissemination of brand-related information and opinions through digital platforms such as social media, online forums, blogs, and review websites. In the cosmetics and beauty industry, where visual appeal and social influence play significant roles, EWOM has emerged as a powerful driver of consumer behaviour and brand perception, Barreto (2014). Studies have demonstrated that positive EWOM can enhance brand visibility, attract new customers, and influence purchase decisions. Conversely, negative EWOM can damage brand reputation and deter potential customers. Factors influencing EWOM in the cosmetics and beauty sector include product quality, customer experiences, brand reputation, influencer marketing, and online reviews (Hennig-

Thurau et al., 2004). Understanding the dynamics of EWOM and leveraging digital channels effectively are essential for brands to capitalize on this influential form of consumer communication.

Repurchase Intentions

Repurchase intentions refer to consumers' likelihood to make repeat purchases from a particular brand or product. In the cosmetics and beauty industry, where brand loyalty and repeat purchases are common phenomena, understanding and influencing repurchase intentions are critical for sustaining business growth (Fishbein & Ajzen, 1975). Research suggests that factors such as brand loyalty, product satisfaction, perceived value, and brand trust influence repurchase intentions in the cosmetics and beauty sector (Hennig-Thurau et al., 2014). Studies have shown that satisfied customers are more likely to exhibit higher repurchase intentions and brand loyalty. Moreover, positive word-of-mouth and brand advocacy can further reinforce repurchase intentions by influencing others' perceptions and behaviours (Mirabi et al., 2019). By understanding the drivers of repurchase intentions, brands can implement targeted strategies to retain customers, encourage repeat purchases, and foster long-term relationships with consumers.

Hypotheses Development

Hanaysha, (2018) explored the association between brand equity and customer satisfaction in the beauty and cosmetics industry in Nigeria and asserted that brands with higher levels of equity are associated with greater customer satisfaction and loyalty. Therefore, this study is proposed.

Hypothesis 1: Brand equity has a positive relationship with customer satisfaction.

According to Irnandha (2016), EWOM is characterised as "personal communication about a product between target buyers and neighbours, friends, family members, and associates." The impact of customer satisfaction on EWOM intention by investigating the role of atmospheric affect in creating value and gaining customer share. Satisfied customers are more likely to engage in positive EWOM behaviours, such as recommending the brand to others and sharing positive experiences online. Therefore, this study is proposed.

Hypothesis 2: Customer satisfaction has a positive relationship with EWOM intention.

According to Adekunle and Ejechi (2018) did research on smartphone devices in Nigeria and found that customer satisfaction has a function in predicting repurchase intentions for smartphones. A satisfied customer is more likely to exhibit loyalty towards the brand and make repeat purchases over time. Therefore, this study is proposed.

Hypothesis 3: Customer satisfaction has a positive relationship with repurchase intention.

According to Chen et al. (2011), brands may actively connect with their audience, respond to inquiries, and join in dialogues, thus strengthening the effect of EWOM. The effect of prior brand attitude and brand experience on EWOM behaviour among consumers. Brand equity plays a crucial role in shaping consumers' predisposition to engage in positive EWOM activities. Therefore, this study is proposed.

Hypothesis 4: Brand equity has a positive relationship with EWOM intention.

According to Kesharwani and Singh (2012), customer behaviour is risky since customers cannot forecast product outcomes at the point of purchase. Brands with higher levels of equity are perceived more favourably by consumers, leading to increased trust, loyalty, and repurchase behaviour to enhance customer retention and drive long-term business success. The strategic importance of building and managing brand equity as a key driver of customer loyalty and repeat purchases in the marketplace. Therefore, this study is proposed.

Hypothesis 5: Brand equity has a positive relationship with repurchase intention.

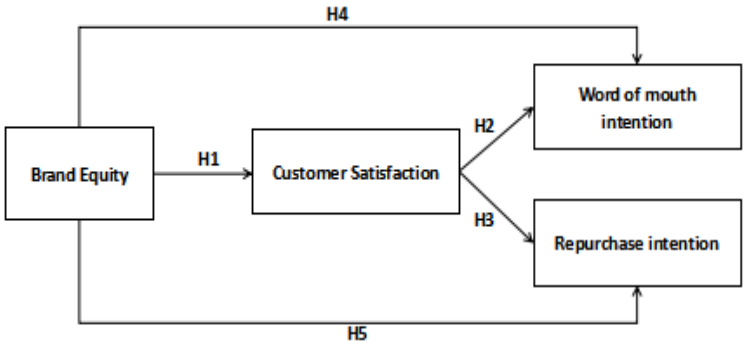

Figure 1: Research Model

Methodology

This study employed quantitative approach via the self-administered questionnaire that were distributed to the customers of a selected cosmetics and beauty industry in Nigeria. This research used linear regression to test hypotheses. This study includes a total of three hundred and twenty-five (325) respondents. Among the total number of respondents, 106 (32.5%) were male, while 219 (67.2%) were female. Most of the respondents (146, 44.8%) were between 18 and 25 years old. Most of them were students (71, 21.8%) and full-time employee (71, 21.8%). Education qualification of respondents were Bachelor degree (115, 35.3%) and Master degree (105, 32.2%). A total of 104 respondents (31.9%) earned monthly income between 120,001 and above while 82 respondents (25.2%) earned between 60,001 and 90,000. Also, in terms of product experience, 119 respondents (43.3%) had less than 2 years of patronizing the selected company while 117 respondents (42.5%) were above 6 years of patronizing the company.

Table 1: Demographic Information

Characteristics		Frequency	%
Gender	Male	106	32.5
	Female	219	67.2
Age range	18-25	146	44.8
	26-35	125	38.3
	36-45	52	16.0
	46-55	2	0.6
Occupation	Student	71	21.8
	Employed part time	52	16.0
	Employed full time	71	21.8
	Retired	65	19.9
	Business owner	45	13.8
	Others	21	6.4
Educational qualification	Less than B.Sc. degree	78	23.9
	B.Sc. degree	115	35.3
	Master's degree	105	32.2
	Doctoral/Post doc	27	8.3
Monthly income	30,000 or less	51	15.6
	30,001-60,000	27	8.3
	60,001-90,000	82	25.2
	90,001-120,000	61	18.7
	120,001 and above	104	31.9
Products experience	Less than 2 years	119	43.3
	Within 3 -6 years	117	42.5
	Above 6 years	39	14.2
	Less than 3 years	248	76.1

Measurement items

The measurement items of the four dimensions of brand equity include 28 items adopted from Yoo et al., (2000). An example of the item is "XXX is of high quality." The measurement items of customer satisfaction include five items adopted from Yunus et al. (2013) and Saha and Theingi (2019). An example of the item is "I was satisfied with the way XXX products and services had taken care of me." The measurement items of repurchase intention, which include six items adopted from Kim et al. (2020). An example of the item is "I will choose the XXX product/services brand in the future." The measurement items of EWOM intention include six items adopted from Kim et al., (2020). An example of the item is "I would recommend XXX to others in social media."

Validity and reliability test

This study found that all variables have convergent validity and reliability. The loading values of all variables are above 0.5, which confirms convergent validity, as Fornell and Larcker (1981), suggested. As shown in Table 2, the loadings of brand equity (>0.694), customer satisfaction (>0.738), repurchase intention (>0.69), and EWOM (>0.709) are above 0.5; this item should be kept in the model for theoretical contribution. In addition, the composite reliability (CR) and Cronbach's alpha have exceeded 0.7, reflecting the reliability of the measurement item, as Shrestha (2021), suggested. The values of CR of brand equity (0.952), customer satisfaction (0.914), repurchase intention (0.919), and EWOM (0.932) are above 0.7. Consequently, measurement items in all dimensions of brand equity, customer satisfaction, repurchase intention, and EWOM have validity and reliability.

Table 2: Validity and Reliability Test

Variables	Loadings	Cronbach's Alpha	CR	No. of Items
Brand Equity	0.694-0.892	0.951	0.952	13
Customer satisfaction	0.738-0.922	0.920	0.914	4
Repurchase Intention	0.690-0.954	0.921	0.919	4
EWOM intention	0.709-0.954	0.931	0.932	6

Results and Discussion

For hypothesis 1, the linear regression model is statistically significant at the 95% confidence level as the p-value of the model is less than .05. A linear regression indicated that brand equity (β=.237) has a positive relationship with customer satisfaction ($F(1,323) = 11.093$, $p<.05$). The adjusted R^2 of the model is .030. Hence, brand equity accounted for 3% of the explained variability in customer satisfaction. Therefore, Hypothesis 1 is supported.

This study also confirmed hypotheses 2 and 4. The linear regression model is statistically significant at the 95% confidence level as the p-value of the model is less than .05. A linear regression indicated that customer satisfaction and brand equity could statistically significantly predict EWOM intention ($F(2,322) = 320.372$, $p<.05$). Customer satisfaction has a stronger positive impact on EWOM intention ($p = .000$, $\beta = .693$) than brand equity ($p = .000$, $\beta = .269$). The adjusted R^2 of the model is 0.663. Hence, customer satisfaction and brand equity accounted for 63.3% of the explained variability of EWOM intention. This implies that hypotheses 2 and 4 are supported.

In addition, for hypotheses 3 and 5, the linear regression model is statistically significant at the 95% confidence level as the p-value of the model is less than .05. A linear regression indicated that customer satisfaction and brand equity could statistically significantly predict repurchase intention ($F(2,322) = 298.803$, $p<0.05$). Customer satisfaction has the stronger impact on repurchase intention ($p = .000$, $\beta = .698$) than brand equity ($p = .000$, $\beta = .314$). The adjusted R^2 of the model is 0.648. Hence, customer satisfaction and brand equity accounted for 64.8% of the explained variability in repurchase intention. Thus, Hypotheses 3 and 5 are supported.

This study investigates the impacts of brand equity and customer satisfaction on EWOM and repurchase intentions of the Nigerian Cosmetics and Beauty company. The study findings indicate that brand equity has a low impact on customer satisfaction ($F(1,323) = 11.093$, $p < 0.05$), with an adjusted R^2 of the model being .030. Brand equity may not boost customer satisfaction in cosmetic industry as expected. Thus, the cosmetic company in Nigeria must be able to identify the significant factors that contribute to customer satisfaction. This aligns with previous research by Vo and Dinh (2020), who examined the relationship between brand authenticity, brand equity, and consumer satisfaction. Their study, which involved 263 participants evaluating companies like Apple, Starbucks, and Nike, found that authenticity and equity did not strongly influence satisfaction. Similarly, Channoi et al. (2018), highlighted that customer satisfaction is influenced by factors like product or service quality, company image, and

perceived value. Service quality, in particular, plays a crucial role in determining satisfaction, happiness, and loyalty. Additionally, Oliver (1988) proposed the disconfirming expectations paradigm, where meeting or exceeding customer expectations leads to satisfaction. Therefore, while brand equity is important, its impact on improving customer satisfaction may be relatively limited, as suggested by the findings of the current study.

Table 3: Result Summary

Hypotheses	F	P-Value	Adj. R^2	Std. β	Result
H_1: Brand equity Customer Satisfaction	F (1,323) = 11.093	.001[b]	.030	.182	Supported
H_2: Customer Satisfaction EWOM	F (2,322) = 320.372	.000[b]	.663	.745	Supported
H_4: Brand equity EWOM				.223	Supported
H_3: Customer Satisfaction Repurchase	F (2,322) = 298.803	.000[b]	.648	.722	Supported
H_5: Brand equity Repurchase				.250	Supported

The current study revealed significant impacts of customer satisfaction and brand equity on EWOM intention ($F (2,322) = 320.372$, $p < .05$). Notably, customer satisfaction exhibited the stronger influence on EWOM intention ($p = .000$, $\beta = .693$) than brand equity ($p = .000$, $\beta = .269$). The customers may urge to share about their experience via EWOM when they satisfy with the product rather than when they acknowledge about the brand itself. This finding is consistent with the research conducted by Hanaysha (2018), which investigated the relationship between brand equity and EWOM among automobile consumers in Indonesia. Hanaysha's study, which collected 321 responses and employed structural equation modelling (SEM), found that brand equity, encompassing brand awareness, affiliation, loyalty, and perceived quality, positively affected EWOM. Similarly, Jan et al. (2013), explored the impact of customer satisfaction on EWOM in the Malaysian banking sector using 500 surveys. Their research, based on data from 407 completed questionnaires, revealed a significant positive influence of customer satisfaction on EWOM. Overall, these findings underscore the critical role of customer satisfaction and brand equity in driving EWOM intentions across various industries and contexts. Hence, customer satisfaction and brand equity have a significant impact on improving EWOM intention.

In addition, the study emphasizes the profound influence of customer satisfaction and brand equity on repurchase intention ($F (2,322) = 298.803$, $p < .05$). Customer satisfaction emerged as the stronger predictor of repurchase intention ($p = .000$, $\beta = 0.698$) than brand equity ($p = .000$, $\beta = .314$). When the cosmetic performance meet customer expectation, the induced satisfaction would generate positive attitude leading to form intention to repurchase the product compared to a general perceived brand equity that the customer has toward the brand. This finding corroborates Lin (2014) research on online purchases and Adekunle and Ejechi (2018) study on smartphones in Nigeria. Similarly, Huarng and Yu (2019) examined consumer enjoyment and repurchase intention within the online sharing economy, while Tanveer and Lodhi (2016), explored brand equity in Pakistan's shoe industry. Their analyses, based on multiple regression, revealed a significant link between brand equity and customer satisfaction, highlighting the necessity of establishing brand equity to meet consumer needs in competitive markets. Therefore, enhancing customer satisfaction and brand equity positively impacts repurchase intention.

Conclusions

This study aimed to reveal the critical role of brand equity in cosmetic product. However, the findings suggested that other factors such as customer satisfaction may greatly intensify EWOM intention and repurchase intention. Still, brand equity is statistically significantly influence on customer satisfaction, EWOM intention, and repurchase intention. The study present significant implications for cosmetic companies operating in Nigeria. It is imperative for these firms to address the lowest-rated aspects identified in the study, particularly pertaining to perceived quality. This entails ensuring consistency in product quality and promptly addressing any quality-related concerns that may arise. Aligning brand messaging with the desired perceptions outlined in the study is essential for improving brand association. Additionally, increasing brand visibility is paramount for boosting overall brand equity. Promptly addressing customer feedback can significantly enhance satisfaction levels, while incentivizing repeat purchases and fostering positive EWOM through strategic social media engagement can contribute to long-term success in the competitive beauty industry environment.

The implications extend beyond individual companies to the broader cosmetics and beauty sector in Nigeria. Prioritising customer satisfaction should be at the forefront of business strategies, necessitating a focus on superior product quality, efficient customer service, and consistent brand experiences across all touchpoints. Leveraging brand

equity through proactive management and ensuring alignment with desired brand perceptions can strengthen brand association and loyalty. Emphasising emotional satisfaction and integrating both traditional and modern marketing approaches are critical for comprehensive customer engagement strategies. Continuous improvement through regular feedback collection, market monitoring, and adaptation to evolving customer preferences is essential for long-term success. Moreover, investing in employee training programmes to instill a customer-centric mindset and develop soft skills is imperative, as employees play a crucial role in delivering positive customer interactions. By embracing these implications and implementing strategic initiatives accordingly, cosmetics and beauty companies in Nigeria can enhance their competitive edge and foster sustainable growth in the dynamic marketplace.

Recommendations

For the future research, they should explore the effect of customer satisfaction programmes such as strategic brand equity management, leveraging EWOM, adopting a holistic approach to customer satisfaction, fostering community engagement, continuous monitoring, staff training, and involvement.

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ID 20
Cultural Landscape Preservation and Sustainable Environmental Development in the Agricultural Communities of Nagaland, India

Aumpika Amloy[1]*, Supakul Ruangwitthayanusorn[2], Warong Wonglangka[3], Pandin Ounchanum[4], Aranya Siriphon[5] and Rawiwan Oranratmanee[6]

[1] Dr., Faculty of Architecture, Chiang Mai University, 50200
[2] PhD. scholar, Faculty of Architecture, Chiang Mai University, 50200
[3] Lecturer, Faculty of Architecture, Chiang Mai University, 50200
[4] Asst. Prof., Faculty of Architecture, Chiang Mai University, 50200
[5] Assoc. Prof., Department of Sociology and Anthropology, Faculty of Social Sciences, Chiang Mai University, 50200
[6] Prof., Faculty of Architecture, Chiang Mai University, 50200

* Correspondence: aumpika.amloy@cmu.ac.th

Abstract

This study aims to identify and document key elements of cultural landscapes and to understand the role of community involvement and participation in the preservation of the cultural landscape and the development of sustainable environments in Nagaland. This research explores the dynamic interaction between the cultural landscape and sustainable development to maintain ecological balance and enhance the community's livelihoods. Qualitatively, in-depth interviews with 36 key informants, including farmers and local individuals possessing specialized knowledge of traditional agriculture and cultural landscapes. Nagaland is known for its diverse culture and unique agricultural practices and hosts indigenous tribes, notably the Naga tribes, rooted in a farming lifestyle. The region's distinct topography and agroecological zones have led to specialized farming systems such as terrace cultivation. Safeguarding these landscapes is crucial for food security, biodiversity conservation, and climate resilience. This research delves into the dynamic interplay between cultural landscapes and sustainable development, contributing valuable insights for maintaining ecological balance and improving community livelihoods. The findings offer a deeper understanding of the relationship between culture, environment, and development, with potential applications in global contexts.

Keywords: Cultural landscape, Sustainable environmental development, Agricultural communities, Nagaland

Introduction

In the northeastern region of India, Nagaland is distinguished by its extraordinary cultural diversity and the profound integration of traditions with agricultural practices. This Indian state is home to various indigenous tribes, notably the Naga tribes, whose cultural identities are intricately woven into their rural lifestyles. Nagaland's unique topography and agroecological zones have given rise to distinctive agricultural systems, including prominent and time-honored practices such as terrace cultivation and shifting cultivation (Kumar & Konyak, 2023).

Across Nagaland, agricultural communities have been entrusted with the stewardship of intricate cultural landscapes characterized by sacred groves, traditional housing structures, and diverse crops, evolving over centuries (Hazarika, 2015). However, rapid urbanization and globalization have instigated transformative changes, presenting significant challenges to preserving these invaluable cultural landscapes (Nongkynrih, Pohshna & Sarma, 2018).

Preserving cultural landscapes in Nagaland extends beyond local significance; it holds global importance. These landscapes are living testimonies to the intricate relationship between human societies and their natural environments, encapsulating indigenous knowledge systems and practices that have sustained communities across generations (UNESCO, 2013). Preserving these cultural landscapes in Nagaland carries profound implications for heritage conservation and promoting environmental development (Schmitz & Herrero-Jáuregui, 2021).

In agricultural communities, sustainable environmental development assumes heightened significance, pivotal in ensuring essential factors such as food security, biodiversity conservation, and resilience in a changing climate (FAO, 2019). The interplay between cultural landscapes and sustainable development offers a wealth of insights into the maintenance of ecological equilibrium and the enhancement of the livelihoods of these agricultural communities (Turner et al., 2020).

This research seeks to identify and document the key elements of cultural landscapes within Nagaland's agricultural communities. Moreover, it aims to understand the role of community engagement and participation in preserving cultural landscapes amidst the transformative impacts of urbanization and globalization. Notably, this study underscores the novelty of its approach, as previous research has yet to extensively explore the similarities and contradictions in the face of these changes. The hypotheses are that active community engagement and robust participation are cornerstones in preserving these dynamic cultural landscapes.

Methodology

This research employs a qualitative approach centered around in-depth interviews with 36 key informants, specifically targeting farmers and local individuals with specialized knowledge of Nagaland's traditional agriculture and cultural landscapes. These interviews aim to glean nuanced and context-specific insights into the interplay between cultural landscapes, traditional agricultural practices, and community involvement.

Participant Selection: Employ purposive sampling to select a diverse group of 36 key informants. This group will include farmers and individuals deeply embedded in the local context, possessing specialized knowledge of traditional agriculture and cultural landscapes. This population encompasses diverse cultural backgrounds and geographical locations within Nagaland.

Informed Consent: Before conducting interviews, obtain informed consent from each participant, explain the purpose of the study, ensure confidentiality, and address any concerns they may have. Emphasize voluntary participation and the option to withdraw at any stage without consequences.

Interview Guide Development: Develop a semi-structured interview guide that covers key themes, including traditional agricultural practices, cultural landscapes, community roles, and perceptions of sustainable development. The guide provides a flexible framework for exploring participants' experiences and perspectives in-depth.

Data Collection: Conduct in-depth interviews with the selected key informants, utilizing the interview guide as a reference. Encourage participants to share their narratives, experiences, and insights related to traditional agriculture, cultural landscapes, and the evolving dynamics in the community.

Recording and Transcription: Record the interviews with participants' consent, ensuring accuracy and fidelity. Subsequently, the recordings were transcribed verbatim, maintaining the participants' language and expressions richness. The transcripts will serve as the primary data source for analysis.

Thematic Analysis: Employ thematic analysis to identify recurring patterns, themes, and insights within the interview transcripts. This qualitative analysis method allows for exploring in-depth narratives and the emergence of rich, context-specific information.

Member Checking: Share preliminary findings with participants to ensure the accuracy and validity of the interpretations. This member-checking process enhances the credibility and trustworthiness of the study.

Ethical Considerations: Adhere to ethical guidelines throughout the research, maintaining the confidentiality of participants and respecting their cultural context. Secure ethical approval from relevant authorities before initiating data collection.

Results and Discussion

1. The key elements of cultural landscapes within Nagaland's agricultural communities

The cultural landscape of the Naga people in the northeastern region of India reflects the close relationship between humans, culture, and the natural environment. It bridges nature and culture, connecting the identity, history, and beliefs of the Naga community. This cultural landscape gathers information about the Naga group's identity, history, and cultural beliefs, with mountains, rivers, forests, plants, and animals playing significant roles in their worldview. The interaction between the Naga community and the natural environment is intertwined with various rituals and ceremonies, highlighting the deep connection between culture and the diverse landscape. This cultural landscape has been developed over generations by utilizing knowledge passed down from one generation to another to address the challenges posed by the natural environment. It enables them to overcome the obstacles of nature and

maximize the benefits for their livelihoods, which aligns with their belief that their world is one they have constructed, both physically and culturally. It emphasizes preserving and sustaining their cultural landscape through traditional rituals and ceremonies. Therefore, the physical characteristics of the local environment are closely linked to the sacred territories of the Naga group (King, 1879). However, the cultural landscape from the perspective of the Naga group is more than just a complex network of mountains and rivers. Mountains and rivers serve as territorial organizers and cultural heritage sites for a community with a distinct cultural identity. They reflect continuity and adaptation to changing contexts by blending traditional cultural preservation and contemporary openness. This overall description of the cultural landscape of the Naga group can be categorized into four key points.

Geographical Context and Settlement: The cultural landscape of the Naga group in the northeastern region of India, particularly in the cities of Kohima and Phek in the state of Nagaland, is intimately connected to the geographical features and diversity of the area. Kohima serves as the capital of Nagaland and is situated amidst the complex hills and valleys of the Patkai Range, which extends across the eastern and northeastern part of India, including Arunachal Pradesh and Nagaland, and further into the highlands of Myanmar. This region exhibits significant variations in altitude, ranging from 400 meters to 2,100 meters above sea level. Notably, Mount Japfü, one of the highest peaks in Nagaland, stands out in this landscape and serves as a prominent landmark, dividing the territory. Contiguous plains characterize the area and feature significant rivers, including the Dzüü River and the Sidzü River, which converge to form the Doyang River. These rivers are important for establishing settlements, providing essential water resources, supporting agriculture, and symbolizing cultural significance. Additionally, the region is known for its diverse environment, with a blend of flat and interconnected terrains. The presence of Mount Japfü and the Patkai Range plays a vital role in shaping the landscape. The land offers a variety of altitudes, ranging from 700 meters to 2,400 meters above sea level. The geographical makeup includes intricate hills and valleys, which influence the distribution of settlements and land use practices. Furthermore, the natural demarcation provided by the Sidzü River helps define the boundaries and territories of both Kohima and Phek. These areas have primarily hilly and mountainous terrain, with small pockets of flatlands scattered throughout. The soil characteristics in these regions result from the sedimentation of riverbeds, creating fertile lands suitable for agriculture. This unique topography has led to vibrant and closely-knit communities amid the hills.

Historical Context and Cultural Practices: While experiencing various changes due to many factors, the Naga group has maintained continuous development in its cultural landscape. Globalization, urbanization, and modern technology have brought both opportunities and challenges, leading to a delicate balance between cultural preservation and adaptation to the demands of the modern world, which has become a defining characteristic of its cultural resilience. Before the colonial period, the Naga group comprised distinct tribal communities with unique cultures and practices. They settled in the hills and valleys that now constitute Nagaland and neighboring regions. These communities preserved complex social structures, engaged in agriculture for sustenance, practiced hunting, and had well-defined weaving traditions. They also maintained their distinctive cultural practices and belief systems. The late 19th and early 20th centuries marked a significant period of transformation. The influence of colonial powers seeking to integrate Naga territories into their rule and the arrival of Christian missionaries triggered profound changes. During this period, they witnessed religious and educational transformations, introducing new belief systems and modern education. These factors contributed to political, economic, and cultural changes that significantly altered the local landscape, particularly after the formation of the state of Nagaland in 1963. These changes led to increased engagement with the outside world, adopting modern technologies, and introducing new ideas, resulting in ongoing social, political, and cultural shifts. The assimilation of Naga lands into the Indian nation-state and the influence of Christianity have played pivotal roles in reshaping religious and educational practices (Anderson, 1978). As a result, the Naga cultural landscape has evolved, reflecting the dynamic interplay between traditional values and contemporary influences. This adaptive quality has allowed the Naga people to navigate the challenges of a changing world while preserving the core aspects of their cultural identity. The period post-Nagaland's statehood in 1963 has been instrumental in ushering in these changes and enhancing the region's connectivity with the broader global context.

Cultural Context and Natural Resource Utilization: The Naga group has strong cultural and spiritual connections with their mountainous habitat, particularly significant locations such as mountain peaks, springs, caves, streams, and rivers. These natural elements play a central role in Naga cultural practices and are integral to understanding history and cultural identity. These connections can be summarized into five categories. (King, 1879)

1) Significance of Major Mountains: Major mountains are unique in Naga beliefs and legends. They are associated with essential narratives explaining the origins or historical events of the Naga group. For instance, "Mt.

Japfü (Dzüpfü)" is a significant mountain, signifying the "source of life." This mountain serves as a base for settlement, a natural resource, and a symbol of unity within Nagaland.

2) Importance of Rivers: Rivers flowing through the mountains hold great significance for the Naga way of life and are central to their cultural rituals, especially in the practice of "Mukpaatza," a significant Naga tradition. Rivers are not just water sources but also essential boundaries and cultural markers within their territories. The Dzükou River, originating from Mt. Japfü, is a prime example of such a revered water body in Nagaland.

3) Native Flora and Fauna: The indigenous plants and animals of the mountains are vital aspects of Naga culture and legends. They are woven into the fabric of Naga beliefs and stories, symbolizing the unique characteristics of their culture and history.

4) Sacred Springs: Springs originating from the mountains are believed to have life-giving properties and are integral to Naga traditions. These springs are considered sacred and are associated with spiritual significance. The naming and location of these springs often contribute to the cultural identity of specific villages or regions.

5) Crucial Landscape Features: Key landscape features such as forests, mountains, and rivers are not just physical elements but also hold spiritual and cultural importance. They are viewed as places where spirits reside and are essential for various cultural and religious practices. These features are named and revered as significant markers in the Naga cultural landscape.

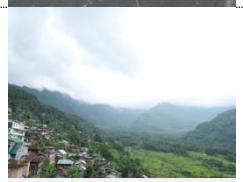
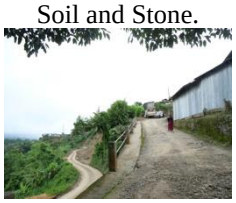
The Naga cultural practices emphasize the importance of mountains and rivers, considered the sources of life, spirituality, and social identity. These natural elements are integral to their sense of belonging and cultural heritage. Mountains are places of abundant resources and symbolic and spiritual centers. Rivers are water bodies and represent boundaries and cultural symbols within their territories. The flora, fauna, springs, and other landscape features all contribute to the rich tapestry of Naga culture, serving as the foundation of their beliefs, values, and traditions.

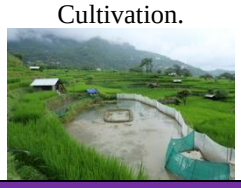
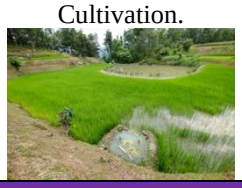
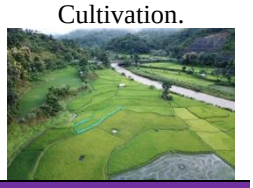
Landscape and Territorial Relationships: The landscape of the Naga group encompasses both physical and cultural dimensions, and they define and preserve their regional patterns through customary practices and rituals; due to the mountainous terrain that characterizes Nagaland, the physical landscape profoundly influences the society and culture of the Naga people. As a result, they hold their local environment in high regard, which is evident through the customs and ceremonies that connect different clans with the mountains. Naga cultural practices, such as "Mukpaatza," are deeply intertwined with the physical landscape. Rather than simply using the mountains as places of settlement, these mountains serve as central figures in their traditions and belief systems. These mountains are sacred focal points surrounded by pristine natural surroundings (Nienu, 2015).

The cultural landscape of the Naga group in the northeastern region of India is closely linked to the natural environment. It reflects a holistic understanding of the environment that blends beliefs, practices, and identity. This connection is manifested through their perception of the landscape, which serves as a physical and cultural foundation. Mountains, rivers, and other natural elements hold significance beyond their physical presence. These features are vital to their values and beliefs (Nshoga, 2008). Mountains are revered as the source of life and spiritual significance And are integral to Naga culture. They are not just geographical landmarks but also symbolic and spiritual centers. In addition to their role as water bodies, rivers serve as boundaries and cultural symbols within Naga territories. The flora, fauna, springs, and other landscape elements contribute to the rich tapestry of Naga culture and are the roots of their beliefs and values. Naga cultural practices, particularly the "Mukpaatza" ceremony, emphasize the relationship with the local flora and fauna. These practices highlight the roles of these elements in both practical and symbolic terms. They represent the indigenous knowledge of the local environment, the plants necessary for sustenance, the animals that coexist, and the profound ecological significance of these life forms in daily life (Nienu, 2015).

Table 1: The key elements of cultural landscapes in Nagaland's agricultural communities.

The Key Elements of Cultural Landscapes	Khonoma Village	Kigwema Village	Kikruma Village	Thenyizu Village
Basic Information about the Village				
Number of Khel Groups	3	5	7	7
Number of Houses	424	769	1,664	753
Number of People	2,370	4,724	8,904	3,275

The Key Elements of Cultural Landscapes	Khonoma Village	Kigwema Village	Kikruma Village	Thenyizu Village
Residential Area				
Naga Group	Angami	Angami	Chakhesang	Chakhesang
Clan-based Settlements				
Designing a terraced housing group using mountain lines and slope lines as planning directions				
The footpath is a narrow walkway that meanders along the slope, connecting different areas within the village	Stone	Concrete and Stone.	Soil and Stone. 	Soil and Stone.
Utilizing tanks for water collection and distribution is an effective and sustainable approach to meet the water needs of residential groups				
ARABLE AND FOREST AREAS				
Rice Terrace System	The Mountain Stream Water System Flows Strongly.	Water System with Many Sub-Rivulets	Zabo System	Waterside Farming System

The Key Elements of Cultural Landscapes	Khonoma Village	Kigwema Village	Kikruma Village	Thenyizu Village
Diverting water from natural streams into rice fields	Bamboo Pipe Trunk	Stone Wall Gaps, Earthen Trenches, And Bamboo Pipes	Raza System	Soil Trench
Water distribution within rice fields	Soil and Stone Trench	Soil and Stone Trench	Raza System	Soil Trench
Raising Fish in Rice Fields	Combined with Rice Cultivation.	Separated from Rice Cultivation. 	Combined with Rice Cultivation. 	Combined with Rice Cultivation. 
SOCIAL AREAS				
Traditional Gate.	7	3	4	2
Learning and Cultural Exchange Area				
Courtyard				
Sacred Forest				
Important House of the Family				
Christian Church	3	4	3	3

The Key Elements of Cultural Landscapes	Khonoma Village	Kigwema Village	Kikruma Village	Thenyizu Village
Other	- 3 Fortresses: - Grave	- Important Building	- Important Building - Sacred Sites and Ritual Spaces - Important Tree	- Important Building - Memorial - Rice Beer Brewing Tank - Water Reservoir

2. The role of community engagement and participation in cultural landscape preservation and sustainable environmental development

The role of community engagement and participation in cultural landscape preservation and sustainable environmental development is of paramount importance. Communities are the stewards of their cultural heritage and the natural environment, and their active involvement is crucial for ensuring the protection, conservation, and sustainable development of these valuable assets.

Cultural Landscape Preservation

1) Local Knowledge and Practices: Communities often possess valuable traditional knowledge and practices related to their cultural landscapes. Involving them in preservation efforts ensures that this knowledge is not lost and can be integrated into conservation strategies.

2) Ownership and Attachment: Communities have a sense of ownership and attachment to their cultural landscapes. Their engagement fosters a sense of responsibility and pride, motivating them to protect and preserve these areas for future generations.

3) Cultural Heritage Conservation: Cultural landscapes are repositories of history, traditions, and identities. Community participation ensures that preservation efforts are culturally sensitive and respectful of sacred sites and rituals.

4) Traditional Land Use: Engaging communities allows for integrating traditional land-use practices, often sustainable and time-tested, into modern conservation plans.

Sustainable Environmental Development

1) Local Expertise: Communities deeply understand local ecosystems and their dynamics. Their participation can lead to ecologically sound development plans that consider the needs of both people and the environment.

2) Resource Management: Involving communities in resource management decisions ensures that natural resources are utilized sustainably and prevents overexploitation and environmental degradation.

3) Community-Based Conservation: Community engagement promotes establishing community-managed conservation areas, which have successfully protected biodiversity and preserved ecosystems.

4) Resilience and Adaptation: Communities are often the first to experience the effects of climate change. Involving them in environmental development allows for identifying adaptation strategies and building resilience to environmental challenges.

Education and Awareness

1) Capacity Building: Community participation provides opportunities for education and capacity-building. Empowered communities can play a more active role in conservation and sustainable development.

2) Awareness and Advocacy: Engaged communities become advocates for their cultural landscapes and the environment. They can raise local, national, and international awareness, garnering support for conservation efforts.

Social and Economic Benefits

1) Livelihoods: Sustainable environmental development can improve communities' livelihoods through eco-tourism, sustainable agriculture, and natural resource management.

2) Community Well-being: Preserving cultural landscapes and ecosystems enhances the overall well-being of communities by providing clean water, fertile land, and a healthy environment.

3) Policy Influence: Engaged communities can influence policy decisions related to land use, resource management, and conservation, ensuring that policies align with local needs and aspirations.

3. Discussion

Our research findings strongly support the hypothesis that robust community engagement and active participation serve as the foundation for preserving cultural landscapes and promoting sustainable environmental development in Nagaland's agricultural communities. This involvement by the communities holds paramount significance for several compelling reasons, corroborated by parallels in relevant research:

Cultural Heritage Preservation: Our study aligns with the findings of Schmitz and Herrero-Jáuregui (2021), emphasizing that actively engaged communities contribute to the enduring relevance of cultural landscapes in community life. This active participation reinforces a sense of ownership and responsibility for these heritage sites.

Sustainable Agricultural Practices: The research supports the importance of community involvement in upholding traditional farming techniques, including terrace and shifting cultivation, and aligns with Kehie, Khamu, and Kehie (2017) insights, emphasizing that communities play a pivotal role in transmitting indigenous knowledge systems associated with sustainable agricultural practices.

Environmental Conservation: Our findings resonate with the research by Kumar and Konyak (2023), revealing that communities actively engaged in cultural landscape preservation exhibit heightened environmental awareness. This awareness extends to biodiversity conservation and sustainable resource management, showcasing the interconnection between cultural engagement and environmental stewardship.

Resilience and Adaptation: The study underscores the role of community engagement in fostering adaptability to dynamic circumstances, including challenges posed by climate change. This aligns with the Food and Agriculture Organization (FAO, 2019) research, emphasizing that traditional practices and local knowledge systems empower communities to address environmental adversities.

In summary, our research validates the initial hypothesis regarding the pivotal role of community engagement in cultural landscape preservation and draws parallels with existing research, reinforcing the broader applicability of these findings. The active participation of communities emerges as a linchpin for preserving cultural heritage, sustaining agricultural practices, promoting environmental conservation, and fostering resilience in the face of changing environmental dynamics. These insights contribute to a growing knowledge of the intricate interplay between community engagement, cultural landscapes, and sustainable environmental development.

Conclusions

This study illuminates the cultural landscapes within Nagaland's agricultural communities, specifically those inhabited by the Naga people. The Naga cultural landscape serves as a profound nexus between human identity, history, and beliefs, vividly reflected in the intertwining of the natural environment with cultural practices. Encompassing mountains, rivers, forests, plants, and animals, each element plays a pivotal role in shaping the Naga community's worldview. The Naga people's interaction with their surroundings is intricately woven into rituals and ceremonies, highlighting the deep connection between culture and the diverse landscape. Passed down through generations, this cultural landscape functions as a knowledge repository, enabling the Naga community to navigate environmental challenges and construct their physical and cultural worlds. Traditional rituals establish a symbiotic relationship between the environment's physical characteristics and sacred territories, emphasizing the significance of the Naga cultural landscape in geographical, historical, and cultural dimensions. Ultimately, this landscape is more than a physical arrangement; it represents a dynamic interplay of history, culture, and environment. Beyond geographical landmarks, the mountains and rivers are symbolic and spiritual centers embodying the essence of life and identity for the Naga people. This intricate tapestry of cultural practices and beliefs woven into the landscape forms the foundation of Naga identity and heritage.

The indispensable role of community engagement and active participation in preserving cultural landscapes and fostering sustainable environmental development is paramount. Communities, acting as custodians of their cultural heritage and natural surroundings, are instrumental in ensuring these invaluable assets' safeguarding, conservation, and sustainable development. Through their engagement, communities contribute significantly to cultural landscape preservation, utilizing their local knowledge, fostering a sense of ownership and attachment, and respecting cultural heritage. This involvement extends to sustainable environmental development, where communities' deep understanding of local ecosystems, active participation in resource management decisions, and promoting community-based conservation efforts play crucial roles. Additionally, their active participation in education and awareness initiatives and advocacy for cultural landscapes and the environment underscores the broader social and economic benefits. Through community engagement, sustainable environmental development enhances livelihoods

and well-being and influences policy decisions, ensuring alignment with local needs and aspirations. In essence, community engagement emerges as a cornerstone for nurturing a harmonious relationship between cultural preservation, environmental sustainability, and the overall well-being of communities.

Acknowledgements

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ID 178 [Abstract]
The Impact of Foreign Tourist Visits, Tourism Sector Foreign Exchange, and Star-Rated Hotel Room Occupancy Rate on Foreign Exchange Reserve and Its Effect on Indonesia's Economic Growth

Salsa Zahra Nafisa[1], Defan Arifa[2], Talbani Farlian[3]*

[1] International Management Program IMP/IBEP, Faculty of Economics and Business, Universitas Syiah Kuala; salsaanafisa@gmail.com
[2] International Management Program IMP/IBEP, Faculty of Economics and Business, Universitas Syiah Kuala; arifadefan@gmail.com
[3] Corresponding Lecture, Faculty of Economics and Business, Universitas Syiah Kuala; t_farlian@usk.ac.id

* Correspondence: t_farlian@usk.ac.id

Abstract

The objective of this research is to analyze the impact of foreign tourist visits, the tourism sector foreign exchange, and star-rated hotel room occupancy rates on fluctuations in Indonesia's foreign exchange reserves. Moreover, this study aims to elucidate the impact of changes in foreign exchange reserves on Indonesia's economic growth. The scope of this research is the foreign tourist visits, tourism sector, and star-rated hotel in Indonesia. This research is descriptive statistical research. The data collection uses secondary data from the website of Indonesian Central Bureau of Statistics. The sample used in this research is 10 years with the time series is from 2013-2022. The analytical method used in this research is regression analysis by using the E-Views application. The results of this research indicate that: 1) the foreign tourist visits give a significant impact in the change of foreign exchange reserve with probability 0.0098; 2) the tourism sector foreign exchange give a significant impact in the change of foreign exchange reserve with probability 0.0193; 3) star-rated hotel room occupancy rate does not give significant impact in the change of foreign exchange reserve with probability 0.1093; and 4) the change of foreign exchange reserve give a significant impact on Indonesia's economic growth with probability 0.0006. The practical contribution of this study lies in providing policymakers and stakeholders with valuable insights into the pivotal role of tourism-related variables in shaping Indonesia's foreign exchange dynamics, emphasizing the need for targeted policies to improve tourism sector performance and enhance economic resilience. Moreover, this research contributes to theoretical understanding by elucidating the complex interplay between tourism, foreign exchange reserves, and economic growth in emerging economies like Indonesia, laying groundwork for future exploration in related domains.

Keywords: Tourism sector, Foreign exchange, Occupancy rate, Economic growth

ID 183 [Abstract]
The Influence of the Number of Foreign Tourists from ASEAN Countries on the Number of Airplane Passengers at Soekarno-Hatta International Airport

Teuku Hanief Rayyan Abira[1], Talbani Farlian[2] and Fifi Yusmita[3*]

[1] Faculty of Economics and Business, Syiah Kuala University; teukuhaniefrayyan@gmail.com
[2] Faculty of Economics and Business, Syiah Kuala University; t_farlian@usk.ac.id
[3] Faculty of Economics and Business, Syiah Kuala University; fifiyusmitaaceh@usk.ac.id

* Correspondence: fifiyusmitaaceh@usk.ac.id

Abstract

The purpose of this study is to determine and analyze the influence of the number of foreign tourists from ASEAN countries on the number of airplane passengers at Soekarno-Hatta International Airport. Samples were taken based on annual data from 2006-2021. Every year, number of foreign tourists from ASEAN and number of airplane passengers at SHIA are fluctuate. So, this research can only be used as an illustration, but not for full reference. This research may differ from another research due to difference of the year and condition during Covid-19 pandemic. This research is descriptive research, to describe a phenomenon and its characteristics. The influence between Number Of Foreign Tourist From ASEAN Countries as (X) variable and Number Of Airplane Passengers At Soekarno-Hatta International Airport as (Y) variable. The data collection methods used in this study are documentation comes from the website of the Central Bureau of Statistics. The analytical method used in this research is regression analysis, used to analyze data and determine the influence between variables and forecasts of future relationships. The findings indicate a significant influence of the number of foreign tourists from ASEAN countries on the volume of airplane passengers at Soekarno-Hatta International Airport. This is important for airline companies to consider because it can serve as a reference for them to increase their airline capacity to support the growing tourism trend.

Keywords: Foreign tourist, ASEAN, Soekarno-Hatta international airport

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Theme: Economics

ID 171
Unlocking Economic Growth: The Relationship of ICT, FDI, Trade Openness and Population in ASEAN

Bee Wah TAN[1]* and Chor Foon Tang[2]

[1] Economic and Financial Policy Institute (ECoFI), School of Economics, Finance and Banking, Universiti Utara Malaysia, Sintok, Malaysia; tan.bee.wah@uum.edu.my
[2] Centre for Policy Research, Universiti Sains Malaysia, Malaysia; tcfoon@usm.my

* Correspondence: tan.bee.wah@uum.edu.my

Abstract

ICT has become an important driver of economic growth in the era of digitalization. However, comprehensive research within ASEAN remains insufficient and does not provide deep insight into the factors that will affect the effectiveness of ICT in promoting economic growth. Thus, this study investigates the multifaceted relationship between ICT, FDI, trade openness, total population, and economic growth within the ASEAN region from 2005 to 2022. Employing panel data analysis techniques including fixed effects, random effects, and pooled OLS tests, the research examines various ICT indicators alongside trade openness, population, and FDI to elucidate their influence on economic growth. Results indicate significant positive associations between fixed broadband subscriptions, individuals using the internet, and economic growth. Trade openness displays a negative impact on economic growth, whereas FDI shows a consistently positive influence. These findings underscore the pivotal role of ICT investment and policy measures in driving economic development across ASEAN countries. The study provides valuable insights for policymakers and stakeholders, emphasizing the importance of prioritizing investment in ICT infrastructure, embracing economic reform, and enhancing trade openness to foster sustainable economic growth in the ASEAN region.

Keywords: ICTs, Economic growth, FDI, Trade openness, Panel data

Introduction

The rapid advancements in Information and Communication Technologies (ICTs) have greatly changed how economies around the world operate, especially with the rise of digitalization. In Southeast Asia, the ASEAN Digital sector has played a crucial role in shaping the region's digital economy, even when it was not well developed in terms of digital capabilities (Son, 2022). This sector, previously known as the ASEAN Information and Communications Technology (ICT) sector, now focuses on policies and regulations related to digital data, cybersecurity, online platforms, and content, aiming to create a safe, innovative, and inclusive digital environment (ASEAN, 2024). The transformation of industries, such as finance embracing digital technologies and the rise of financial technology (fintech), has also contributed to the growth of the digital economy in ASEAN countries (Barroso & Laborda, 2022). Figure 1 presents the percentage of individuals using the internet in ASEAN 10 countries from 2005 to 2022, it shows a consistent upward trend, indicating increasing internet penetration across the region. Brunei, Malaysia, and Singapore have notably high rates, while Cambodia and Laos show lower but still growing levels of internet usage. Moreover, the COVID-19 pandemic highlighted the importance of ICTs even more. Lockdowns and social distancing measures forced businesses to rely on digital tools to continue operating (Jiang & Stylos, 2021). This trend was particularly noticeable in the ASEAN region, where countries have different levels of digital adoption and integration into their economies.

The literature on ICTs and economic growth is both vast and varied, with studies demonstrating positive relationship, with ICT contributing to economic growth in various regions (Lee & Brahmasrene, 2014; and Qaffas, 2019; Huong & Ab-Rahim, 2020; Abendin, & Duan, 2021; Appiah-Otoo & Song, 2021; Cheng et al., 2021; Díaz-

Roldán & Ramos-Herrera, 2021; Ding et al., 2021; Hussain et al, 2021; Sapuan & Roly, 2021; Odhiambo, 2022). Studies such as Lee and Brahmasrene (2014), Huong and Ab-Rahim (2020), Sapuan and Roly (2021) highlighted the positive impact of ICT on employment rate and economic growth in ASEAN countries. Similarly, studies by Appiah-Otoo and Song (2021), Díaz-Roldán and Ramos-Herrera (2021), and Ding et al. (2021) confirmed the positive association between ICT development and economic growth, though they focus on different regions and time periods. However, there are gaps in the literature that need further exploration. Firstly, there is a need for more research specifically focused on ASEAN countries to understand the unique dynamics of ICT's impact on economic growth in this region. While some studies include ASEAN countries in their analyses (Sapuan & Roly, 2021), there is still a lack of comprehensive research specifically tailored to this context. Secondly, there is a need for longitudinal studies that consider the long-term effects of ICT development on economic growth. Existing studies (Lee & Brahmasrene, 2014; Huong & Ab-Rahim, 2020) use historical data or data covering relatively short time periods, limiting our understanding of how ICT investments influence economic growth over time. Additionally, there is a need for more comprehensive analyses that consider the multifaceted nature of ICT, including its impact on different sectors of the economy and its interaction with other factors such as trade openness, total population, and foreign direct investment (FDI). Understanding these notes is crucial for policymakers to formulate effective strategies to leverage ICT for sustainable economic growth in ASEAN countries. By analysing these trends over extended periods, the study seeks to elucidate the long-term returns on technological investments. Furthermore, it will integrate a holistic view, evaluating how demographic trends and foreign direct investments intersect with digital advancements to catalyse economic growth. Through this comprehensive approach, our study aspires to offer novel insights and actionable recommendations for leaders and policymakers in ASEAN nations, aimed at leveraging digital technology for sustainable economic advancement and the betterment of society at large.

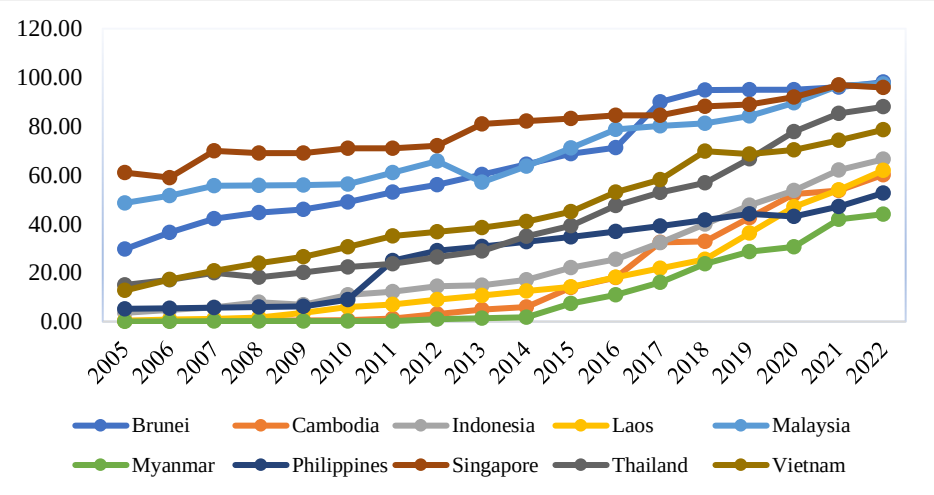

Figure 1: Individual using Internet (% of population) from 2005–2022

The primary objective of this research is to investigate the impact of ICT indicators on economic growth in the ASEAN-10 countries from 2005 to 2022. By scrutinizing fixed broadband subscriptions, fixed telephone subscriptions, mobile cellular subscriptions, and Internet usage, the study seeks to unveil the factors shaping the effectiveness of ICT in fostering economic growth within the ASEAN context. The subsequent section outlines the data and methodologies employed in analysing the impact of ICT on economic growth. Empirical findings will be presented in the following section, followed by conclusions and policy recommendations derived from the study.

Methodology

This study employs panel regression analysis of fixed effects, random effects, and pooled OLS (POLS) tests to examine the impact of ICTs on economic growth from 2005 to 2022. The methodology is designed to identify how ICT indicators, along with trade openness and FDI, influence economic growth in ASEAN countries. The regression estimations are show as equation (1).

$$lnY_{it} = \beta_0 + \beta_1 lnICT1_{it} + \beta_2 lnICT2_{it} + \beta_3 lnICT3_{it} + \beta_4 lnICT4_{it}$$
$$+\beta_5 lnFDI_{it} + \beta_6 lnTO_{it} + \beta_7 lnPOP_{it} + \varepsilon_{it} \quad (1)$$

where ln is denotes as the natural logarithm, β_s are the estimated coefficients and ε_{it} denotes the error-term. lnY_{it} is the real GDP per capita, $lnICT1_{it}$ is the total fixed broadband subscriptions, $lnICT2_{it}$ is the total fixed telephone subscriptions, $lnICT3_{it}$ is the total mobile cellular subscriptions, $lnICT4_{it}$ is the individuals using the Internet (% of population), $lnFDI_{it}$ is the foreign direct investment inflows, and $lnPOP_{it}$ is the total population of the nation. This study investigates a balanced panel dataset covering the period from 2005 to 2022, including 10 economies in Southeast Asia: Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam. The data are all sourced from the World Development Indicators (WDI).

Results and Discussion

Descriptive Statistics and Correlation Matrix

Table 1 shows the results of descriptive statistics for all the variables in this study that made use of 180 observations in total. On the other hand, Table 2 shows the correlation matrix of the relationship between the indicators under analysis. lnY shows a significant positive correlation with $lnICT1$ (fixed broadband subscriptions), $lnICT4$ (individuals using the Internet), and a significant negative correlation with $lnICT3$ (mobile cellular subscriptions), indicating varied impacts of different ICT indicators on economic growth. In addition, there is a significant positive correlation between lnY and $lnFDI$ (0.4634) suggesting that higher FDI inflows are associated with higher economic growth. High positive correlations among ICT indicators (e.g., $lnICT1$ and $lnICT3$: 0.8230) indicate that increases in one type of ICT adoption are associated with increases in others, reflecting interconnected growth in ICT infrastructure and usage. Moreover, $lnTO$ shows a significant positive correlation with lnY (0.6100), indicating that higher trade openness is associated with higher economic growth. While the significant negative correlation between $lnPOP$ and lnY (-0.5618) suggests that larger populations are associated with lower per capita economic growth, highlighting potential challenges in managing economic performance in more populous countries.

Table 1: Descriptive Statistics

	lnY	$lnICT1$	$lnICT2$	$lnICT3$	$lnICT4$	$lnTO$	$lnFDI$	$lnPOP$
Mean	8.4102	12.9611	14.2197	16.7229	3.0152	4.5770	9.3026	16.9747
Median	8.0708	13.8723	14.6024	17.2848	3.6294	4.7027	9.1556	17.5105
Maximum	11.1178	16.8723	17.5274	19.8913	4.5858	6.0807	11.7302	19.4341
Minimum	6.2548	5.4931	10.1522	11.7652	–3.7157	2.7981	5.4223	12.8124
Std. Dev.	1.3009	2.6189	1.8496	2.0554	1.6776	0.7156	0.8393	1.7906
Skewness	0.6610	–0.6179	–0.5035	–0.6072	–1.6935	–0.1294	0.3772	–0.9009
Kurtosis	2.3436	2.4422	2.1673	2.3196	5.4097	2.7950	5.5192	3.1328
Jarque-Bera	16.3401	13.7887	12.8067	14.5338	129.5908	0.8178	51.8655	24.4799
Probability	0.0003	0.0010	0.0017	0.0007	0.0000	0.6644	0.0000	0.0000
Observations	180	180	180	180	180	180	180	180

Table 2: Correlation Matrix

	lnY	$lnICT1$	$lnICT2$	$lnICT3$	$lnICT4$	$lnTO$	$lnFDI$	$lnPOP$
lnY	1.0000							
$lnICT1$	0.2479***	1.0000						
$lnICT2$	0.0217	0.7747***	1.0000					
$lnICT3$	–0.2256***	0.8230***	0.7722***	1.0000				
$lnICT4$	0.6757***	0.6521***	0.2797***	0.3295***	1.0000			
$lnTO$	0.6100***	0.2691***	0.0006	–0.0455	0.5321***	1.0000		
$lnFDI$	0.4634***	0.5640***	0.5043***	0.3620***	0.3897***	0.4790***	1.0000	
$lnPOP$	–0.5618***	0.5673***	0.7379***	0.8374***	–0.1571**	–0.3606***	0.2088***	1.0000

Notes: *** and ** indicate the statistical significant at the 1% and 5% level, respectively.

Panel Unit Root Tests

Table 3 displays the results of unit root tests conducted for both the level and first difference of the variables using the individual intercept and trend model. The findings indicate that, with the exception of $LICT1$, and $LFDI$, all other variables demonstrate mix results where some stationary at certains test and some non-stationarity at their levels. This suggests that a portion of the variables exhibit an integrated order of 0 ($I(0)$), while the remaining variables show an integrated order of 1 ($I(1)$). This combination of integration orders is supported by the cumulative results of the unit root tests from Levin, Lin and Chu (2002) (LLC); Im. Pesaran and Shin (2003) (IPS); Augmented Dickey Fuller (ADF), and Phillips and Perron (PP) Fisher Chi-Square tests of Maddala and Wu (1999).

Table 3: Panel Unit Root Tests (Individual Intercept and Trend)

	Level				First difference			
	LLC	**IPS**	**ADF**	**PP**	**LLC**	**IPS**	**ADF**	**PP**
lnY	–0.1349	0.2322	25.4554	16.4100	–7.0484***	–4.8352***	59.2056***	76.7174***
$lnICT1$	–5.8645***	–4.9670***	63.0723***	74.6378***	–1.5606*	–0.1923	27.5520	48.7974***
$lnICT2$	–1.4452*	0.2579	21.8529	17.6800	–3.2889***	–2.2886**	34.3229**	79.0407***
$lnICT3$	–7.3968***	–4.1172***	55.9583	74.6901***	–2.9848***	–1.4445*	29.0846*	51.6906***
$lnICT4$	0.0420	–0.2077	19.8744	44.6221***	–4.8199***	–3.4445***	44.9303***	94.1514***
$lnTO$	–2.3711***	–1.1103	31.5947**	9.1324	–3.0580***	–3.6636***	47.4095***	76.8892***
$lnFDI$	–3.1727***	–2.5738***	41.4941***	72.4946***	–7.6515***	–5.9928***	70.5225***	146.7690***
$lnPOP$	–0.5684	3.7010	16.6080	9.8149	–2.4012***	–1.5359*	36.2006**	35.8434**

Notes: LLC, IPS, ADF and PP stands for Levin, Lin and Chu (2002); Im. Pesaran and Shin (2003); ADF and Phillips and Perron (PP) Fisher Chi-Square tests of Maddala and Wu (1999), respectively. *, ** and *** denote 1%, 5% and 10% levels of significance, respectively.

Panel Regression Tests

Table 4 presents various panel regression tests' outcomes. The differences in results across the POLS, FE, and RE models highlight the importance of model selection based on the dataset and research questions. The FE model, by controlling for unobserved heterogeneity, reveals the impacts of variables over time within countries. The RE model, while similar to FE, assumes that country-specific effects are uncorrelated with the regressors. POLS, on the other hand, treats the panel data as a large cross-section without accounting for individual-specific effects. The choice between these models depends on the specifics of the data and the research question. First, the Lagrange Multiplier (LM) test was utilized to decide between the Pooled OLS method and the RE method. The results of the LM test favour the RE method, with a p-value (cross-section Random) of 0.0000. Secondly, the Hausman test was conducted to select between the FE method and the RE method. The Hausman test result, which follows the Chi-Sq. statistic of 95.2600 with a 1% significant level (prob. = 0.0000), suggests a preference for the FE model over the RE model, indicating that the individual-specific effects are correlated with the regressors and that controlling for these unobserved effects is important in this context. Consequently, the results of regression analysis based on the fixed effects outcomes will be reported in this study.

The analysis reveals significant relationships between various ICT indicators and economic growth, alongside the influence of trade openness and FDI within ASEAN countries. Specifically, the fixed broadband subscriptions ($lnICT1$) indicate a smaller yet significant positive impact, with a significant at the 5% level, where a 1% increase in the fixed broadband subscriptions will increase the real GDP per capita by 0.339%. It is suggesting that after controlling for unobserved country-specific characteristics, the impact of broadband subscriptions on economic growth remains positive but is less pronounced. Furthermore, the individuals using the Internet ($lnICT4$) exhibit a significant positive impact, indicating that internet usage contributes positively to economic growth once individual-specific effects are accounted for, reinforcing the importance of internet penetration for economic development. The result shows that a 1% increase in individuals using the Internet will increase the real GDP per capita by 0.0696%. In contrast, fixed telephone subscriptions ($lnICT2$) and mobile cellular subscriptions lack statistical significance based on the FE model.

Regarding other variables, trade openness, population, and FDI also demonstrate significant impacts on economic growth within the ASEAN region. Trade openness displays a negative coefficient across all tests, reaching statistical significance at least at the 5% level in the FE tests. This suggests that increased trade openness may have adverse effects on economic growth within the ASEAN region, possibly due to increased competition or other factors

not captured in this model. On the other hand, the total population exhibits a positive and statistically significant coefficient at the 1% level. The finding indicates a beneficial impact on economic growth when controlling for individual-specific effects, where a 1% increase in the number of populations will boost economic growth by 0.8354%. Nevertheless, a consistent result is observed for FDI, which demonstrates a positive and statistically significant coefficient at the 1% level across all tests. This indicates that an increase in FDI inflows is linked to a positive impact on economic growth when considering individual-specific effects. Therefore, these findings underscore the pivotal role of ICT investment and policy measures in driving economic development across ASEAN countries. Further research and policy initiatives in this direction can help harness the potential of ICTs to foster sustainable economic growth in the region.

Table 4: Results of Pooled OLS, Fixed-Effect and Random-Effect Regression Estimation

	Pooled OLS	Random Effects	Fixed Effects
Variables		**Coefficient**	
$lnICT1$	0.3332***	0.0810***	0.0339**
$lnICT2$	0.2765***	–0.0066	–0.0150
$lnICT3$	–0.0888	–0.0089	0.02134
$lnICT4$	–0.0482	0.0909***	0.0696***
$lnTO$	–0.2106***	–0.1384***	–0.0912**
$lnFDI$	0.4229***	0.0946***	0.0498***
$lnPOP$	–0.8888***	–0.3197***	0.8354***
C	13.9077***	12.5084***	–6.6100**
Adjusted R-squared	0.9037	0.7581	0.9956
F-Statistic	241.0644	81.1566	2543.7740
Prob. (F-Statistic)	0.0000	0.0000	0.0000
		Chi-Sq. Statistic (Prob.)	
Breusch and Pagan LM test	274.76 (0.0000)		
Hausman Test			95.2600 (0.0000)

Notes: *** and ** indicate significant at 1% and 5% level, respectively.

Conclusions and Policy Recommendations

In summary, this study aims to shed light on the relationship between ICT, FDI, trade openness, total population, and economic growth within the ASEAN context. By employing advanced econometric techniques and analysing comprehensive panel data, the research seeks to provide valuable insights for policymakers and stakeholders. The findings suggest that fixed broadband subscriptions, individuals using the internet, and FDI have positive effects on economic growth in ASEAN countries, while trade openness have a negative impact on the economic growth. However, the impact of fixed telephone subscriptions, mobile cellular subscriptions, and total population on economic growth appears to be less significant when individual-specific effects are considered. Ultimately, the study underscores the imperative for ASEAN nations to prioritize investment in ICT infrastructures, embrace economic reform, and enhance trade openness to unlock their full potential for sustainable economic growth and development. As a result, promote e-readiness by integrating digital tools in education, offering continuous training programs, and fostering collaborations between academia and tech giants to cultivate digital talent. It is also important to encourage businesses to adopt ICT for heightened productivity through incentives and comprehensive training initiatives.

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Analysis on Fisheries Sector Growth in Myanmar

Ms Kyi Kyi Win[1]*

[1] Monywa University of Economics

* Correspondence: kyikyiwin074@gmail.com

Abstract

Myanmar's fishery sector has been the fourth largest contributor to the national gross domestic product (GDP), and the fourth largest source of foreign earnings. The objectives of the study are to explore the exportation of fishery products in Myanmar and to analyze the contribution of fishery product in Real Gross Domestic Product of fishery sector. The method is descriptive and regression method. Ribbon Fish (Nga-Tan- Khon) was the largest volume of exporting and provided the most foreign exchange earnings because the Arabian countries prefer to eat it. Ribbon Fish (Nga-Tan- Khon) gained US$ 54.993 million in 2020-2021. According to the regression result, the fishes exports are positively significance with fishery production. A one percent change in fishes export will be increase of fishery production 9.266236. The prawns exports are increased because of fishery production are increased. Therefore, the prawn export is positively significant with fishery production at p value 0.0009. The other export fishery product are does not significant with fishery production. The fishery sector should develop and apply fish quality and safety management systems to maintain the current competition position of Myanmar fishery products in the regional and world markets through the implementation.

Keywords: RGDP, FP, FS PR, OT

Introduction

Myanmar, a country in Southeast Asia with almost 55 million populations, is rich in natural resources. Myanmar possesses a long coastal line that stretches to 2,833 Kilometer and 8.2 million hectares of inland water bodies. Myanmar has rich fisheries biodiversity including 310 freshwater fish species and 465 marine fish species. Myanmar's fishery sector has been the fourth largest contributor to the national gross domestic product (GDP), and source of foreign earnings. The fishery sector is the most important one after the agricultural sector to fulfill the protein requirement of the people to Myanmar and to provide the opportunity for the employment to a large number of rural communities and rural people. Marine fisheries include inshore and offshore, and fresh-water fisheries include aquaculture, leasable and open fisheries. Fishery sector contributes it higher to the national GDP and also important as a source of national export earnings. The role of fisheries becomes more significant in the recent decade by increasing its share in GDP. In 2019-2020, Myanmar was top nine in world aquaculture production. The production of freshwater fish was 46% of the total fish production and the production of marine fish was 54% of the total production of fish in Myanmar in the fiscal year 2019-2020. Major importer countries of Myanmar fishery products are Thailand, China, Saudi, Japan, the United States, Malaysia, Singapore, the United Kingdom, Bangladesh and the United Arab Emirates. Asia region is a major supplier of fish products to the European market. The aquaculture sector in a number of Asian countries has become an important producer as well as exporter of various captured and cultured seafood products. Myanmar with its suitable climate conditions has a very good opportunity to improve fishery export sector. Fishery exports play a priority among the other exports in Myanmar. So, the study focuses on fishery sector in Myanmar.

Objective of the Study

The objectives of the study are;

To explore the exportation of fishery products in Myanmar

To analyze the contribution of fishery product in Real Gross Domestic Product of Livestock and fishery sector.

Method of Study

In this study, the method is used descriptive method and regression method. Data and information are collected from secondary sources. The data sources collected from Fishery statistics books that published by the Department of Fisheries in Myanmar and Statistical year books that published by the Central Statistical Organization (CSO) ,Myanmar Agricultural Statistics Book.

Scope and Limitations of the Study

The study is focused on the fishery production and its export in Myanmar. This study specializes the production and export of fish and prawns during the period from 2000-2001 to 2020-2021. In this study, other fishery products are not included.

Literature Review

1. Export-Based Theory

Community economic development policy has historically focused on only the external market for goods and services. This focus has followed from a simple model of economic growth known as export base or economic base theory. Export base theory argues that the community's economy can be divided into two.

The first sector is the export or basic sector. The export sector consists of that portion of the community's goods and services market that trades with other areas. The export sector brings dollars into the community because someone outside the community purchase goods and services produced in the community. The second sector, termed the non-export, non-basic, or residential sector sells its products within the boundaries of the community (internal markets) and exists to supports the export sector. This theory was developed by Robert Murray Haig in his work on the Regional Plan of New York in 1928.

For a long time in the mainstream use of the theory, only export activities were considered as basic for regional economics, since exported goods and services provided external incomes. In consequences, local growth was seen as strictly dependent on export performance and the belief was that regional development policies should focus primarily on the interregional competitiveness of export activities. Since the 1990s, alternative applications of the theory have extended the definition of basic incomes to various external wage and non-wage sources, increasingly exposing the limitations of the mainstream application.

2. The Benefits of Fishery Exports

The role of exports as an engine for economic growth is a constant subject of debate in the economic growth literature. According to the absolute and comparative advantages theories, countries can benefit from trade by specialization in the production of those goods, for which their resources are best suited and guiding materials, for which their resources are best suited and guiding materials, which cannot produce. Many LCDs have comparative advantages in fishery sector.

An increasing amount of trade in fish products is between developing countries rather than from developing to developed countries. Demand for fish in developing countries continues to grow, due both to population growth and increased per capita consumption. While there is increasing demand for higher value fish in developing countries, low-value fish continue to make up the bulk of fisheries consumed there, globally fish and food already represent 6% of all animal protein intake and this proportion has been increasing.

2.1. Fisheries and Gross Domestic Product

Fisheries are an important source of wealth for many coastal and island developing countries. About 95% of the world's 50 million fishermen live in developing countries and fisheries provide a critical resource of food for millions. Some countries generate up to 30% of their fiscal revenues through fisheries. Fisheries contribute significantly to GDP in a range of low-income countries. The sector contributes more than 10% to GDP in some Asian countries, e.g. Cambodia, the Maldives, more than 5% in Africa countries such as Gambia. In many Asian and West Africa countries, fisheries contribute between 2% and 5% to GDP. The biggest Asian fish producer is China. India is the second largest fish producing and largest aquaculture nation after China.

2.2. Fisheries and Employment

Employment in fisheries and aquaculture is significant in developing countries, and has been growing steadily in most low-and middle-income countries. Fisheries provide employment for approximately 47 million fishermen in developing countries, mainly in Asia (84%). Most are involved in small-scale fisheries. In Indonesia alone, the sector employs more than 6 million people. Fisheries provides significant employment in processing and marketing, which in many countries is primarily undertaken by women. In several West African countries, 10% of the population or more earn their livelihood from fisheries, e.g. Ghana (10%), Gambia (15.4%). Inland and coastal fisheries and related fish processing and trading provide full or part-time employment to between 6 and 9 million people in Sub-Saharan Africa.

2.3. Public Revenues from Fisheries

Fisheries provide public revenues at the national level, particularly in fishery rich countries. Many West African countries generate a large share of their public revenues through the sector. At the local level, fisheries tax can provide a significant source of local revenues. Mauritania had been looking for ways to increase the benefits from granting access to its fisheries resources to foreign fleets. The agreement signed with the European Union in 2001 provided for significant increases in financial compensation, greatly in increasing the sector's contribution to the national budget. But it also included specific provisions for developing the local fisheries sector and improving the control and surveillance for fisheries activities, helping to conserve the resources. The latest agreement concluded with the European Union in 2006 includes annual financial contributions of EUR 86 million to the country, total EUR 516 million over six-year period covered by the agreement.

2.4. Subsistence Income from fisheries

The fisheries sector provides many poor communities with subsistence livelihoods. Some 50 million people dependent to some degree on fisheries are poor in absolute terms. In Africa, 150 million people (men, women, and children) are primarily dependent on fisheries for their livelihoods. An estimated one billion people, mostly in low-income countries, depend on fish as their primary source of food (UNEP, 2004). Small-scale fishermen provide half of the world's fisheries production for direct consumption. Small fish are especially important for poor consumers, as they can be purchased in small quantities at low cost.

3. Review on Previous Studies

Ikuko Okamoto, (2008) studied on "The Shrimp Export Boom and Small-Scale Fishermen in Myanmar". The study was conducted in a fishing village in Thandwe Township in Rakhine State during the period 2005-2006. Tiger, white, and pink are the major varieties of shrimp caught in the waters of the study area. This study examined the impact of the globalization on the economic status of small-scale fisherman. The study found that the high income from shrimp fishing is probably not sustainable in the mid and long term because of the increasing competition due to continuous entry into shrimp fishing.

Thiri Aung (2019) studied on "The development of fishery sector in Myanmar during the period from 2008-2009 to 2017-2018". The main objective is to study the development of fisheries, production, exports and consumption situation of fisheries sector and to identify the strength and weakness of fishery sector in Myanmar. The process of privatization has pushed the fishery sector to develop with a momentum. In the modern age, training and education are getting more important than ever before. Fisheries training are the prime factor to become able and qualified in its sector.

"Ben Belton, Melissa Marschke, Peter Vandergeest, 2019" studied on "Fisheries Development, Labour and Working Conditions on Myanmar's Marine Resources".The study focuses on the conditions of Mon State. Flows of migrants from Mon into neighboring Thailand began increasing markedly after 2005 in response to growing demand for low cost unskilled labour. So, labour shortages are significantly increased in Mon's fishery firms. Raft fishery is so risky and dangerous for fishermen because men are lost at sea annually to storms or Typhoon. The finding showed that the integration of Mon State's fisheries into national and regional markets has deepened progressively over the past three decades.

Su Hlaing Moe (2018) studied on "The fishery production and exports in Myanmar during the period from 2007-2008 to 2016-2017". The study was found that both freshwater and marine fisheries are domestic consumption items as well as crucial export items in international trade. Although the extent of aquaculture has been pronounced in recent years, the products from marine fisheries are still contributing larger share in the total fisheries landing. the products are given priority for export and only the surplus is used in the domestic. Growth of an economy is directly

related to exports. If exports increase at a faster pace as compared to imports, nothing can stop an economy from being a developed one.

Nu Htwe Hlaing (2022) studied on "The current situation on rural aquaculture farms, income situations and problems of rural aquaculture farms in Thanatpin Township, Bago Region". She found that the most of aquaculture fisheries yield less than 100 viss fish production per month. The general constraints of rural aquaculture production improvement were identified as fish seeds supply, quality of fish seeds, various fish diseases, fish marketing system and fish training program. The fishermen in Thanatpin Township, have got between 1,000,000 Kyats to 1,500,000 Kyats but they cost 1,000,000 Kyat for the aquaculture farms such as cost of ponds, cost of fish seeds and cost of fish feeds. Before COVID-19 period, the fishermen could do regular aquaculture farms activities and easily access to other townships. The finding showed that the impacts of COVID-19 are strongly connected with less fishing activities and less travels or movements with Thanatpin Township, Bago Region that caused reduction of harvested fish and catch per day.

Methodology

The annual data used for the study was sourced from the Statistical Year book. The series spans over 20 years. The variables used in the model specification are Real Gross Domestic Product of Livestock and Fishery (RGDP) and Fishery Production (FP)as the dependent variable while Fishery Export (FE). The fishery export are fishes (FS) , Prawn (PR) , Other (OT) as the independent variables. The formulation of the model is given below.

RGDP = f (FP)

FP= f (FS, PR, OT)

1. Regression Analysis

It is a statistical technique that analyzes the relationship between two or more variables and uses the information to estimate the value of the dependent variables. In multiple regression, the objective is to develop a model that describes a dependent variable y to more than one independent variable. In linear regression, there is only one independent and dependent variable involved. But, in the case of multiple regression, there will be a set of independent variables that helps us to explain better or predict the dependent variable y.

The multiple regression equation is given by

$Y= \beta_0 + \beta_1 X1 + \beta_2 X2 + \beta_3 X3 + \varepsilon$

here x_1, x_2, ….x_k are the k independent variables and y is the dependent variable

2. Descriptive Analysis

Fishery Sector Inputs in Myanmar

The financial assistance loans by Myanmar Livestock and Fishery Development Bank (MLFDB) and most investment goes to the development of fishery facilities, in terms of building new fishing vessels, fishing vessels, fishing gears, cold storages and processing plants and for their maintenance.

1. Fishing vessels
2. Fishing Gears
3. Ice plants and cold storage.
4. Aquaculture Ponds

1. Fishing Vessels

In general, there are two kind of fishing vessels: small fishing boat and offshore vessels. And the small fishing boats can be categorized into two: powered boat and non-powered boat. Offshore vessels can categorize into two: national and foreign owned. The volume of micro-plastics in the sea is believed to be rising, and this could endanger fishes, turtles, dolphins and other marine animals that ingest the debris. Fishing efforts have been controlled by the licensing system. Several provisions have endorsed with fishing grounds, fishing periods, fishing gear and method. The fishing vessels data detail show in appendix (A).

2. Fishing Gears

Fishing methods are officially classified in the Myanmar Fisheries Manual into 57 categories, the majority of which are primitive in character. Among the main methods employed in the inland fisheries are refuge devices, lances, hooks and lines, longlines, barriers, stake fences with sloping platform, floating prawn traps, fish pots, shuttle traps, jumping traps, scoops nets, cash nets, drop nets, drift nets, fillet nets and drag nets.

In the marine fisheries, the common fishing gears include lances, harpoons, hooks, and lines, stakes, set pouch nets, swing nets, cost nets, drift gill nets, set gill nets, set gill-nets, drag seines, beach seines: gill seines, trawl nets, troll lines purse seines, and ring nets. The drift nets are mainly used to target higher valued commercial pelagic species. It is widely used in Ayeyarwady Division.

3. Ice Plants, Cold Storages and Processing Plants in Myanmar

Process means transforming input to output, the term processing refers to the process associated with fisheries products between the time for raw material is receives and the time for the final product it delivered to the cold storage. As the government has changed its economic policies, private sector invested in a number of facilities such as processing plants, ice plants and cold storages. The export companies invested processing plants, ice plants and cold storage plant which provide the quality of their products. Ayeyarwady Regions have large number of Ice Plants for fisheries processing plants. The total number of 127 cold storages in Myanmar are useful to monitor and control for the procedure of processing establishments as the requirements of international standard for food safety and quality assurance. Yangon Region has the larger number of processing plants, storages and ice-plants because it is main point for trade and electricity. Ice plants, Cold storages and Processing plants in Regions and States of Myanmar are showed in appendix (B).

Fisheries Production in Myanmar

World population is increasing, population of Myanmar is increasing. Food and Agriculture Organization of United Nations recommended that fish had become an increasingly important source of protein over the last decade in most of the Asian countries. National per capita consumption of fishery products has increased every year. Therefore, production of fishery products will take the country economy to the expansion trend. Myanmar have the marine fisheries and freshwater fisheries production.

1. Marine Fisheries Production in Myanmar

Myanmar endowed with huge fisheries potential marine water in which fishing zones are allocated. The territorial fishing zone is within 12 nautical miles offshore from the baseline and the Exclusive Economic Zone (EEZ) covers 200 nautical miles offshore from the baseline. The total marine fisheries area in Myanmar exclusive Economic Zone is about 486,000 square kilometers. The inshore fishing is ranged to operate within 5 to 10 nautical miles of the shore. In this area, the fishing boat which is built by traditional type with no more than 30 feet long or using less than 25 Horse Engine Power. The fishing gears for using are driftnet, gillnet and long line. The offshore fishing vessels operate from outer limit of the inshore fishing zone to Exclusive Economic Zone. The fishing vessels are more than 30 feet long or using more than 25 Horse Engine Power operating in offshore area. In this area, the commercial fishing gears are trawl net, purse seine and long line. Among the whole fisheries sector in Myanmar, marine fishery is most important.

According to Table 1, inshore fisheries production was 344.65 metric ton and offshore fisheries production was 586.84 in metric ton2000-2001.In 2020-2021, inshore fisheries production was 746.62 metric ton and offshore fisheries production was 1271.3 metric ton. In this case, offshore fisheries were maximum amounts of thousand metric tons than inshore fisheries because Myanmar owns impressive marine water and its fish species are more than inshore fisheries. The total production of fisheries increases because of the Government's four fisheries law such as foreign fishing vessels and Aquaculture Law in 1989, Myanmar Marine Fisheries and Freshwater Fisheries Law in 1991. These laws encourage the development of fishery sector and also make actively participation of local and foreign fisheries enterprises in Myanmar.

Table 1: Marine Fisheries Production in Myanmar (2000-2001 to 2020-2021) (Metric Ton – Thousand)

Year	Inshore Fishery	Offshore Fishery
2000-2001	344.65	586.84
2001-2002	380.65	648.14
2002-2003	389.62	663.41
2003-2004	418.71	712.92
2004-2005	454.33	773.59
2005-2006	508.67	866.11
2006-2007	564.37	960.95
2007-2008	625.21	1,064.55
2008-2009	690.98	1,176.53
2009-2010	762.49	1,298.29
2010-2011	802.83	1,366.99
2011-2012	863.15	1,469.69
2012-2013	919.03	1,564.84
2013-2014	999.83	1,702.42
2014-2015	1,056.05	1,798.15
2015-2016	1,108.79	1,887.95
2016-2017	1,123.48	1,912.95
2017-2018	1,164.19	1,982.27
2018-2019	1,209.51	2,059.41
2019-2020	1,207.99	2,056.85
2020-2021	746.62	1,271.30

Source: Fishery Statistics and Statistical Year Books, 2021

2. Freshwater Fisheries Production in Myanmar

Myanmar has impressive inland water capture fisheries. Freshwater (Inland fisheries) are mainly provided to the people of Myanmar for food security, as well as for getting the opportunity of employment in fisheries communities from rural areas. Myanmar people mainly consumed varieties of fish from freshwater such as natural inns, lakes, streams and rivers. There are three types of Fresh water (Inland) Fisheries as follows: leasable fisheries (Inn), Open fisheries and Aquaculture fisheries.

- **Leasable Fisheries (Inn)**

Leasable fisheries also known as Inn, the fishing rights are granted through a lease arrangement with the Department of fisheries subject to stipulations relating to the area, species, fishing implements, fishing period and method. These are almost exclusively key fishing grounds on floodplains which are primarily fished through the erection of barrage fences around the lease area with fish collected in various collection pens or traps. Lease holders enjoy exclusive rights to fish the lease area including preventing access by others and a certain degree of environmental management and control. There are 3722 leasable fisheries in Myanmar of which 3490 are still exploitable in 2016-2017. Of these,1738 leasable fisheries are located in Ayeyarwady Region (the lower floodplains and delta of the river).

- **Open Fisheries**

These consist of all kind of fishing in streams, lakes, reservoir and in the rice fields etc. Since 1995, fishing in reservoir was banned. Thus, the landing from the reservoir is not included in fishery statistics. The right to fish in these areas is licensed out by Department of fisheries. For some of the larger gears, "bag nets" set in rivers are allocated by a tender system. License fees for small-gear are low. The entire fishing is closed during June, July and August to allow spawning enforced only for the inn fishery (leasable fishery), tender fisheries and larger fisheries. Yangon region, Ayeyarwady region, Bago division, and Mon state are the main areas for open fishery production. Open fisheries are very important for rural population, particularly landless because its needs low investment in comparison with other kinds of fishing activities.

- **Aquaculture Fisheries**

Aquaculture is not only an important source of food as the major part of total output but also provides employment, important nutritional contribution to society and export. Aquaculture has also become a significant source of foreign currency for Myanmar, since the products exported are more valuable ones destined for markets in

the developed world. Fish pond aquaculture can be an attractive alternative. The two aquaculture systems in Myanmar are freshwater pond culture, and reservoir culture.

Aquaculture has been the fastest growing sector for over a decade and it must be relied on also to sustain future fishery production enough to meet the demand of growing population. Because of the natural threat of global warming, environmental degradation of fishing grounds and over fishing for long term, there has been depletion of natural resources and with the annual rising of population. Due to increase in local demand and potentials in export markets, most of investment in fishery sector are inflowing into the aquaculture.

Table 2: Freshwater Fisheries Production (2000-2001 to 2020-2021) (Metric Ton – Thousand)

Year	Aquaculture Fisheries	Leasable Fisheries	Open Fisheries
2000-2001	121.95	91.17	147.04
2001-2002	190.12	95.95	158.93
2002-2003	252.01	109.53	180.61
2003-2004	400.36	122.28	331.98
2004-2005	485.22	136.79	366.75
2005-2006	574.99	152.69	478.43
2006-2007	616.35	170.10	548.09
2007-2008	687.67	191.05	625.44
2008-2009	775.25	209.72	689.71
2009-2010	858.76	237.46	764.97
2010-2011	830.48	250.04	913.12
2011-2012	899.05	282.64	963.82
2012-2013	929.38	290.00	1,012.97
2013-2014	964.12	304.44	1,076.59
2014-2015	999.63	315.36	1,147.76
2015-2016	1,014.42	338.69	1,241.98
2016-2017	1,048.69	339.36	1,251.13
2017-2018	1,130.35	341.02	1,253.95
2018-2019	1,121.35	339.36	1,260.69
2019-2020	1,145.02	342.94	1,265.12
2020-2021	1,167.35	343.99	268.41

Source: Statistical Year Books (2021), Fisheries Statistics, 2021

According to Table 2, production of leasable fisheries was 91.17 metric ton, open fisheries was 147.04 metric ton and aquaculture fisheries was 121.95 metric ton in 2000-2001. In 2019-2020, production of leasable fisheries was 342.94 metric ton, open fishery was 1265.12 metric ton and aquaculture fishery were 1145.02 metric ton. Although leasable production decreased to 339.36 metric ton in 2018-2019, it increased to 343.99 metric ton in 2020-2021. In fact, fisheries input (small fishing boats) usages declined slightly in 2018-2019. The production of open fishery is increased steadily in every year because it is the main part of freshwater fisheries. Although Aquaculture fisheries production declined slightly to 830.48 metric ton in 2010-2011, Aquaculture fisheries production increased gradually in every year.

Exportation of Fishery Products in Myanmar

Myanmar exports of fishery products include freshwater and marine fishes, prawns, crab and other fishery products. Fish and fishery products are transported to the fish landing sites or jetties for auction, wholesale and retails in market and processed for exports. The soft-shelled crab had the highest price among the exported fish and fishery products which was sold at US$ 9.12 per kg. Myanmar fishery products are mainly exported to China, Japan, Thailand and Singapore. Myanmar extended its market to Australia, Belgium, France, the United States, European Union countries and others. Myanmar fishery products are being exported to over 40 countries. Since 1997, Myanmar has potential to benefit from its membership in ASEAN by participating not only in AFTA but also in all area of ASEAN countries economic cooperation. Myanmar's participation in AFTA may complement the ASEAN trade and may lead to trade creation. Myanmar's integration in ASEAN is anticipated to bring significant benefits to its economy. Myanmar also became a member country to World Trade Organization (WTO). In addition, the state is supporting

products for export promotion and support the import substitute production. Trade liberalization improved domestic technology, production process will be more efficient and productivity in fishery sector will rise.

Myanmar is one of the top ten countries in terms of fish production in the world. Myanmar is one of the sufficient countries for fish and fishery products in the domestic consumption for food security and share the surplus with the neighboring and other countries to export for national income. Growth of an economy is directly related to exports. The demand for fish exports increased due to the trade liberalization. Therefore, accelerating trade liberalization is needed to promote economic growth in Myanmar.

Table 3: Export of Fishery Products in Myanmar (2000-2001 to 2020-2021) (Quantity-Metric Ton)

Year	Fishes	Prawns	Others	Total
2000-2001	92,302.23	19,477.29	32,844.33	144,623.85
2001-2002	138,250.72	21,453.87	41,962.24	201,666.83
2002-2003	136,036.22	22,868.11	54,095.27	212,999.60
2003-2004	57,915.65	14,930.30	8,870.55	81,716.50
2004-2005	77,162.91	18,335.93	8,036.14	103,534.98
2005-2006	125,107.81	18,941.05	45,842.42	189,891.28
2006-2007	235,858.25	25,369.89	82,198.47	269,426.61
2007-2008	245,473.15	21,061.30	85,117.60	351,652.05
2008-2009	234,060.74	18,382.10	72,267.70	324,710.54
2009-2010	277,823.74	17,439.31	79,829.38	375,092.43
2010-2011	273,043.74	19,142.91	81,706.06	373,892.71
2011-2012	283,688.76	17,995.03	85,297.53	386,981.32
2012-2013	266,464.97	17,267.93	93,112.79	376,845.69
2013-2014	237,142.31	16,508.97	91,616.08	345,267.36
2014-2015	225,974.93	17,527.33	94,788.33	338,290.59
2015-2016	246,970.93	13,673.49	108,326.47	368,970.89
2016-2017	290,580.04	13,082.46	135,044.01	438,706.51
2017-2018	394,135.80	15,905.44	158,186.09	568,227.33
2018-2019	382,135.94	13,979.31	187,561.09	583,676.34
2019-2020	427,969.18	13,965.22	227,750.89	669,685.29
2020-2021	379,993.00	11,881.00	166,350.00	558,266.00

Sources; Statistical Yearbook 2021, Myanmar Agricultural Statistics (2022)

According to the Table 3, fishery exports was 92,302.23 metric ton and prawn exports was 19,477.29 metric ton in 2000-2001.In 2019-2020, fishery exports were 427,969 metric ton and prawn exports was 13,965.22 metric ton. In 2003-2004, fisheries exports declined significantly from 136,036.22 metric ton to 57,915 metric ton Myanmar faced political impasse and also tried to overcome the economic difficulties during 2003-2004 because of international sanction on Myanmar Government. Therefore, fishery sector led to the falling of production, processing and also export. After this period, Fishery sector recovered so exportation of fisheries increased gradually year by year. In 2020-2021 fishery exports declined slightly because of the reduction of the usages of fishing inputs.

Top-Ten Species of Exported Fishery Products in Myanmar

In Myanmar, there are 646 fish and fisheries species. Since the fishery sector has privatized, the kinds of exports fisheries are based on demand. Table shows the volume of top ten species of exported fisheries product of Myanmar in 2020-2021.

According to Table 4 and Figure 1, the most popular species are in Myanmar. Among them, Ribbon Fish (Nga-Tan- Khon) was the largest volume of exporting and provided the most foreign exchange earnings because the Arabian countries prefer to eat it. Ribbon Fish (Nga-Tan- Khon) gained US$ 54.993 million in 2020-2021. Fish Meal and Rohu was popular in total fishery exports.

Table 4: shows the volume of top ten species of exported fisheries product of Myanmar in 2020-2021.

Species	2020-2021	
	Metric Ton (ordinary)	US $ (million)
Ribbon Fish (Nga-Tan- Khon)	32,448.65	54.993
Fish Meal	53,060.50	53.134
Rohu	43,990.36	46.384
Live Mud Crab	10,762.29	45.575
Live Eel	9,305.35	37.342
Hilsa (Nga- Tha - Laut)	10,600.43	32.030
Soft Shell Crab	3,095.80	31.802
Big Eye Croker	20,974.10	28.147
Squid	16,513.20	27.693
Black Pomfret	9,658.57	20.804

Sources; Myanmar Agricultural Statistics

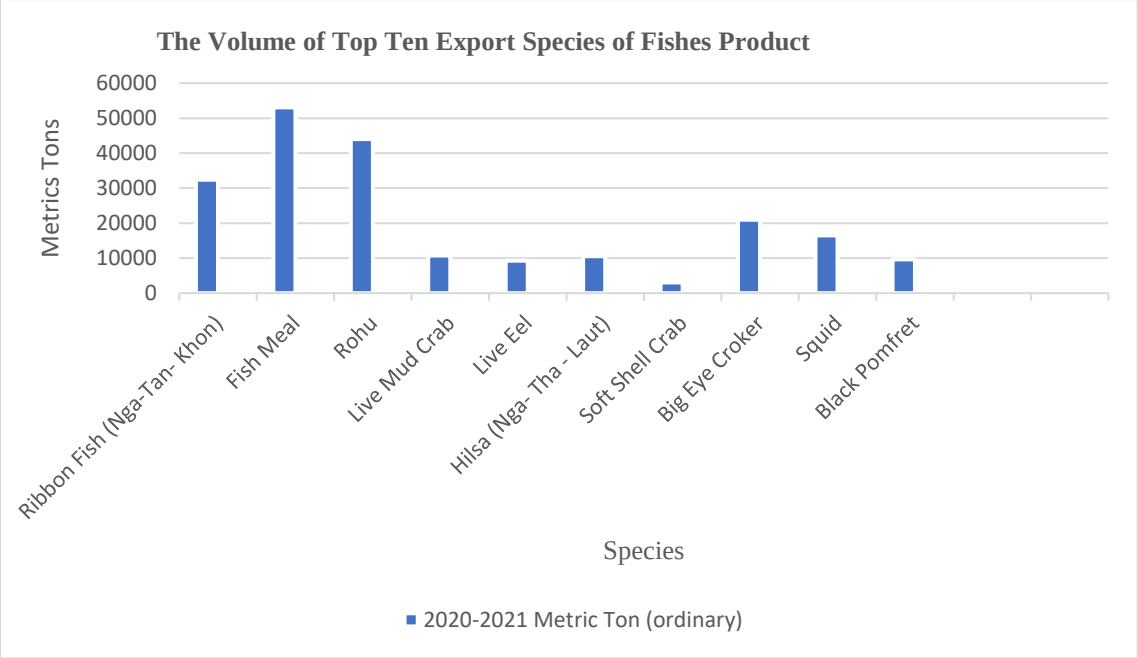

Figure 1: The Volume of Top Ten Export Species of Fishes Product

Top-Ten Countries Imported Fishery Products from Myanmar

Myanmar export fish and fishery products to ASEAN countries, Asian-Pacific countries, European countries, Middle East Countries, some African countries, and Australia. There are many countries which are imported the Fishery Products from Myanmar and there have been changed in number of imported countries yearly. In 2002-2003, the countries importing fisheries products from Myanmar were 43 number of countries, 41 number of countries in 2003-2004, 34 number of countries in 2004-2005, 2005-2006 and 33 countries in 2006-2007, 32 number of countries in 2007-2008, 27 countries in 2008-2009 and then 40 countries in 2019-2020. Among the many importing countries of fishery products from Myanmar, top-ten countries imported fishery product from Myanmar are presented in the following table.

According to Table 5, Thailand and China are key important countries from Myanmar. Thailand imported the amount of 222.89 metric ton of fishery product in 2020-2021. China imported the amount of 306.9 metric ton of the

fishery product from Myanmar because Myanmar has constructed healthy friendship with border countries like China and Thailand. This might have been the cheaper transportation costs and saving time for Fresh fish and fishery products. Although United States and European Union market import fisheries product from Myanmar, Myanmar mainly export to the Asian fishery market.

Table 5: Top -Ten Countries Imported Fish Product from Myanmar in 2012-2013 to 2020-2021

Year	China	Thailand	Malaysia	Kuwait	Singapore	Saudi Arabia	Japan	U.A. E	UK	Bangladesh
2012-2013	244.50	133.16	45.67	49.15	49.75	31.8	34.97	19.4	14.56	11.97
2013-2014	199.30	128.90	35.28	27.00	25.22	24.37	23.51	18.27	13.84	8.50
2014-2015	169.69	127.75	31.40	22.95	22.35	21.93	18.85	14.59	10.19	9.01
2015-2016	169.69	127.75	31.40	22.95	22.35	21.93	18.85	14.59	10.19	9.01
2016-2017	198.71	190.12	35.35	24.58	23.92	22.71	15.39	14.89	12.52	12.15
2017-2018	258.81	197.96	36.64	33.32	28.88	27.67	18.85	15.42	14.34	14.29
2018-2019	257.66	204.82	32.88	27.91	25.61	24.78	18.83	17.36	17.33	16.64
2019-2020	318.03	254.92	37.09	27.46	26.65	24.12	22.71	19.29	18.25	17.24
2020-2021	306.90	222.89	44.25	29.45	24.69	21.47	21.09	17.70	13.81	12.83

Source: Fisheries Statistics (2021)

Contribution to GDP by Fishery Sector in Myanmar

The fishery sector has been identified as most important for economic, social, and environmental sustainability. Fisheries and aquaculture make a significant contribution to Myanmar's Economy. It is difficult to accurately measure the overall contribution of fisheries. National Gross Domestic Product (GDP) statistics combine the fishery sector with livestock. Since Myanmar has transformed to Market-Oriented Economy in 1988, the fishery sector is one of the most important sectors to provide the national economy. Livestock and Fishery sector is the fourth contributor to GDP after agriculture, trade and processing, and manufacturing sector.

Table 6: Contribution to GDP by Fishery Sector in Myanmar (2000 - 2001 to 2020-2021)

Year	RGDP(Livestock and Fishery) (Kyat Million)	Total Fish production (Metric Ton)	Total Fishery Export (Metric Ton)
2000-2001	8,310	785,495	144,624
2001-2002	89,927	887,976	201,667
2002-2003	156,789	107,891	213,000
2003-2004	324,083	1,216,056	81,717
2004-2005	374,298	1,357,089	103,535
2005-2006	445,647	1,580,051	189,891
2006-2007	1,055,869	1,751,367	269,427
2007-2008	1,170,634	1,940,458	351,652
2008-2009	1,288,795	2,153,141	324,711
2009-2010	1,447,155	2,400,244	375,092
2010-2011	1,556,088	2,548,037	373,893
2011-2012	3,641,799	2,742,433	386,981
2012-2013	3,900,918	2,888,192	376,846
2013-2014	4,217,599	3,091,088	345,267
2014-2015	4,519,893	3,256,077	338,291
2015-2016	4,820,334	3,424,413	368,971
2016-2017	4,917,638	3,475,629	438,707
2017-2018	5,099,501	3,599,328	568,227
2018-2019	6,908,242	3,677,576	583,676
2019-2020	7,193,024	3,685,347	669,685
2020-2021	7,022,445	3,720,194	558,226

Source; Statistical Yearbook (2021)

According to the Table 6, the Livestock and fishery productions of gross domestic product are growth from 8310.3 kyat Millions in 2000-2001 to 7022445-kyat millions 2020-2021.The fisheries export are increased from 144623.85 metric ton in 2000-2001 to558226.13 metric ton. The fisheries exports are increased by the gross domestic product of fishery sector. The fishery productions are increased from785495 metric tons in 2000-20001 to 3720194 metric tons in 2020-2021. The fishery sectors are second largest- sector in the economy.

Analysis on Fishery Production

The annual data used for the study was sourced from the Statistical Year book and fisheries statistics . The series spans over 20 years. The variables used in the model specification are Real Gross Domestic Product of Livestock and Fishery (RGDP) and Fishery Production (FP) as the dependent variable while the independent variables are Fishery Export (EXP). The Fishery Export are Fishes (FS) , Prawns (PR) and Ohers (OT). The formulation of the model is given below.

RGDP = α +βFP

FP = α +β_0 FS++$\beta_1 PR + \beta_2$ OT

To determine the parameters of this model, we have considered a data set, regarding the evolution of the macroeconomic result indicators between 2000-2001 to 2020-2021.

RGDP=-2217147+2.114361FP
Std (0.204543) (536890.0)
t-stat (10.33700) (-4.129611)
P-value (0.0000) (0.0006)
R^2=0.849031
Adjusted R-squared (0.841085)

According to the regression result, the contribution of fishery productions is included in the real gross domestic product in livestock and fishery sector. The fishery production is positively related with livestock and fishery sector. If the one percent change in production of fishery, the real gross domestic product will be increase 2. 114361.The fishery production are significance with real gross domestic product of livestock and fishery sector because of including of fishery product in export sector. An independent variable, including fishery production explained approximately (84 percent of the variation in the fishery production, according to R^2 0.849031 and adjusted R^2 0.841085. And also, the viability of this regression model is confirmed by the values of the F-statistic test (106.8535) and also by the null degree of risk (0.000000 given by the value of the Prob F-statistic test.

Table 7: Results of Regression Analysis

Variables	Coefficient	St. Error	t-Statistics	Prob
C	3253480	769690.0	4.22700	0.0006
Fishes	9.266236	3.217509	2.879940	0.0109
Prawns	147.4430	36.43659	-4.046564	0.0009
Others	-5.230772	6.3169.39	-0.828055	0.4198
R -squared	0.867621			
Adjusted R -squared	0.842800			
F-Statistic	34.95497			
Prob (F-Statistic)	0.000000			

Sources; Author's Calculation

Fishery Production (FP)	=	3253480	+	9266236 Fishes	+	147.4430 Prawns	- 5.230772 Others
St.		(769690.0)		(3.217509)		(36.43659)	(6.3169.39)
t. stat		(4.22700)		(2.879940)		(-4.046564)	(-0.828055)
Prob		(0.0006)		(0.0109)		(0.0009)	(0.4198)

According to the regression result, the fishes exports are positively significance with fishery production. A one percent change in fishes export will be increase of fishery production 9.266236. The prawn export is increased because of fishery production are increased. Therefore, the prawn export is positively significant with fishery production at p value is 0.0009. The other export fishery product are does not significant with fishery production .All independent variables, including fishes, prawns and others fishery export product explained approximately (85) percent of the variation in the fishery production, according to $R^2$0.867621and adjusted $R^2$0.842800. And also, the viability of this regression model is confirmed by the values of the F-statistic test (34.95497) and also by the null degree of risk (0.000000 given by the value of the Prob F-statistic test).

Results and Discussion

The inshore fisheries production was 344.65 metric ton and offshore fisheries production was 586.84 in metric ton 2000-2001. In 2020-2021, inshore fisheries production was 746.62 metric ton and offshore fisheries production was 1271.3 metric ton. In this case, offshore fisheries were maximum amounts of thousand metric tons than inshore fisheries because Myanmar owns impressive marine water and its fish species are more than inshore fisheries. The production of open fishery is increased steadily in every year because it is the main part of freshwater fisheries. Although Aquaculture fisheries production declined slightly to 830.48 metric ton in 2010-2011, Aquaculture fisheries production increased gradually in every year). The most popular export species are in Myanmar. Among them, Ribbon Fish (Nga-Tan- Khon) was the largest volume of exporting and provided the most foreign exchange earnings because the Arabian countries prefer to eat it. Ribbon Fish (Nga-Tan- Khon) gained US$ 54.993 million in 2020-2021. Fish Meal and Rohu was popular in total fishery exports. Thailand imported the amount of 222.89 metric ton of fishery product in 2020-2021. China imported the amount of 306.9 metric ton of the fishery product from Myanmar because Myanmar has constructed healthy friendship with border countries like China and Thailand. This might have been the cheaper transportation costs and saving time for Fresh fish and fishery products.

Conclusions

The contribution of fishery production in GDP of Livestock and fishery sector. The fishery productions are positively related with livestock and fishery sector. The production of fishery one percent change, the gross domestic product will be increase 2.114361. The regression result showed that the fishes export are positively with related fishery production. The one percent change in fishery export will be increase of fishery production 9.266236. The prawn export is positively significance related with fishery production. And also, there are significantly related by p-value is 0. 0009.The prawns exports are one percent increased and production of fishery sector will be increased 147.4430. The others export fishery products are negatively with production of fishery sector. The public and private sector need to establish the required inshore facilities such as ice plants, processing plants and cold storages. The fishery products such as fish, prawn, etc. should be exported as fresh fisheries products to abroad. Therefore, the fishery sector needs to upgrade the fish products to be semi-processed or value-added in order to increase to value and to meet the international standard. For sustainability of fishery exports, it is important to have quality control in Myanmar. The fishery sector should develop and apply fish quality and safety management systems to maintain the current competition position of Myanmar fishery products in the regional and world markets through the implementation. Nowadays, the export of fish and fishery products is at high demand on the world market. Therefore, these fishery exports are needed to keep in good quality, properly graded and packages. These fishery products should be implemented the quality control and hygiene measure before being exported. So that the market shares of foreign market can be maintained and competed with other foreign exporting companies.

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Appendix

Appendix (A) Fishing Vessels in Fishery Sector (2000-2001 to 2019-2020)

	Small-fishing boat		Offshore Vessels	
Year	**Powered Boat**	**Non-Powered Boat**	**National**	**Foreign**
2000-2001	12,846	13,253	1,987	32
2001-2002	13,591	14,649	1,999	135
2002-2003	15,607	14,813	2,309	22
2003-2004	13,664	16,335	2,121	27
2004-2005	14,176	16,667	2,150	451
2005-2006	14,099	16,361	2,022	254
2007-2008	14,289	15,219	1,863	248
2008-2009	14,025	14,645	1,758	356
2009-2010	13,788	17,054	1,814	391
2010-2011	13,823	15,548	2,196	396
2011-2012	12,288	15,463	2,598	264
2012-2013	12,157	12,757	2,724	150
2013-2014	12,490	13,732	2,736	153
2014-2015	12,240	13,391	2,840	52
2015-2016	13,831	12,583	3,030	11
2016-2017	16,012	10,704	3,168	48
2017-2018	15,084	6,802	3,219	5
2018-2019	14,077	5,122	3,211	-
2019-2020	14,854	4,337	3,216	-

Appendix (B) Ice plants, Cold storages and Processing plants in Regions and States of Myanmar (2019-2020)

Regions and States	Number of Ice Plants	Processing plants and Cold storages
Yangon	106	79
Tanintharyi	48	20
Rakhine	39	13
Ayeyarwady	70	8
Mon	29	6
Mandalay	7	-
Shan	2	1
Total	**301**	**127**

Source: Department of Fisheries, Fisheries Statistics, 2021

ID 166
The Determinants of Corruption: New Insights from National Leadership and Telecommunication Technology

Chor Foon TANG[1]* and Bee Wah TAN[2]

[1] Centre for Policy Research, Universiti Sains Malaysia; tcfoon@usm.my
[2] Economic and Financial Policy Institute (ECoFI), School of Economics, Finance and Banking, Universiti Utara Malaysia; tan.bee.wah@uum.edu.my

* Correspondence: tcfoon@usm.my

Abstract

Corruption is a complex phenomenon that leading to many economic failures such as a slowdown in economic growth, unequal resource distribution, and a loss of public confidence. Comprehending the key determinants of corruption is crucial for developing effective strategies to combat this pervasive issue. In this regard, we attempt to empirically explore the role of national leadership quality, the rule of law, telecommunication technology (ICT), and education in corruption using unbalanced panel data from 136 countries spanning the years 2010 to 2023. Our findings from the robust fixed-effect model suggest that an increase in national leadership quality, the rule of law, and ICT usage (such as internet usage) significantly reduces corruption. Moreover, our results indicate that countries with high-quality national leadership tend to enhance the impact of ICT and the rule of law on corruption control by providing telecommunication facilities and enforcing anti-corruption measures. Interestingly, we find that education does not have a direct impact on corruption. However, it does facilitate the ability of ICT to control corruption. According to the principal-agent theory, corruption arises from information asymmetry. Our findings highlight that education enhances society's ability to access information through telecommunication technology, thereby improving transparency (and reducing information asymmetry) and effectively controlling corruption.

Keywords: Corruption, Education, ICT, Leadership, Panel data

Introduction

Corruption is not a new phenomenon; it is a pervasive issue that has received global attention for over two millennia and continues to afflict societies until today (Tanzi, 1998). Although interpretations of corruption vary, "the abuse of entrusted power for private gain" is still the widely accepted and straightforward definition for corruption (Basabose, 2019; Transparency International, 2024). However, corruption manifests in various forms beyond bribery, fraud, and financial misconduct. It encompasses a spectrum of activities that erode trust in both public and private sector institutions. Governments, international organisations, and scholars have increasingly acknowledged the detrimental effects of corruption on economic growth, infrastructure development, and governance (Chêne, 2014; Wong and Tang, 2018; Gründler and Potrafke, 2019; Tanzi, 1998). Despite efforts to combat corruption through legal and institutional measures, it continues to persist, particularly in developing countries. As such, many past studies attempted to understand the key factors that influence the behaviour of corruption.

Shabbir and Anwar (2007), for example, examined the economic and non-economic determinants of corruption in 41 developing countries. The study revealed that economic factors, such as globalisation, economic freedom, economic development and education, play a more significant role in shaping corruption levels compared to non-economic factors like democracy and press freedom. Interestingly, contrary to the findings of some existing studies (e.g., Evrensel, 2010; Stensöta et al., 2015; Oueghlissi and Derbali, 2023), Shabbir and Anwar (2007) argued that education uplifts corruption in developing countries. The study posited that educated individuals in these countries are more likely to work in public sector, thereby enhancing the chances to engage in corrupt practices. Similarly, Mangafić and Veselinović (2020) and Mocan (2008) discovered the same positive relationship between education

level and corruption at the individuals level analysis. However, this education-corruption relationship remains controversial as the findings of Acaravci et al. (2023) showed that education has no discernible impact on corruption levels. The study discovered that telecommunication technology such as internet are likely to promote corruption instead of control due to digital divide. The study argued that in the presence of inequality in technology distribution, economic agent will use the informational asymmetries opportunities for personal gain which eventually leading to corruption.

Furthermore, our review shows that most past studies have recognised the role economic freedom and the rule of law in explaining corruption behaviour. In a small cross-sectional study, Park (2003) found that apart from socio-politic stability, economic freedom and a strong legal system both consistently promote a better environment for corruption control. This finding is validated by Iwasaki and Suzuki (2012), Shabbir and Anwar (2007) through panel and cross-sectional data analyses. Astonishingly, Elbahnasaway and Revier (2012) observed that a stronger rule of law might paradoxically encourage corruption, though the rationale behind this finding remains unexplained. Besides economic and institutional factors, Iwasaki and Suzuki (2012), Elbahnasaway and Revier (2012), and Shabbir and Anwar (2007) also explored the relationship between religion and corruption. Nonetheless, none of these studies found statistically significant evidence to support their hypothesis.

Despite numerous studies examining the determinants of corruption at various levels, several imperfections have been identified. First, the effect of the rule of law and education on corruption remain controversial. Second, there has been limited focus on the role of telecommunication technology in explaining corruption behaviour. Third, although Klitgaard (1991, 2011) emphasised the importance of moral leadership in combating corruption and how leaders can influence institutional culture to tackle systemic corruption, empirical studies on the relationship between national leadership and corruption levels are scarce. Motivated by these gaps, our study aims to critically explore the impact of national leadership quality, telecommunication technology, and other factors on corruption using unbalanced panel data from 2010 to 2023 across 136 countries. Additionally, besides examining direct effects, our study contributes to the corruption literature by exploring the potential moderating role of national leadership and education on the effects of telecommunication technology and the rule of law on corruption. Certainly, the findings of this study not only enrich the literature but also provide new insights for policymaking for combating corruption.

The balance structure of this paper is as follow. We present the conceptual framework, empirical model and data source in next section. Then, Section 3 discusses the estimation strategies and empirical results of our study. Finally, we provide concluding remarks and discuss policy implications in Section 4.

Conceptual Framework, Empirical Model and Data Sources

The primary goal of this study is to explore the influential factors of corruption from the global perspective. It is widely recognised that corruption is complex phenomenon, and no single theory can be used to comprehensively explain why corruption occurs. However, we borrow some economic theories to develop our conceptual framework in Figure 1 to understand the corruption behaviour.

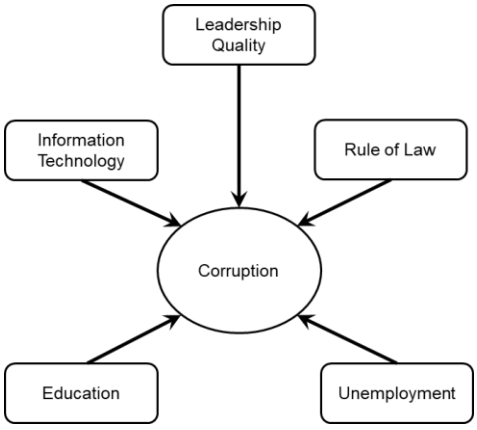

Figure 1: Conceptual framework of corruption

First, the theory of criminal behaviour suggests that economic stress, such as high level of unemployment, can motivate individuals engage in illegal activities (Tang, 2010; Becker, 1968). For example, those who are unemployed may engage in illegal activities such as document falsification, identity theft, or scamming in order to obtain financial benefits. Furthermore, unemployed individuals may also resort to offering bribes to secure employment. Therefore, unemployment potentially contributes to corruption. Second, the principal-agent theory is another widely used microeconomic theory that explains corruption behaviour by emphasising the role of information asymmetry (Klitgaard, 1991; Groenendijk, 1997). The theory posits that the agent typically received more information than the principal about the tasks. Therefore, the corrupt agent is likely to use this information gap to create opportunities for his/her own benefit (corruption). In the context of this study, the information variables are telecommunication technology and education. These variables are expected to minimise information asymmetry and reduce corruption.

Third, the institutional theory underscores the importance of independent anti-corruption bodies. This includes the enhancement of the legal framework and the enforcement of the rule of law to combat corruption. However, the relationship between institutional factors and corruption is complex in reality, especially when intertwined with the differences in gender, culture, and political systems (Stentösa et al., 2015). As a result, systemic corruption remains pervasive, despite having laws prohibiting corruption. Forth, the collective action theory has been introduced to shed light on the phenomenon of systemic corruption. Unlike isolated incidents, this form of corruption is not the action of an individual or a small group, but rather a collective behaviour. The theory places significant emphasis on the concept of trust and societal perceptions of corruption. When national leadership quality is perceived as inadequate, public trust in the system diminishes, and thus leading to a lack of norms enforcing anti-corruption. Consequently, corruption becomes a social norm, and individuals within the society begin to engage in corrupt activities without considering the consequences (Persson et al., 2013). In the context of this study, the aspect of trust is directly linked to the perceived quality of national leadership. This highlights the critical role of effective leadership in mitigating corruption and fostering a culture of integrity and transparency.

Based on the conceptual framework and the theoretical discussions, we construct the following corruption model for estimation:

$$\ln\mathrm{CR}_{it} = \beta_0 + \beta_1 \mathrm{UNEM}_{it} + \beta_2 \mathrm{EDU}_{it} + \beta_3 \ln\mathrm{ICT}_{it} + \beta_4 \ln\mathrm{QL}_{it} + \beta_5 \ln\mathrm{LAW}_{it} + \varepsilon_{it} \quad (1)$$

where ln denotes that natural logarithm, $\ln\mathrm{CR}_{it}$ represents the level of corruption as measured by the Corruption Perception Index (CPI)[1], and UNEM_{it} is the unemployment rate. EDU_{it} represents education attainment measured by the gross enrolment ratio in secondary school, and $\ln\mathrm{ICT}_{it}$ is the level of ICT development is gauged by the number of internet users per 100,000 population. Furthermore, $\ln\mathrm{LAW}_{it}$ is the rule of law while $\ln\mathrm{QL}_{it}$ signifies the quality of national leadership. Follow the existing studies (e.g., Tang and Lim, 2024; Tang and Salisu, 2023; Tan et al., 2010), the national leadership index is constructed by combining political stability, government effectiveness, control of corruption, and voice and accountability. Finally, $\varepsilon_{it} = \lambda_i + \mu_t$ is the disturbance term which consists of both country-specific (λ_i) effect and time-specific (μ_t) effect, respectively.

In addition to examining the direct effect, this study endeavours to explore the indirect effect or to more specifically, the potential role of education and national leadership in moderating the effects of ICT and rule of law on corruption. To achieve this goal, we augment the Equation (1) by accommodating the interaction terms: $(\ln\mathrm{ICT}_{it} \times \mathrm{EDU}_{it})$, $(\ln\mathrm{ICT}_{it} \times \ln\mathrm{QL}_{it})$ and $(\ln\mathrm{LAW}_{it} \times \ln\mathrm{QL}_{it})$. The augmented models for analysing corruption can be expressed as follows:

$$\ln\mathrm{CR}_{it} = \beta_0 + \beta_1 \mathrm{UNEM}_{it} + \beta_2 \mathrm{EDU}_{it} + \beta_3 \ln\mathrm{ICT}_{it} + \beta_4 \ln\mathrm{QL}_{it} + \beta_5 \ln\mathrm{LAW}_{it} + \delta_1 (\ln\mathrm{ICT}_{it} \times \mathrm{EDU}_{it}) + \varepsilon_{it} \quad (2)$$

[1] It is worth noting that Corruption Perception Index (CPI) scores are measured on a scale from 0 to 100, with lower scores indicating a higher degree of corruption while higher scores signifying a lower degree of corruption. In light of this, when the CPI score increases, it doesn't suggest more corruption but rather better control of corruption. Considering the current research focus on corruption, we re-scale (reverse) the CPI data for clearer interpretation by subtracting each CPI score from 100. Consequently, while the rescaled data still ranges from 0 to 100, a higher score now indicates a greater severity of corruption. Hence, under this new scale, a score of 0 denotes a country that is perceived as very clean, whereas a score of 100 signifies a country perceived as highly corrupt. This outcome is similar to that of Shabbir and Anwar (2007) and the Bayesian Corruption Index (BCI) introduced in Standaert (2015).

$$\ln CR_{it} = \beta_0 + \beta_1 UNEM_{it} + \beta_2 EDU_{it} + \beta_3 \ln ICT_{it} + \beta_4 \ln QL_{it} + \beta_5 \ln LAW_{it} + \delta_2(\ln ICT_{it} \times \ln QL_{it}) + \varepsilon_{it} \quad (3)$$

$$\ln CR_{it} = \beta_0 + \beta_1 UNEM_{it} + \beta_2 EDU_{it} + \beta_3 \ln ICT_{it} + \beta_4 \ln QL_{it} + \beta_5 \ln LAW_{it} + \delta_3(\ln LAW_{it} \times \ln QL_{it}) + \varepsilon_{it} \quad (4)$$

Based on the above-mentioned augmented corruption models, ICT, education, leadership quality and rule of law are jointly determined corruption if the estimated coefficients, namely δ_1, δ_2 and δ_3 are statistically significance. In the presence of interaction, the effect of ICT and the rule of law on corruption are no longer β_3 and β_5, but $\partial \ln CR_{it}/\partial \ln ICT_{it} = \beta_3 + \delta_1 EDU_{it}$, $\partial \ln CR_{it}/\partial \ln ICT_{it} = \beta_3 + \delta_2 \ln QL_{it}$ and $\partial \ln CR_{it}/\partial \ln LAW_{it} = \beta_5 + \delta_3 \ln QL_{it}$. The same is applied to the effects of national leadership and education on corruption.

Table 1: Summary of descriptive statistics

Variables	Mean	Std. dev.	Min	Max
Dependent variable:				
Corruption (scale 0 to 100), CR_{it}	53.2301	19.5591	5.3732	92
Explanatory variables:				
Unemployment rate, $UNEM_{it}$	0.0737	0.0551	0.0010	0.3313
Gross enrolment ratio in secondary school, EDU_{it}	0.8616	0.2808	0.1269	1.6408
National leadership (scale 0 to 100), QL_{it}	55.4843	24.4939	3.6821	99.1817
Internet users (per 100,000 population), ICT_{it}	54666.56	29518.69	250	100000
Rule of law (scale 0 to 100), LAW_{it}	52.6666	27.8571	0.9479	100

This study applies the unbalanced panel data of 136 countries from 2010 to 2023 (see the list of countries in Appendix 1). The data are collected from various reliable databases. Specifically, we collect the corruption perception index, rule of law, and other indicators for constructing national leadership index from *Transparency International* (TI) and the *Worldwide Governance Indicators* (WGI), respectively. However, the rest of the dataset such as gross enrolment rate in secondary school, unemployment rate, and the number of internet users are obtained from the *World Development Indicators* (WDI) provided by the World Bank. The descriptive statistics of the variables used in this study are summarised in Table 1.

Estimation Strategies, Findings and Discussions

In this section, we delve into the estimation strategies and results of our study. In our review to existing empirical literature, we find that panel data are widely used in many disciplines owing to its unique advantages in minimising estimation bias, improves data variability and degree of freedom (Hsiao, 2003). However, the selection of an appropriate estimator (or model) remains critical to ensure efficient and unbiased estimates, even in large sample studies. Given our unbalanced panel data structure covering 136 countries (*N*) from 2010 to 2023 (*T* = 14), some applied researchers might mistakenly opt for either non-stationary or dynamic panel methods, namely panel cointegration analysis and the dynamic panel generalised method of moments (GMM) estimator. However, it is worth noting that the non-stationary panel methods are likely to be applied in balanced panel data studies with large *T* sample, especially when $T \geq 25$ (Wagner and Hlouskova, 2010). Indeed, the dynamic panel GMM estimator is also not suitable for the present study as this estimator is normally applied for cases with large *N* but $T < 10$ in order to avoid over-instrumental variables problem (Ibrahim and Arundina, 2022).

Considering the time series structure and our corruption models presented in the earlier section are non-dynamic or static in nature, we believe the static panel regression methods such as pooled ordinary least square (POLS), fixed effect (FE) and random effect (RE) methods are preferable. Nonetheless, none of these methods are perfect and the choice depends heavily on the structure of country-specific (λ_i) in our panel data. In the absence of country-specific effect ($\lambda_i = 0$), then the POLS method is superior to both FE and RE methods. However, both FE and RE methods are more efficient than POLS method if there is country-specific effect ($\lambda_i \neq 0$). With regard to this, we conduct a set of specification and diagnostic tests to select an appropriate estimation method for our study.

The results are reported in Table 2. Looking at the results of specification tests in Panel I of Table 2, we find that the poolability F-test and Breusch-Pagan LM test are both consistently significant at the 1 per cent level. These results show that POLS method is less efficient. However, the result of Hausman LM test suggests that FE estimator is relatively more efficient than RE. To further confirm our choice, the cluster robust Hausman LM test introduced by Kaiser (2014) with bootstrap *p*-value is also conducted. Similarly, the finding suggests that FE is consistently superior to RE in the current study. Turning to the diagnostic tests results in Panel II of Table 2, we find evidence of serial correlation, groupwise heteroskedasticity, and cross-sectional dependency. To address these issues, the robust standard errors of Driscoll and Kray (1998) will be utilised, and Table 3 reports the estimated results of four different specifications.

Table 2: Specification and diagnostic tests

Panel I: Specification tests	Statistics	*p*-values
Poolability F-test	141.51***	0.0000
Breusch-Pagan LM test	4695.06***	0.0000
Hausman LM test	84.58***	0.0000
Cluster Robust Hausman LM test	21.81***	0.0095

Panel II: Diagnostic tests	Statistics	*p*-values
Mean VIF	2.48	
χ^2_{SERIAL}	52.651***	0.0000
χ^2_{HETERO}	80398.25***	0.0000
Pesaran CD test	2.009**	0.0446

Note: *** and ** denotes significance at the 1 and 5 per cent levels, respectively.

There are several findings that worth to be discussed here. Our estimate results from columns (1) to (4) show a consistent positive relationship between unemployment rate and corruption. As such, an increase in unemployment rate tend to uplift corruption. This discovery aligns with both the criminal motivation theory and previous research (Oueghlissi and Derbali, 2023; Lim, 2019), which suggest that prolonged unemployment tends to enhance economic instability and income inequality. Consequently, this scenario makes corruption easier and more affordable.

Apart from unemployment, our baseline regression findings presented in column (1) show that the adverse impacts of ICT development, leadership quality, and the rule of law on corruption are statistically significant at the 1 per cent level. Specifically, a 1 per cent increase in ICT, leadership quality and the rule of law, holding other factors constant, corruption is reduced by approximately 0.0439 per cent, 0.1468 per cent and 0.0662 per cent, respectively. Notably, leadership quality emerges as the most significant factor in reducing corruption. However, despite education does not directly impact corruption as of Acaravci et al. (2023), the significance of the interaction term, $(\ln\mathrm{ICT}_{it} \times \mathrm{EDU}_{it})$ in column (2) suggests that education influences corruption by moderating the effect of ICT. Similarly, the two interaction terms – $(\ln\mathrm{ICT}_{it} \times \ln\mathrm{QL}_{it})$ and $(\ln\mathrm{LAW}_{it} \times \ln\mathrm{QL}_{it})$ presented in column (3) and (4) respectively – are also negative and statistically significant at the 1 per cent level. With these findings, we can conclude that the effectiveness of ICT and the rule of law in mitigating corruption are contingent upon education and leadership quality. Given this, the estimated coefficients for the interacted variables presented in columns (2), (3), and (4) should not be interpreted directly.

Table 3: Results of the fixed effect model (Dependent variable: Corruption)

Variables	(1)	(2)	(3)	(4)
Constant	5.1839***	4.8671***	3.6881***	4.1014***
	(0.1302)	(0.1051)	(0.2224)	(0.0921)
UNEM_{it}	0.2876*	0.3985*	0.2382*	0.2644*
	(0.1452)	(0.2061)	(0.1302)	(0.1433)
EDU_{it}	–0.0046	–0.1594***	0.0098	0.0069
	(0.0377)	(0.0518)	(0.0405)	(0.0360)
lnICT_{it}	–0.0439***	–0.0519***	0.1107***	–0.0462***
	(0.0056)	(0.0125)	(0.0214)	(0.0059)
lnQL_{it}	–0.1468***	–0.1578***	0.2933***	0.1905***
	(0.0257)	(0.0256)	(0.0614)	(0.0234)
lnLAW_{it}	–0.0662***	–0.0618***	–0.0671***	0.2933***
	(0.0053)	(0.0039)	(0.0047)	(0.0206)
$(\text{lnICT}_{it} \times \text{EDU}_{it})$	–	–0.0544***	–	–
		(0.0185)		
$(\text{lnICT}_{it} \times \text{lnQL}_{it})$	–	–	–0.0447***	–
			(0.0065)	
$(\text{lnLAW}_{it} \times \text{lnQL}_{it})$	–	–	–	–0.1054***
				(0.0069)
Marginal effects: $\partial\text{lnCR}/\partial\text{lnICT}$				
$\beta_4 + \delta_1\text{EDU}_{\text{MIN}}$	–	–0.0588***	–	–
		[–4.2920]		
$\beta_4 + \delta_1\text{EDU}_{\text{MEAN}}$	–	–0.0987***	–	–
		[–4.0617]		
$\beta_4 + \delta_1\text{EDU}_{\text{MAX}}$	–	–0.1411***	–	–
		[–3.7427]		
Marginal effects: $\partial\text{lnCR}/\partial\text{lnICT}$				
$\beta_4 + \delta_1\text{lnQL}_{\text{MIN}}$	–	–	0.0524***	–
			[3.9398]	
$\beta_4 + \delta_1\text{lnQL}_{\text{MEAN}}$	–	–	–0.0631***	–
			[–10.0159]	
$\beta_4 + \delta_1\text{lnQL}_{\text{MAX}}$	–	–	–0.0949***	–
			[–9.4900]	
Marginal effects: $\partial\text{lnCR}/\partial\text{lnLAW}$				
$\beta_5 + \delta_1\text{lnQL}_{\text{MIN}}$	–	–	–	0.1559***
				[12.3730]
$\beta_5 + \delta_1\text{lnQL}_{\text{MEAN}}$	–	–	–	–0.1163***
				[–11.0762]
$\beta_5 + \delta_1\text{lnQL}_{\text{MAX}}$	–	–	–	–0.1912***
				[–13.2778]
Diagnostic tests				
R-squares	0.134	0.122	0.148	0.158
F-statistics	6078.56***	23457.71***	20097.33***	17184.54***
Observation $(T \times N)$	1387	1387	1387	1387
Country	136	136	136	136
Time effect	Yes	Yes	Yes	Yes

Note: *** and * denote statistically significance at the 1 and 10 per cent levels, respectively. Figures in (.) are the robust-standard errors based on Driscoll and Kray (1998) for cross-sectional dependency. Figures in [.] are the *t*-statistics for marginal effects derived from the formula suggested in Brambor et al. (2006).

However, to provide better insights for policymaking, we calculate the marginal effects of ICT and rule of law on corruption at three different levels of national leadership quality and education. Furthermore, the alternative standard error formula suggested in Brambor et al. (2006) is applied to compute the *t*-statistic for marginal effects. The estimated marginal effects and *t*-statistics are provided in Table 3. Overall, we find that the marginal effects are

highly significant regardless of either leadership quality and education are at the minimum, mean and maximum levels. These findings further affirm that both national leadership and education play significant role in facilitating ICT and rule of law to reduce corruption.

By comparing the effects of ICT reported in column (1) with the marginal effects presented in column (2), a striking revelation emerges: the adverse effects of ICT on corruption increase tremendously. It jumps from approximately –0.0588 per cent to –0.0987 per cent and –0.1411 per cent at the minimum, mean and maximum levels of education, respectively. This substantial change suggest that higher education levels is likely to enhance the effectiveness of ICT in combating corruption. The rationale behind this finding lies in the asymmetry of information inherent in the principal-agent problem. In the political landscape, for example, where elected officers (politicians) – acting as agents – often possess more information about the national development plans than the public – acting as principals. In such a scenario, corruption finds fertile ground, thriving on this asymmetric information. However, both ICT and education serve as a bridge to this information gap by empowering individuals to access information and fostering transparency. In light of this, it is possible to find that corruption control become more effective, particularly in countries that have made significant strides in both educational attainment and informational technologies advancement.

Furthermore, the marginal effects presented in columns (3) and (4) clearly demonstrate that poor national leadership quality ($\ln QL_{MIN}$) can undermine the role of ICT and the rule of law, from curbing (–0.0439 and –0.0662) to cultivating (0.0524 and 0.1559) corruption. However, with higher levels of leadership quality, such as $\ln QL_{MEAN}$ and $\ln QL_{MAX}$, we observe a notable increase in the effectiveness of ICT to combat corruption, from –0.0631 per cent to –0.0949 per cent, respectively. Similarly, the influence of the rule of law on curbing corruption increases significantly, moving from –0.1163 per cent to –0.1912 per cent. These findings support the argument made by Tang and Lim (2024) that visionary leaders play a crucial role in adopting proactive policies, and regulatory measures, as well as in developing ICT infrastructure. Countries with such leaders are in a better position to leverage ICT to enhance transparency and strengthen the rule of law, which effectively fights corruption. From these outcomes, we can conclude that high-quality national leadership is crucial for reducing corruption. This goal can be achieved by facilitating the development of ICT and legal frameworks.

Concluding Remarks and Policy Implications

This study explores the determinants of corruption from a global perspective using the fixed-effect panel regression model. In contrast to existing literature, this study highlights the importance of national leadership quality and education attainment in facilitating the effectiveness of ICT and the legal framework in combating corruption. Our findings reveal that unemployment, ICT, leadership quality, and the rule of law directly influence corruption levels. Although educational attainment does not exhibit a direct relationship with corruption, we find that it plays a crucial role in moderating the impact of ICT in controlling corruption. In addition, our findings show that national leadership is another significant factor that amplifies the effect of both ICT and the rule of law on corruption. These insights may lead to several impactful policy recommendations.

Given the positive correlation between the unemployment rate and corruption, we suggest that policymakers and stakeholders concentrate on targeted economic policies and programmes that generate employment opportunities. This initiative could effectively reduce both the unemployment rate and levels of corruption. Furthermore, policymakers should prioritise investments in ICT infrastructure and education, as these sectors have been observed to collectively control corruption. Promoting the development of ICT and education would increase transparency and reduce the issue of information asymmetry, which often fosters corruption. To further enhance transparency and minimising corruption, policymakers may consider completely replacing paper money with digital currency for easier detection of circulation. Indeed, this proposal would also assist forensic accounting in investigating and detecting financial misconduct and corruption. In terms of penalties and punishments, policymakers ought to enhance the legal framework and nurture visionary, clean, and accountable leaders to establish an environment less favourable to corruption. By implementing these measures, economic growth and development can occur more equitably and rapidly.

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Appendix 1: List of countries under review

Country	Country	Country	Country
Afghanistan	Denmark	Lesotho	Romania
Albania	Dominican Rep.	Lithuania	Russian Federation
Argentina	Ecuador	Luxembourg	Rwanda
Armenia	Egypt.	Madagascar	Sao Tome & Principe
Australia	El Salvador	Malawi	Senegal
Austria	Estonia	Malaysia	Serbia
Azerbaijan	Ethiopia	Mali	Seychelles
Bahrain	Finland	Malta	Sierra Leone
Bangladesh	France	Mauritania	Singapore
Barbados	Georgia	Mauritius	Slovak Republic
Belarus	Germany	Mexico	Slovenia
Belgium	Ghana	Moldova	South Africa
Benin	Greece	Mongolia	Spain
Bhutan	Guatemala	Montenegro	Sri Lanka
Bosnia	Guinea	Morocco	St. Lucia
Brazil	Guyana	Mozambique	Suriname
Brunei	Honduras	Myanmar	Sweden
Bulgaria	Hong Kong	Nepal	Switzerland
Burkina Faso	Hungary	Netherlands	Syrian
Burundi	Iceland	New Zealand	Tajikistan
Cabo Verde	India	Niger	Tanzania
Cambodia	Indonesia	Nigeria	Thailand
Cameroon	Iran.	North Macedonia	Timor-Leste
Canada	Israel	Norway	Tunisia
Chad	Italy	Oman	Turkey
Chile	Jamaica	Pakistan	Uganda
Colombia	Japan	Panama	Ukraine

Comoros	Jordan	Paraguay	United Arab Emirates
Costa Rica	Kazakhstan	Peru	United Kingdom
Cote d'Ivoire	Korea, Rep.	Philippines	United States
Croatia	Kuwait	Poland	Uruguay
Cuba	Kyrgyz Rep.	Portugal	Uzbekistan
Cyprus	Lao PDR	Puerto Rico	Viet Nam
Czechia	Latvia	Qatar	Yemen, Rep.

ID 189
Reintegration of the Elderly into the Workforce through the Elder Job Application

Numfon Senangkanikorn[1*], Naranchala Khumlaitong[2], Nisanad Ingadapa [3]

[1] Rajamangala University of Technology Rattanakosin; numfon.sen@rmutr.ac.th, https://orcid.org/ 0009-0009-8770-3705
[2] Rajamangala University of Technology Rattanakosin; neruncha@hotmail.com,https://orcid.org/ 0009-0009-3707-1746
[3] Rajamangala University of Technology Rattanakosin; nisanad.ing@rmutr.ac.th.,https://orcid.org/ 0009-0002-6031-9964

* Correspondence: numfon.sen@rmutr.ac.th

Abstract

The "Elder Job" application has been developed to facilitate the reintegration of elderly individuals into the workforce in Thailand, tackling the dual challenges of labor shortages and the implications of an aging society. As Thailand transitions to an aged society, there is an urgent need for initiatives that enable the elderly to find employment, thereby ensuring they have adequate income and contributing to the sustainability of health and care systems. This project, which addresses the nation's labor shortage, employs a mixed-method approach that incorporates both qualitative and quantitative research to match skilled seniors with appropriate job opportunities, benefiting them as well as businesses. The outcomes indicate that "Elder Job" successfully assists seniors in rejoining the labor market, alleviating labor shortages, and increasing economic value. The application has garnered high satisfaction levels, especially among those with higher education, and has received positive feedback from individuals with lower educational backgrounds, highlighting its potential to foster long-term economic growth and enhance the quality of life for the elderly.

Keywords: Application, Elder, Labour market, Economic value, Suggestion elderly employment, Labor shortages

Introduction

Thailand has entered into an aged society, as declared by The Bureau of Registration Administration (BORA), stating that the country has over 13 million elderly people out of a total population of 66 million, accounting for up to 20% of the society. This situation has several impacts on the economy, such as insufficient savings and increased social welfare burdens. Moreover, the decrease in the working-age population leads to a shortage of experienced and skilled labor across all business sectors. The importation of foreign labor cannot compensate for the labor productivity shortfall. The development of applications to support the reintegration of the elderly into the workforce aims to expand the economic value base through career exploration, helping the elderly re-enter the workforce and addressing the labor shortage in enterprises, compensating for the declining working-age population, and solving the income shortage for the elderly's livelihood. The expected research outcome is a Thai society fully entering into an aged society, equipped with tools to help create jobs, careers, and income for the elderly. The Elder Job application will benefit the large and growing elderly population in society, enabling them to access suitable job positions through modern technology, allowing these elderly individuals to re-enter the workforce, earn a living, and contribute to the nation's economic value.

Methodology

This research is a creation of new knowledge using a mixed-method approach, consisting of developmental research through the development of the 'elder job' application, designed to facilitate job searching for the elderly and to find labor for businesses. Quantitative research is conducted using survey research methods to explore job positions in 50 districts of Bangkok. The application's satisfaction level is analyzed through questionnaires. The researcher has set the sample size at 400 from the elderly population in Bangkok Thailand, totaling 1,197,450 people, using Multi-Stage Sampling (Senangkanikorn N., et al., 2024) and Accidental Sampling techniques. Before collecting the questionnaires, the sample group is asked to try the 'elder job' application at least once. The research instrument used in this study is a questionnaire divided into three parts as follows:

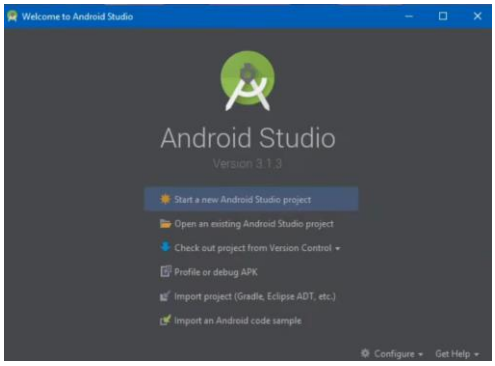
Part 1: Personal information questionnaire, including age, education level, and work experience.

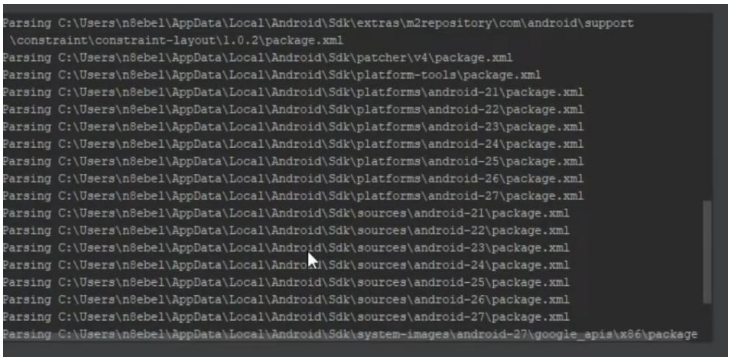
Part 2: Questionnaire on the level of satisfaction regarding the application's utility, ease of use, and appearance.

Part 3: Open-ended questionnaire for suggestions on the application.

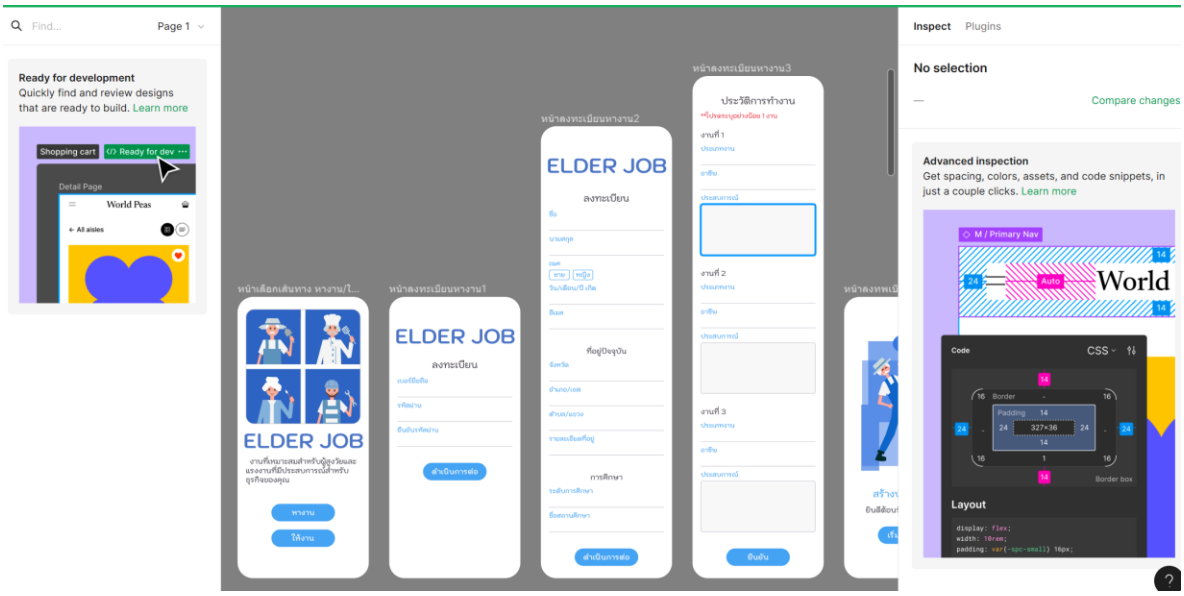
The development process of the Elder Job application involves creating an APK file, which is a method that allows Android mobile applications to be installed without the need for an intermediary. APK files can be generated using Android Studio, which is capable of creating such files. The steps are as follows:

Step *1 :* Use Android Studio and set up the development environment (IDE). The APK file for the application is developed using Java language in Android Studio.





Step *2:* Design the application using the UI design tools in Android Studio to create a user interface.



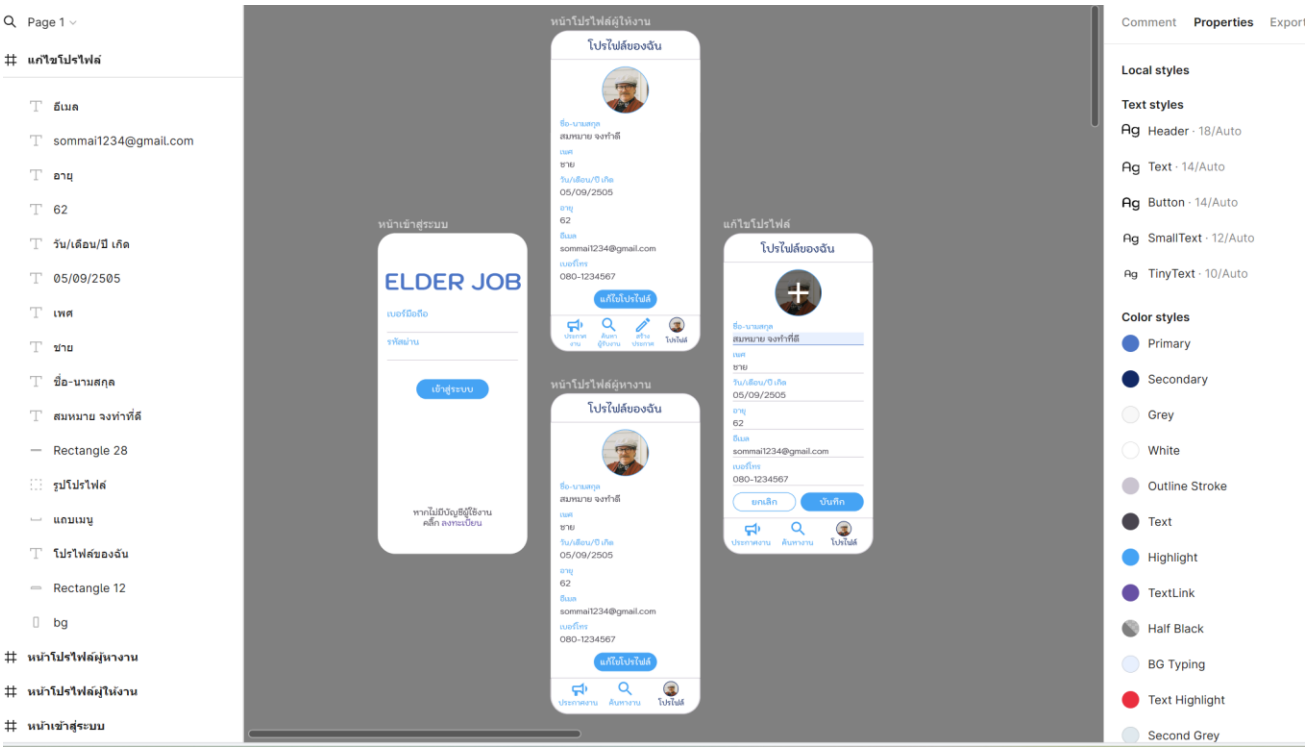
Step *3 :* Write the application code, including managing activities and fragments, data management, API connections, and data storage.

Source Code

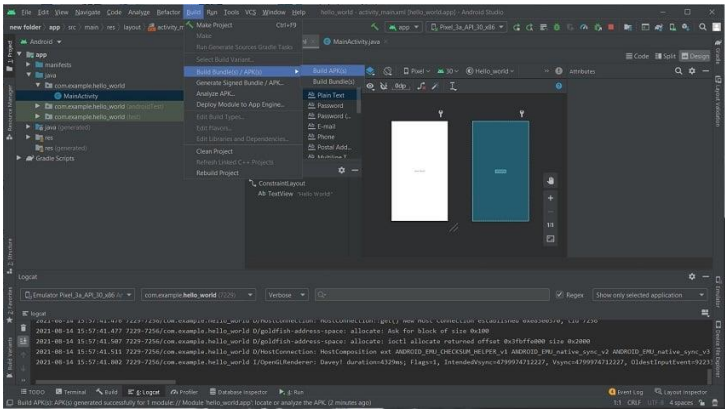
FindJobNavigationActivity.java

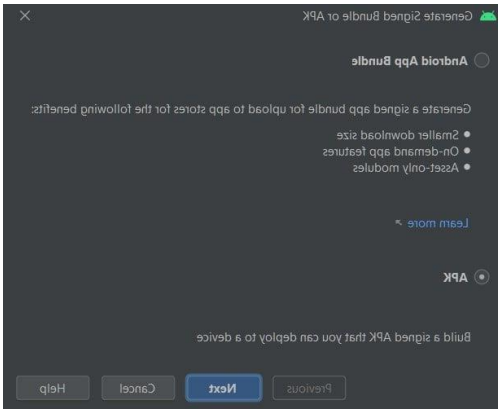
```
package com.example.elderjobapp;

import androidx.appcompat.app.AppCompatActivity;
import androidx.fragment.app.Fragment;
import androidx.fragment.app.FragmentManager;
import androidx.fragment.app.FragmentTransaction;

import android.content.Intent;
import android.os.Bundle;

import
com.example.elderjobapp.databinding.ActivityFindJobNavigationBindi
ng;
import
com.example.elderjobapp.databinding.ActivityGiveJobNavigationBindi
ng;
import com.example.elderjobapp.fragments.JobListFragment;
import com.example.elderjobapp.fragments.ProfileFindJobFragment;
import com.example.elderjobapp.fragments.ProfileGiveJobFragment;
import com.example.elderjobapp.fragments.SearchJobFragment;
import com.example.elderjobapp.models.Job;
import com.example.elderjobapp.models.User;

public class FindJobNavigationActivity extends AppCompatActivity {

  ActivityFindJobNavigationBinding binding;
  @Override
  protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
```

Step *4:* Test the application by conducting Unit and UI tests in Android Studio, along with debugging.

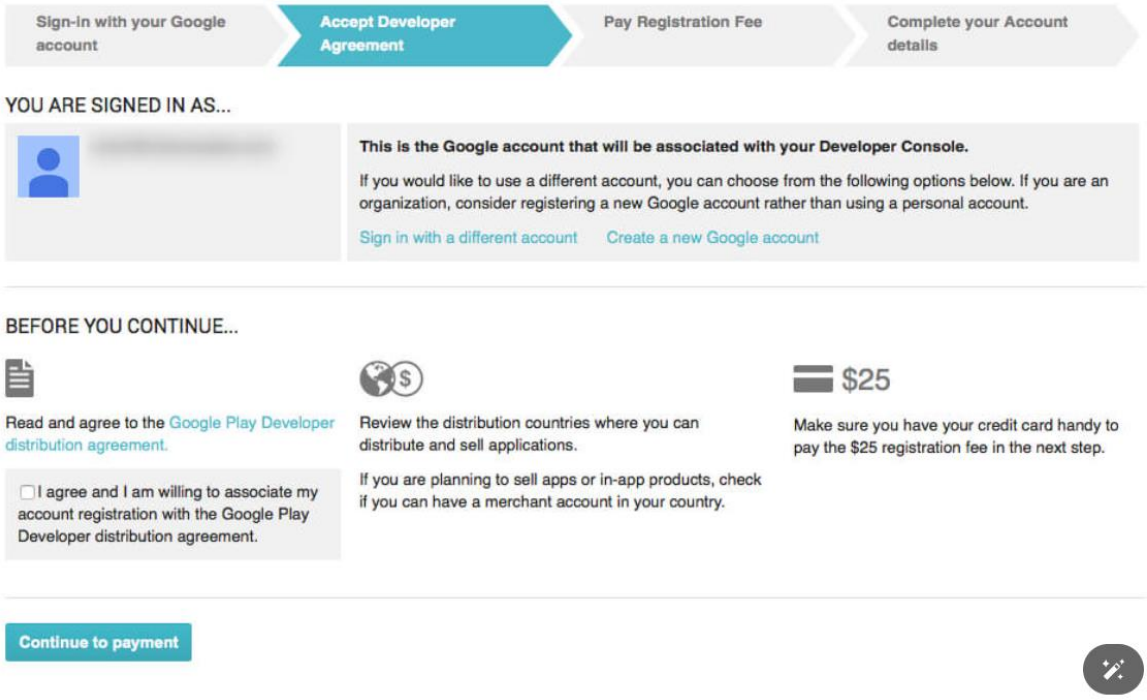


Step *5:* Assemble the application and generate the APK file using Android Studio.





Step *6:* Upload to the Play Store to distribute to distribute to elderly individuals looking for jobs, as well as businesses seeking to employ the elderly.



Results and Discussion

The Instrument for Supporting Elder Job Application

Figure 1: The Elder Job Application

1. User Interface (UI) Design: Simplicity and Accessibility: The UI is designed with simplicity and ease of use in mind, featuring large fonts, high-contrast colors, and straightforward navigation to accommodate the potential visual and motor skill limitations of elderly users. Intuitive Layout: The layout is intuitive, with clear labels and icons to guide users through the application without confusion.

2. Registration and Profile Setup: Personalized Profiles: Users can create personalized profiles, inputting details such as work history, skills, qualifications, and job preferences. Assistive Features: The application includes assistive features for profile setup, guided walkthroughs.

3. Job Matching Algorithm: Customized Job Recommendations: The application uses an algorithm to match users with job opportunities based on their profiles, preferences, and capabilities. (Senangkanikorn N., Khumlaitong, N., Thongnium, W., & Ingadapa, N. (2020)). Flexible Work Options: It prioritizes part-time, flexible, and age-appropriate job opportunities suitable for elderly users.

4. Skill Development Resources: Learning Modules: The application provides access to learning modules and resources for skill development, focusing on areas relevant to elderly users, such as digital literacy and updated industry-specific skills. Interactive Format: These resources are presented in an interactive, engaging format, making learning more accessible for elderly users.

5. Application Support and Assistance: In-App Assistance: Features in-app assistance, including a help section, FAQs, and the option to contact support for additional help. Community Forum: A community forum or chat feature where users can share experiences, seek advice, and offer support to each other.

6. Health and Wellness Integration: Wellness Tips: Incorporates health and wellness tips tailored to the elderly, such as ergonomic advice for the workplace and stress management techniques. Reminders and Alerts: Includes reminders for breaks, exercises, and health check-ups, promoting a balanced lifestyle.

7. Feedback and Improvement Mechanism: User Feedback Collection: Regularly collects user feedback to understand their experience and areas for improvement. Continuous Updates: The application undergoes continuous updates and improvements based on user feedback and technological advancements.

8. Security and Privacy: Data Protection: Ensures high levels of data protection and privacy, with secure login methods and encryption of personal information.

9. Employer Engagement: Employer Portal: Features a portal for employers, where they can post job listings, search for potential candidates, and understand the value of hiring elderly workers. Engagement Tools: Provides tools for employers to engage with potential candidates, schedule interviews, and manage applications.

10. Analytics and Reporting: User Analytics: Tracks user engagement, job application success rates, and skill development progress. Reporting Features: Offers reporting features for users to track their job search and skill development journey.

Conclusion

The development of the 'elder job' application, which was created to support job searching for the elderly and to find labor for businesses currently facing labor shortages due to Thailand becoming an aged society, utilized the Android APK (Android Package Kit) as a tool and resource for developing the application on the Android platform, an operating system for mobile devices like smartphones and tablets, supporting 64-bit and higher.

The application requires 10 GB of installation space and utilizes a code editor that supports Kotlin and Java as the primary programming languages for application development. Designer Tools assist in designing the UI and application screens, providing real-time results. It links with data from quantitative research conducted through survey research on job positions from businesses in 50 districts of Bangkok, Thailand.

The economic value generated by the re-entry of the elderly into the workforce compensates for the decline in economic value due to the decreasing working-age population. Based on secondary data from the Department of Older Persons, the research team calculated projections from the forecasted increase in the elderly population in Bangkok for the years 2023-2024.

The number of elderly individuals is increasing linearly, as per past data. Using the slope formula of a straight line for prediction, to calculate the slope of the straight line for predicting the increase in the elderly population in Bangkok for the years 2023-2024, data from the previous year is utilized to compute the slope value.

The formula for the slope of a straight line is as follows: Slope = (Highest y value - Lowest y value) / (Highest x value - Lowest x value) Where y represents the number of elderly individuals in a given year, and x represents the corresponding year. For example, when calculating the slope to predict the increase in the elderly population in Bangkok for the years 2023-2024:"If we have data on the number of elderly individuals in the year 2022 (y1) and the year 2023 (y2) based on available information, and we want to determine the slope of the straight line to predict the number of elderly individuals in the year 2024, the calculation can be done as follows: Calculate the highest and lowest values of y (number of elderly individuals) and x (year) from the available data. Substitute the highest and lowest values of y and x into the formula to calculate the slope of the straight line.

Predict the number of elderly individuals in the year 2024 using the calculated slope and the year 2023 as the starting point. It was found that if 50% of the elderly in Bangkok return to the workforce at the minimum wage rate, they could generate a total annual income of 72,206 million baht in 2022, 78,890 million baht in 2023, and 85,873 million baht in 2024, respectively. This demonstrates that the re-entry of the elderly into the labor market can significantly contribute to the country's economy.

Acknowledgements

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ID 306
Relationship between Inflation and Budget Deficit in Myanmar (1988-2021)

Aung Myo Htun[1]* and Saw Htay Myint[2]

[1] Monywa University of Economics, aungmyohtun932@gmail.com
[2] Myanmar Creative University, MCU, dralexwin@gmail.com

*Correspondence: aungmyohtun932@gmail.com

Abstract

This empirical study explores the relationship between inflation and budget deficit in Myanmar using annual data spanning 1988 to 2021. Employing the Augmented Dickey-Fuller (ADF) test, the study confirms the stationary of all variables in first differences. Ordinary Least Squares (OLS) regression further establishes a positive relationship between inflation and budget deficit in Myanmar. This positive relationship underscores the need for comprehensive policy measures to address budgetary imbalances and mitigate inflationary pressures. The study relies on secondary data from statistical yearbooks issued by the Central Statistical Organization (CSO) and the World Bank (WB) website. These findings contribute valuable insights for policymakers navigating Myanmar's economic challenges, emphasizing the importance of adopting holistic strategies for sustainable economic development.

Keywords: Inflation, Budget deficit, Myanmar

Introduction

Myanmar, a nation marked by a complex economic history and socio-political transformations, has experienced significant fluctuations in both inflation rates and budget deficits over the past three decades. The interdependence of these two economic indicators is a critical aspect that warrants comprehensive examination, as it holds implications for the overall economic stability and fiscal health of the country. This study seeks to unravel the nuanced relationship between inflation and budget deficit in Myanmar, spanning the years 1988 to 2021.

The period since 1988 is particularly noteworthy as it encompasses key milestones in Myanmar's economic and political history. The nation transitioned from a closed and centrally planned economy to one that embraced market-oriented reforms. These transformative years have witnessed fluctuations in inflation rates and variations in budget deficits, providing a rich dataset for analysis. Understanding the dynamics between inflation and budget deficit during economic stability and fiscal health.

In conclusion, the rationale for this study rests on the significance of unraveling the intricate relationship between inflation and budget deficit in Myanmar. Through a systematic analysis of historical data, the research seeks to offer valuable insights that contribute to both academic knowledge and practical policy considerations, ultimately aiming to foster economic stability and sustained development in the country.

Objective of the Study

The objective of the study is to examine the relationship between inflation and budget deficit in Myanmar from 1988 to 2021.

Literature Review

Barro (1990) posits a theoretical framework suggesting that sustained government deficits can lead to inflation, primarily through the mechanism of increased demand for goods and services. This crowding-out effect highlights the importance of fiscal discipline in curbing inflationary pressures.

Haug (1991) contributes empirical insights by analyzing the relationship between budget deficit and inflation using time-series data. The findings indicate a positive association between budget deficit and inflation, emphasizing the potential consequences of fiscal imbalances on price levels.

Ghosh and Phillips (1998) delve into the role of inflation expectations in shaping the fiscal policy-inflation relationship. Their research emphasizes the importance of considering not only the current fiscal stance but also how it influences expectations, providing a nuanced perspective on the dynamics between budget deficit and inflation.

While limited in number, studies specific to Myanmar's economic context offer valuable insights. Kyaw (2008) analyzes the relationship between budget deficit and inflation in Myanmar during the 1990s. The study suggests that fiscal policies, particularly budget deficit, played a significant role in driving inflation during this period of economic transition.

Recent work by Htay and Lwin (2019) investigates the fiscal-monetary policy nexus in Myanmar, shedding light on how fiscal decisions impact inflation. Their findings underscore the importance of coordinated fiscal and monetary policies in managing inflationary pressures, emphasizing the relevance of domestic factors in Myanmar's economic landscape.

Theoretical Background

The relationship between inflation and budget deficit has been a subject of extensive scholarly inquiry due to its significant implications for economic stability. According to Keynesian economic theory, an increase in government spending, often resulting in budget deficits, can stimulate economic activity but may also contribute to inflationary pressures (Keynes, 1936). The twin deficits hypothesis" posits a positive correlation between a country's budget deficit and its trade deficit, suggesting that fiscal imbalances can spill over into the external sector (Feldstein, 1986). In the context of Myanmar, understanding the historical connection between inflation and budget deficit is critical, especially given the country's complex economic and political landscape.

Myanmar has undergone significant political and economic transitions over the study period, influencing the dynamics of inflation and budget deficit. During the military rule regimes from 1988 to 2010, fiscal policies were often characterized by large public expenditures and limited transparency, contributing to economic volatility (Win, 2014). The shift to a multi-party democratic regime in 2010 introduced new economic policies and reforms, potentially altering the relationship between inflation and budget deficit. Research suggests that changes in political regimes can lead to shifts in fiscal priorities, affecting the balance between inflation and budgetary considerations (Alesina et al., 1996).

Theoretical Model

The theoretical background suggests a nuanced understanding of the relationship between inflation (INF) and budget deficit (BD) in Myanmar. Drawing from Keynesian economic theory and the "twin deficits hypothesis," the theoretical model considers the potential impact of government spending and fiscal imbalances on inflationary pressures and external economic sectors.

$$INFL_i = \beta_0 + \beta_1 . BD_i + \varepsilon_i$$

Where: INFLi represents the inflation rate in Myanmar in year i, BDi denotes the budget deficit in Myanmar in year i, β_0 is the intercept, signifying the expected inflation rate when the budget deficit is zero, β_1 is the coefficient, indicating the expected change in inflation for a one-unit change in the budget deficit, and ε_i is the error term, encompassing unobserved factors affecting inflation. This model aligns with Keynesian economic principles, acknowledging the potential inflationary impact of increased government spending leading to budget deficits. Additionally, it considers the "twin deficits hypothesis," suggesting a positive correlation between budget and trade deficits. The model recognizes the complex economic and political landscape of Myanmar, accounting for historical transitions, political regime shifts, and external shocks that may influence the relationship between inflation and budget deficit over the study period.

Inflation Rate of Myanmar from 1988 to 2021

Inflation is a critical issue for developing countries like Myanmar as it directly influences people through the escalation of prices for goods and services. This economic phenomenon adversely affects both economic performance and the purchasing power of the country's currency. The presented table illustrates the inflation rate in Myanmar, measured as the annual percentage change in the consumer price index (CPI), offering insight into the economic conditions and trends impacting the nation.

Table 1: Condition of Inflation Rate in Myanmar (1988 to 2021)

Year	CPI (base year, 2010=100)	Inflation Rate%
1988	1.12	16.13
1989	1.43	27.16
1990	1.68	17.64
1991	2.22	32.26
1992	2.71	21.91
1993	3.57	31.82
1994	4.43	24.11
1995	5.55	25.18
1996	6.45	16.28
1997	8.37	29.70
1998	12.68	51.49
1999	15.01	18.41
2000	14.99	-0.11
2001	18.16	21.10
2002	28.52	57.07
2003	38.95	36.59
2004	40.72	4.53
2005	44.53	9.37
2006	53.44	20.00
2007	72.15	35.02
2008	91.49	26.80
2009	92.84	1.47
2010	100.00	7.72
2011	105.02	5.02
2012	106.56	1.47
2013	112.58	5.64
2014	118.15	4.95
2015	129.32	9.45
2016	138.28	6.93
2017	144.61	4.57
2018	154.54	6.87
2019	165.37	8.83
2020	173.16	5.73
2021	178.75	3.64

Source: World Bank database, 2022

Based on the Table 1, Myanmar encountered double-digit inflation for the majority of the years spanning from 1988 to 2021. In Early Years (1988-1991), inflation rates were relatively high with rates ranging from 16.13% to 32.26%. The country experienced economic and political turmoil during the late 1980s and early 1990s, contributing to high inflation. In mid-1990s to late 1990s, inflation rates remained elevated but started to show some variability. From 1996 to 1998, Myanmar witnessed a sharp rise in inflation, primarily due to the repercussions of the Asian Financial Crisis, followed by a notable decrease that extended until the year 2000. During the 2000s, Myanmar experienced volatile inflation rates, characterized by rapid fluctuations. The average inflation rate for this period hovered around 19%. In 2002-2003, instability arose due to a bank crisis in Myanmar. Post-2005, inflation transitioned from single digit to double-digit figures due to multiple factors, including the surge in gasoline and diesel prices, the relocation of the capital to Nay Pyi Taw in 2005, escalating salaries of public sector employees in 2006, the global financial crisis of 2007-2008, and the devastating impact of Cyclone Nargis in 2008. This cyclone not only resulted in a significant loss of life, livelihoods, and property but also adversely affected production, prompting increased government expenditures to address relief and rehabilitation costs. The year 2009 stood out with a very low inflation rate of 1.47%, possibly influenced by global economic conditions during the financial crisis. The 2010s marked the most stable and low inflation period in Myanmar. Notably, the inflation rate declined from 5.02% in 2011 to 1.47% in 2012, attributed to a substantial influx of foreign receipts in 2012. However, in 2013, the inflation rate gradually increased due to the rising prices of imported items such as fuel and medicine. The general election of 2015 and the impact of natural disasters, including Cyclone Komen in 2015, resulted in heavy floods, deteriorated agricultural output, and a decline in investment in the oil and gas sector. These factors significantly contributed to an increase in the inflation rate, reaching 9.45% in 2015. In recent years (2016-2021), inflation rates remained moderate, generally

staying below 10%. The years 2018 and 2019 saw slightly higher inflation rates, with 6.87% and 8.83%, respectively. The year 2021 saw a decrease in the inflation rate to 3.64%, suggesting a moderation in price increases.

Budget Deficit of Myanmar from 1988 to 2021

A budget deficit arises when government expenditures surpass revenue from taxes and other sources, becoming a significant source of money supply growth that can lead to inflation and price instability. In developing countries such as Myanmar, budget deficits are identified as a root cause of inflation.

The condition of Myanmar's budget deficit is influenced by both political and economic factors. In the period from 1988 to 2010, Myanmar's political system was characterized by military rule, coupled with a transitional market-oriented economic framework. However, following the enactment of the Constitution of the Republic of the Union of Myanmar in 2008, the political landscape shifted towards a genuine, disciplined multi-party democracy system, accompanied by an economic system transitioning to a market economy.

From 2010 to 2021, Myanmar faced a prolonged issue of budget deficit. Notably, the year's post-2010 witnessed changes in the political and economic systems, but the persistent challenge of budget deficit continued. The subsequent table illustrates the evolving condition of budget deficit in Myanmar from 1988 to 2021, shedding light on the economic dynamics and fiscal challenges faced by the country.

Table 2: Condition of Budget Deficit in Myanmar (1988 to 2021)

Year	Budget Deficit (Kyat Million)	Year	Budget Deficit (Kyat Million)
1988	-4,021.6	**2005**	-426,950.9
1989	-6,314.7	**2006**	-407,217.2
1990	-8,019.7	**2007**	-721,221.7
1991	-11,204.0	**2008**	-893,547.7
1992	-12,311.4	**2009**	-677,667.7
1993	-12,094.9	**2010**	-1,545,046.1
1994	-15,517.4	**2011**	-1,813,559.8
1995	-29,647.2	**2012**	-1,710,015.5
1996	-38,819.5	**2013**	1,376,813.5
1997	-51,739.4	**2014**	-755,213.8
1998	-57,241.1	**2015**	-782,129.4
1999	-91,875.5	**2016**	-3,005,042.6
2000	-109,725.6	**2017**	-1,892,636.6
2001	-214,804.4	**2018**	-2,394,722.4
2002	-78,203.0	**2019**	-3,200,603.4
2003	-119,405.0	**2020**	-7,024,494.1
2004	-357,542.7	**2021**	-8,181,794.9

Source: CSO Statistical Yearbooks (Various Issues)
Note: (-) Budget Deficit, (+) Budget Surplus

The data in Table 2 indicates that Myanmar faced budget deficits for the majority of the years from 1988 to 2018. However, there was a notable exception in 2013 when the country recorded a budget surplus, a departure from the usual deficit pattern. Additionally, the budget deficit situation appeared to be characterized by volatility, with fluctuations observed throughout the years.

As depicted in the Table (2), the budget deficit in Myanmar reached its lowest point in 1988 at (-4021.6) Kyat Million, marking the least negative value among the years spanning from 1988 to 2021. However, the budget deficit intensified after 1994. In that year, the deficit amounted to (-15517.4) Kyat Million, and it further escalated to (-29647.2) Kyat Million in 1995, representing a substantial increase within this two-year period. The trend of significant budget deficits persisted until 1998. Notably, in 1999, there was another surge in the budget deficit, reaching a considerable level that extended into 2000. This period witnessed a notable fluctuation in the magnitude of budget deficits, reflecting the dynamic economic conditions and fiscal challenges faced by Myanmar during these years.

The 2000s marked a pivotal period of financial crisis in Myanmar, characterized by fluctuating and rapidly changing budget deficit scenarios. In 2003, a banking crisis unfolded, triggering a sharp decline in asset values and pushing the economy into recession. Consequently, there was a notable increase in the budget deficit in 2003 and

2004, reflecting the economic challenges faced during this period. The impact of the Global Financial Crisis in 2008 further exacerbated Myanmar's fiscal situation. The budget deficit surged from (-721221.7) Kyat Million in 2007 to a more substantial deficit of (-893547.7) Kyat Million in 2008, as the global economic downturn took its toll on the country. The year 2010 witnessed a significant spike in the budget deficit, primarily attributed to the substantial financial resources allocated for the multi-party general election of 2010. This heightened expenditure contributed to the considerable increase in the budget deficit during that year.

Myanmar achieved a significant milestone in 2013, making the budget surplus in over 30 years. This unprecedented surplus was attributed to the heightened international interest during the democratic transition period. The country received substantial foreign receipts from around the world, contributing to the surplus and signaling a positive turn in fiscal management. Moreover, the trend reversed in subsequent years, and Myanmar faced its highest budget deficit in 2016. This new record of hyper budget deficit, spanning over 30 years, was primarily influenced by the effects of the general election in 2015, which led to increased government expenditures.

In 2017, Myanmar continued to grapple with a substantial budget deficit, reflecting ongoing fiscal challenges. The deficit persisted into 2018 and 2019, indicating sustained financial pressures. The year 2020 witnessed an extraordinary increase in the budget deficit, reaching a new peak of (-7024494.1) Kyat Million. This unprecedented deficit can be attributed to various factors, including global economic uncertainties and the impact of the COVID-19 pandemic.

The challenging fiscal situation persisted into 2021, with Myanmar facing its highest recorded budget deficit of (-8181794.9) Kyat Million. This marked the culmination of a period of fiscal strain, influenced by a combination of domestic and global factors.

Method of the Study

The data used in this study spans the years from 1988 to 2021 and includes annual observations of inflation rates (INFL) and budget deficits (BD) in Myanmar. The inflation rates are presented as a percentage change, while budget deficits are measured in Kyat Million. The study employs a combination of descriptive methods and empirical analysis, relying on secondary data. The data analysis involves the utilization of the Augmented Dickey-Fuller (ADF) unit root test, and Ordinary Least Square (OLS) regression. The primary sources of the required data include the World Bank database and various editions of statistical yearbooks issued by the Central Statistical Organization (CSO).

Scope and limitations of the Study

The research spans a duration from 1988 to 2021, encompassing a period of approximately 34 years. However, it is important to acknowledge certain limitations within this study. Primarily, while various factors like money supply, interest rates, and exchange rates can contribute to inflation, this analysis focuses solely on the budget deficit. A secondary limitation involves the absence of detailed background explanations pertaining to the political and economic system, policy and structure, as well as a comprehensive overview of the budget system, policy, and structure. These limitations should be taken into consideration when interpreting the findings of the study.

Empirical Result

Augmented Dickey-Fuller Unit Root Test

The early and pioneering work for detecting the presence of a unit root in a time series data was developed by Dickey and Fuller (1976, 1979).

According to Table 3, the results from the Augmented Dickey-Fuller unit root test (ADF test) for the budget deficit variable reveal that the Trace-statistics (T-statistics) values surpass the critical values. This suggests that the variable is stationary at the first difference [I (1)] across all models. In essence, the budget deficit data exhibits a trend and intercept.

Similarly, for the inflation variable, all T-statistics values exceed the corresponding critical values, indicating that the variable is stationary at the first difference [I (1)] across all models. This implies the presence of a trend and intercept in the inflation data.

Understanding a stationary variable involves recognizing the existence of a trend and intercept in the data. Stationary, in this context, signifies the absence of a unit root, whereas non-stationary implies a lack of long-run association across time periods. The decision rule for the unit root test asserts that when the T-statistics value surpasses

the critical value, the variables are deemed stationary. Consequently, both variables are integrated at the first difference.

Table 3: Augmented Dickey-Fuller Unit Root Test Result

Variables	Level	Model	Critical values (CV)	ADF			Results
			5 %	T-Statistic	P value	DR	
BD	I (0)	Model (1)	-2.957110	1.843908	0.9996	T<CV	Not Stationary
		Model (2)	-3.552973	-0.426055	0.9822	T<CV	Not Stationary
		Model (3)	-1.951687	4.121637	0.9999	T<CV	Not Stationary
	I (1)	Model (1)	-2.963972*	-3.565754*	0.0128*	T>CV	Stationary
		Model (2)	-3.568379*	-4.538249*	0.0057*	T>CV	Stationary
		Model (3)	-1.952473	-3.149446	0.0027	T>CV	Stationary
INFL	I (0)	Model (1)	-2.960411	-1.883473	0.3353	T<CV	Not Stationary
		Model (2)	-3.557759*	-6.293324*	0.0001*	T>CV	Stationary
		Model (3)	-1.952066	-1.119930	0.2329	T<CV	Not Stationary
	I (1)	Model (1)	-2.963972*	-8.201977*	0.0000*	T>CV	Stationary
		Model (2)	-3.568379*	-8.050284*	0.0000*	T>CV	Stationary
		Model (3)	-1.952473*	-8.196667*	0.0000*	T>CV	Stationary

Note: Model (1) = Intercept, Model (2) = Trend and Intercept and Model (3) = none of trend and intercept. I (0) = level and I (1) = first difference. BD = budget deficit and INFL = inflation, DR = Decision Rule *All variables are selected under 5 percent critical value. Neither positive nor negative sign include in decision process.

Ordinary Least Squares Regression (NLS and ARMA)

After testing for the stationary of each variable by using ADF unit root test, the Ordinary Least Squares Regression are used to estimate the long-term equilibrium relationship. The calculated results are shown in Table 4.

Table 4: Result of Ordinary Least Squares Regression

Variables	Coefficient	Standard Error	t-Statistics	Prob.
C	20.54	2.61	7.87	0.000
BD	2.94	1.21	2.43	0.021
R-squared	: 0.16			
Adjusted R-squared	: 0.13			
F-statistic	: 5.92			
P-value (F-stat)	: 0.02			
Durbin-Watson stat	: 1.30			

Source: Author's Calculation

The results shown in Table 4 are substituted in the regression equation:

$INFL_i = 20.53997 + 2.937299.\ BD_i + \varepsilon_i$

According to the results of the Ordinary Least Squares (OLS) regression, as presented in Table 4, the independent variable, budget deficit (BD), exhibits a significance level of less than 5 percent. This signifies that the budget deficit is statistically significant in explaining the dependent variable, inflation (INF). Notably, the positive sign of the budget deficit coefficient suggests a positive relationship between the two variables. The regression model's coefficients, standard errors, t-statistics, and p-values for the variables "C" and "BD" in the regression model with the dependent variable "INFL" are displayed in the table. The R-squared and adjusted values provide insights into the goodness of fit of the model. In this instance, the R-squared is 0.1561, indicating that the model explains approximately 15.61% of the variance in the dependent variable. The F-statistic, assessing the overall significance of the model, yields a p-value (0.0207) below the typical significance level of 0.05, suggesting the significance of at least one independent variable. The two critical value of the d statistics, dL and dU are 1.393 and 1.514 respectively at 0.05 level of significance. Since the result of Durbin-Watson d statistic (1.302) is less than dL, it indicates that there is probably evidence of positive autocorrelation.

Conclusion

Findings

The analysis of Myanmar's inflation and budget deficit data from 1988 to 2021 reveals compelling patterns. In the early years, the country faced elevated inflation rates due to economic and political turmoil. Noteworthy fluctuations were observed, notably during the Asian Financial Crisis in the late 1990s and the impacts of Cyclone Nargis in 2008. The 2010s marked a period of stability with the lowest inflation rates, disrupted only by events like the general election in 2015. In recent years, inflation has remained moderate, with a notable decrease in 2021.

The budget deficit situation in Myanmar exhibited volatility, with significant fluctuations from -4021.6 Kyat Million in 1988 to the unprecedented deficit of -8181794.9 Kyat Million in 2021. Myanmar faced notable fiscal challenges, including a banking crisis in 2003, the Global Financial Crisis in 2008, and the impact of the COVID-19 pandemic in 2020.

Suggestions

To address the persistently high budget deficits, policymakers should focus on implementing robust fiscal measures, such as optimizing revenue collection and prudent allocation of resources. Strengthening economic resilience against external shocks is crucial, requiring strategic planning and risk mitigation strategies.

Given the positive relationship between budget deficit and inflation, policymakers must adopt a balanced approach to fiscal management. Strategies to control inflation should involve targeted measures, including monetary policy adjustments and careful monitoring of external factors influencing price levels. Additionally, continued efforts to attract foreign investments and enhance economic stability are imperative for sustained development.

In conclusion, this study's findings underscore the need for comprehensive fiscal and monetary policies that consider both short-term fluctuations and long-term equilibrium conditions. These recommendations aim to guide policymakers in navigating Myanmar's economic challenges towards sustainable economic growth.

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The Influence of Sharia Shares, Islamic Bonds, and Sharia Mutual Funds on National Economic Growth From 2018-2022

Yasmin Afifi[1]*, Nabila Al Karimah[2], Sherly Angelica[3], Talbani Farlian[4] and Fifi Yusmita[5]

[1] International Accounting Program IAP/IBEP, Faculty of Economic and Business, Universitas Syiah Kuala
[2] International Accounting Program IAP/IBEP, Faculty of Economic and Business, Universitas Syiah Kuala
[3] International Management Program IAP/IBEP, Faculty of Economic and Business, Universitas Syiah Kuala
[4] Associate of Professor IBEP, Faculty of Economic and Business, Universitas Syiah Kuala
[5] Coresponding Lecture, Faculty of Economic and Business, Universitas Syiah Kuala

* Correspondence: yasmin.layan078@gmail.com

Abstract

This research is inspired by the notable growth of the Islamic finance industry, particularly in Islamic capital market instruments such as Shariah-compliant stocks, Islamic bonds, and Islamic mutual funds. This growth has ignited enthusiasm for their potential to drive the expansion of a country's real sector and the production of goods and services. Researchers aim to understand and elucidate how Islamic stocks, Islamic bonds, and Islamic mutual funds affect a nation's economic growth, and to determine the level of significance associated with their influence.

Based on analysis influence of sharia stocks, Islamic bonds and Islamic mutual funds against sharia national economic growth by using multiple regression method, results showed that the Islamic stocks (X1), Islamic bonds (X2) and Islamic mutual funds (X3) are not significant positive effect on the growth of the national economy (Y).

Keywords: Economic growth, Shariah stock, Islamic bonds, and Islamic mutual funds

Introduction

In an economy, in developed countries and in developing countries, the calculation of national income can be done by spending, which is an important method. This can be because this method can provide very useful information regarding the economic level achieved. Based on the expenditure approach, the calculation of national income differentiates expenditure on goods and services produced by the economy into 4 components: 1) Household consumption, 2) Government spending, 3) Private sector capita formation (investment), and 4) Net exports (exports minus net).

Investment or capital formation is one component of economic growth. According to investment products, investment is divided into two types, namely investment products in the real sector and in the financial sector. Investment products in the financial sector can only be implemented in the primary market and secondary market. The primary market is the market when a company first sells shares to the public (go public) so that it becomes a public company. While the secondary market is an organized market (stock exchange) that facilitates the trading of shares that have been listed. According to Budi Setiawan, sharia investment forms can be grouped into two types: 1) Sharia deposits and 2) Islamic capital market.

Islamic finance is presently in a transformative phase as it strives to establish a worldwide presence. This global expansion is manifesting through the creation of Sharia-compliant financial products in the international capital market. The emergence of the Sharia capital market is a significant facet in the ongoing evolution of Islamic finance, offering essential backing to Sharia-compliant banking, insurance, and other financial institutions. This evolution is evident in the growth of Sharia-centric financial instruments like Sharia-compliant stocks, sukuk, and Sharia-compliant mutual funds.

The introduction of an integrity-driven capital market for Sharia-compliant products in Indonesia is anticipated to enable banks and Sharia insurance companies to efficiently utilize their funding sources in alignment with Sharia principles, all while ensuring a harmonious equilibrium between liquidity and profitability. Moreover, the inclusion

of Sharia-compliant products within the Indonesian capital market expands investment prospects for individuals who hold the belief that conventional investment options may include elements deemed impermissible by Sharia.

The presence of Sharia products in the Indonesian capital market was marked by the launch of Sharia Mutual Funds on July 3 1997 by PT Danareksa Investment Management. However, Sharia products in the Indonesian capital market were declared officially present on March 14 2003 with the signing of a memorandum of understanding between the capital market supervisory bodies and financial institutions (Bapepam and LK) with the national Sharia council of the Indonesian Ulema Council (DSN-MUI).

The progress of Indonesia's Sharia-compliant capital market has achieved a significant breakthrough following the release of the Sharia securities list on November 30, 2007. This list encompasses various financial instruments that align with Sharia principles within the capital market. Bapepam and LK are responsible for publishing and maintaining this list, with regular reviews conducted every six months, specifically in May and November. The securities featured in the Sharia securities list encompass state Sharia securities (SBSN), Sharia-compliant sukuk or bonds, units of participation in Sharia mutual funds through collective investment contracts, and Sharia-compliant shares.

The evolution of the modern Sharia-compliant market is influenced by several key factors. Firstly, the development of various financial instruments that adhere to Sharia principles, which have been approved through fatwas issued by DSN-MUI. Secondly, the growth of transactions that comply with Sharia principles involving these capital market instruments. Thirdly, the establishment of regulatory bodies responsible for monitoring various Sharia-compliant capital market products and transactions, including organizations like Bapepam Syariah, agencies that rate Sharia-compliant securities, and supervisory boards overseeing Islamic markets and indices.

In the year 2022, the worldwide economy experienced a 3.4% growth, marking a period of sustained global economic recuperation. During this time, Indonesia's economy displayed remarkable resilience as it continued its recovery from the pandemic-induced economic downturn. The Gross Domestic Product (GDP) of Indonesia expanded by 5.3% in 2022, propelled primarily by robust performance in the household consumption and investment sectors, as indicated by the PMTB components. Notably, global sharia financial assets had already reached a significant value of US$3.96 trillion by the end of 2021.

The depicted figure has experienced a notable surge of 16.76% in comparison to the prior year, specifically from a base value of US$3.39 trillion. This increase serves as an indicative signal that the worldwide Islamic finance sector is exhibiting robust growth that aligns with the ongoing global economic resurgence. By the conclusion of December 2022, Indonesia's collective assets within the sphere of Sharia-compliant finance, excluding Sharia Shares, stood at an impressive IDR 2,375.84 trillion or the equivalent of US$151.03 billion, calculated based on the Bank Indonesia Middle Rate as of December 30, 2022, which was set at IDR 15,731/US$.In 2022, sharia banking will prove its resilience and be able to grow positively, reflected in the development of total assets which reached IDR 802.26 trillion, or growth of 15.63%. The performance of sharia banking in several indicators shows better performance than conventional banking. The growth of sharia banking assets in 2022 was 15.63% higher than conventional banking which was 9.50% during 2022. Sharia banking financing distribution based on type of use in 2022 grew 19.93%, expanding very well compared to the previous year which grew of 6.90%.

In 2022, the Islamic Stock Screening Index (ISSI) witnessed favorable growth not only in terms of the number of products but also in the value of Sharia-compliant shares, corporate sukuk, and government sukuk. The market capitalization of ISSI is projected to rise by 20.14%, reaching a substantial figure of IDR 4,786.02 trillion.The outstanding value of corporate sukuk, which were offered to the public, registered a noteworthy increase of 22.24% when compared to the figures at the close of 2021. Concurrently, the outstanding value of government sukuk displayed a solid growth of 16.19%, soaring from IDR 1,157.06 trillion at the end of the previous year to IDR 1,344.35 trillion by the end of 2022.However, in contrast to these upward trends, the Net Asset Value (NAV) of Sharia-compliant mutual funds experienced a decline of 7.72% by the conclusion of 2022, amounting to IDR 40.61 trillion.

Table 1: Development of sharia shares

Years		2018	2019	2020	2021	2022
Period	**1**	381	408	457	443	504
	2	407	435	436	484	522

Source: www.ojk.go.id

In the year 2022, a total of 76 series of corporate sukuk were issued, amounting to a cumulative value of IDR 18.52 trillion. During the same period, 44 series of corporate sukuk reached maturity, with a total value of IDR 12.26

trillion. By the end of December 2022, the total number of outstanding corporate sukuk had grown to 221 series, reflecting an increase of 16.93% compared to the previous year's count of 189 series of sukuk. Furthermore, in terms of total value, this outstanding sukuk saw a remarkable surge of 22.24% when compared to the previous year, reaching a substantial sum of IDR 42.50 trillion.At the close of 2022, the composition of outstanding corporate sukuk series was as follows. The largest proportion of issuers belonged to the raw goods sector, representing 16.74% of the total, followed closely by the financial sector at 15.84%. Additionally, issuers from various other sectors collectively made up less than 10% of the total outstanding corporate sukuk. growth and diversification in the corporate sukuk market throughout 2022, with increased issuance and value, as well as a distribution of issuers across various sectors.

Table 2: Development of corporate sukuk

Years	Sukuk Emissions		Sukuk Outline	
	Total Value (Rp. Trillion)	Total	Total Value (Rp. Trillion)	Total
2018	36,12	175	21,30	99
2019	48,24	232	29,83	143
2020	55,15	274	30,35	162
2021	66,45	327	34,77	189
2022	75,88	366	38,68	205

Source: www.ojk.go.id

In 2022, the Sharia mutual funds can be categorized by type, and their Net Asset Value (NAV) proportions are as follows: Sharia mutual funds based on foreign securities had the largest proportion, accounting for 35.24% of the total NAV. Following that, Money Market Sharia Mutual Funds constituted 20.31%, Sharia Stock Mutual Funds had 15.83%, Sukuk-based Sharia Mutual Funds represented 11.89%, Fixed Income Sharia Mutual Funds comprised 10.35%, and the rest of the sharia mutual funds fell below 10% each.

During the year 2022, 22 new effective sharia mutual funds were launched, while 40 other sharia mutual funds were dissolved. In total, there were 274 sharia mutual funds throughout the year, collectively holding a Net Asset Value (NAV) of IDR 40.61 trillion.

Table 3: Development of sharia mutual funds

Years	Number of Sharia Mutual Funds	NAB (Rp. Triliun)
2018	224	34,49
2019	265	53,74
2020	289	74,37
2021	289	44,00
2022	280	41,94

Source: www.ojk.go.id

Table 4: National economic growth

Years	2018	2019	2020	2021	2022
PDP	5,17%	5,02%	2,97%	5,02%	5,31%

Source: http://www.bps.go.id

Based on the table above, Sharia shares, sukuk, Sharia mutual funds have a percentage contribution to economic development. Therefore, the author is interested in knowing how much influence the Indonesian sharia financial industry, especially sharia shares, sukuk and sharia mutual funds, has in increasing national economic growth.

Literature review

A. Theoretical Study

1. Shariah Stock: Sharia-compliant shares are certificates that provide evidence of ownership in a company and are issued by entities whose business practices and management approaches align with Sharia principles.

Shares considered as adhering to Sharia principles are those of companies that do not engage in activities deemed haram, such as usury, excessive uncertainty (gharar), gambling, pornography, or the production and trading of forbidden food and beverages like pork, alcohol, and cigarettes, among others.

2. Islamic Bonds: Traditionally, bonds represent a form of debt issued by an entity, with a guarantee from a guarantor, and they include promises to pay interest and principal on a specified due date.

Sharia-compliant bonds, also known as sukuk in Indonesia, adhere to National Sharia Council Fatwa No. 32/DSN-MUI/IX/2002. These sukuk are long-term financial instruments issued by entities following Islamic principles to sharia bondholders. The issuer commits to providing income to sukuk holders through profit sharing, margins, or fees, rather than interest. When the sukuk matures, the issuer is obligated to return the investment funds to the investor.

3. Sharia Mutual Fund: According to the Capital Market Law Number 8 of 1995, Article 1, Section 27, Sharia mutual funds are a platform designed to gather investments from the public and subsequently allocate these funds into investment portfolios by appointed fund managers. As specified in the Fatwa Number 20/DSNMUI/IX/2000 dated 18 April 2000 issued by the National Sharia Board (DSN), these funds operate in strict adherence to the principles and guidelines of Islamic Sharia. This adherence is evident in the contractual relationships established between the investor, who is the owner of the funds, and the investment manager, who acts as the representative of the shahib al mal (the owner of the wealth). Additionally, these principles are upheld in the agreements between the investment managers as representatives of the shahib al mal and the end users of the investments.

4. Economic Growth: Economic growth can be described as the advancement of economic activities within a nation, resulting in an increase in the production of goods and services and an overall improvement in the prosperity of society. This progress in economic activity involves the expansion of various sectors, such as manufacturing, infrastructure development, education facilities, service sector output, and the generation of goods and capital.

Nevertheless, assessing the level of economic growth based solely on production data can be quite challenging. Therefore, to get a rough estimate of a country's economic growth, the commonly used measure is the growth rate of real national income achieved.

Economic growth is essentially a process where the income of a country increases, independent of its population growth rate. An economy is considered to be in a state of growth if, in a given year, the real returns on the utilization of production factors are higher than in the preceding year.

B. Review of Previous Studies

Table 4: Review of previous studies

Number	Research	Research Titel	Result
1.	Nur Faroh (2016)	Pengaruh Saham Syariah, Sukuk, dan Reksadana Syariah Terhadap Pertumbuhan Ekonomi National Tahun 2008-2015	The results of the research show that sharia stock and sharia mutual funds has a positive and insignificant effect on national economic growth but Islamic bonds has a positive and significant effect on national economic growth. However, simultaneous testing shows that sharia stock, Islamic sharia bonds and Islamic mutual funds cultural Sharia shares have no positive effect on economic growth.
2.	Saskia Rizka Riananda	Pengaruh Saham Syariah, Sukuk, dan Reksadana Syariah Terhadap Pertumbuhan Ekonomi National Tahun 2013-2017	The results of this research indicate that sharia shares are not significant for national economic growth. Changes in share prices will affect sharia share income which can also affect economic growth.

C. Framework

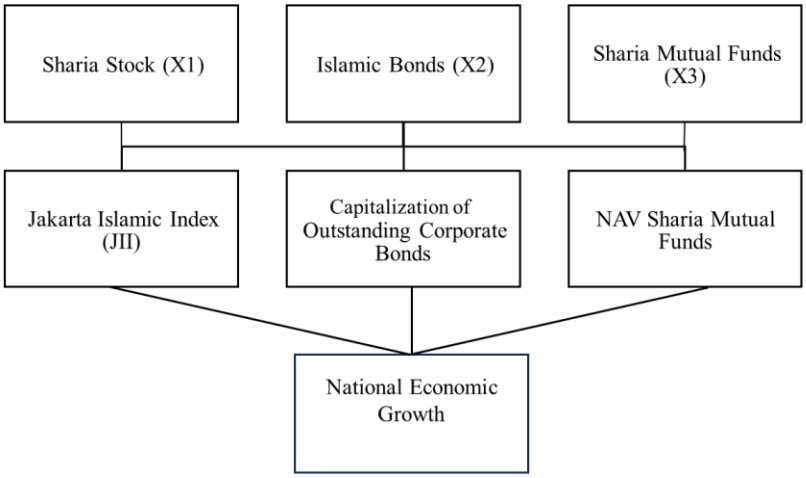

Figure 1: Framework

Methodology

Oncoming and Types of Research

The author advocates for a quantitative research approach because it aligns with scientific principles, including being concrete, empirical, objective, measurable, rational, and systematic. In this context, quantitative methods are rooted in the positivist philosophy, employed to investigate specific populations or samples, gather data through research instruments, conduct quantitative and statistical data analysis, all with the objective of testing predefined hypotheses.

Researchers in this study employ an associative research type, which seeks to establish connections between two or more variables. The outcomes of this research can contribute to the development of a theory that serves to elucidate, forecast, and manage a particular phenomenon.

Data Type/Data Source

The type or source of data used is Secondary Data. Data sources are available both through print and electronic media.

Methods and Collecting Data Techniques

Data Gathering Regarding the acquisition of data, the information is sourced from publicly available data provided by the Otoritas Jasa Keuangan (OJK), accessible at http://www.ojk.go.id. Additionally, data concerning national economic growth is obtained from published sources such as http://www.bi.go.id and http://www.bps.go.id, or from the Bursa Efek Indonesia (BEI).

Documentation The method of data collection employed here is documentation. This method is utilized to acquire the necessary data or information relevant to the pre-defined research variables. Data collection entails an examination of records or documents pertaining to the research's subject matter.

Data Processing Techniques

In the realm of quantitative research, data analysis is a crucial step that comes after gathering data from respondents or other sources. The process involves several key activities, including organizing the data by variables and respondent types, presenting the data related to each studied variable, performing calculations to address the research questions, and conducting statistical tests to evaluate the proposed hypotheses. Statistical software like SPSS is commonly employed in these data analysis tasks. Specifically, the author utilizes parametric statistics to assess population parameters using data from a sample.

Research Variable

Independent Variable:

This particular variable is frequently known as a stimulus, predictor, or antecedent variable. The independent variable is the one that exerts an influence or serves as the underlying cause for the changes or occurrences observed in the dependent variable. In this study, the subject of investigation encompasses three independent variables. Specifically, X1 corresponds to "Sharia-Compliant Stocks," X2 represents "Islamic Bonds," and X3 pertains to "Sharia-Compliant Mutual Funds."

Dependent Variable

Frequently termed as output, criterion, or consequent variables, the dependent variable is the one that gets affected or serves as the outcome due to the presence of the independent variable. In this particular study, the entity being impacted is "National Economic Growth," which is denoted as the Y variable.

Population and Research Sample

Population

A population is a broad domain comprising entities or subjects with specific attributes and characteristics identified by the researcher for study, from which conclusions are derived. It's important to note that a population doesn't exclusively encompass individuals; it can include various objects and natural entities as well. The population isn't solely defined by the number of subjects or objects under scrutiny but encompasses all the attributes and traits possessed by these subjects or objects. In the context of this research, the population data considered includes information about Sharia-compliant stocks, Islamic bonds, and Sharia-compliant mutual funds in Indonesia for the period spanning from 2018 to 2022.

Research Sample

A sample represents a subset of the population, characterized by a similar number and attributes as the larger population. When the population is extensive and the researcher faces limitations such as constraints on funds, time, and energy, it becomes impractical to study every element within the population. In such cases, researchers opt to work with a sample drawn from the population. In the context of this research, the chosen sample comprises quarterly reports published by the Otoritas Jasa Keuangan over a span of 5 years, from 2018 to 2022. These reports pertain to Sharia-compliant stocks, Islamic bonds, and Sharia-compliant mutual funds. Additionally, to gauge Indonesia's economic growth, data is obtained from the published reports by the Badan Pusat Statistik for a five-year period from 2018 to 2022, using Gross Domestic Product (GDP) as a key indicator.

Statistical Analysis Methods

Data Normality Test

The purpose of the normality test is to assess the distribution of data in the variables under consideration for the research. Ideally, data that is well-suited for research exhibits a normal distribution. In research, the normality test is typically conducted to determine whether the data follows a normal distribution, often employing the Kolmogorov-Smirnov statistical test.

In terms of making decisions based on the test results, standard guidelines are applied. If the significance value (Sig) is less than 0.05, it indicates that the data distribution is not normal. Conversely, if the Sig value is greater than 0.05, it suggests that the data distribution can be considered normal.

Multiple Linear Regression Analysis

Multiple linear regression is a statistical analysis technique that explores the linear relationship between a dependent variable (Y) and two or more independent variables (X). In multiple regression, we investigate the associations between the dependent variable (Y) and a set of independent variables (X1, X2, X3, ... Xn). The primary aim of this analysis is to assess how each independent variable relates to the dependent variable, discerning whether these relationships are positive or negative. Furthermore, it enables the prediction of how changes in the values of independent variables impact the value of the dependent variable.

Hypothesis Testing

The t-test is a statistical tool employed to assess comparative hypotheses between two samples, particularly when the data is measured on interval and ratio scales. This test falls under the category of parametric statistics because it specifically evaluates data on interval and ratio scales. Conducting a t-test involves a procedure using samples to confirm or refute the null hypothesis, with the core concept hinging on the statistical testing and the sample distribution of a null hypothesis statistic.

In the process of conducting a t-test, the primary objective is to ascertain the individual impact of the independent variable on the dependent variable. This test is executed under specific conditions:

1. If the calculated t-value (t count) is less than the critical t-value (t table), it implies that the hypothesis is not supported, signifying that the independent variable does not exert a significant influence on the dependent variable.
2. Conversely, if the calculated t-value (t count) exceeds the critical t-value (t table), it supports the hypothesis, indicating that the independent variable has a substantial effect on the dependent variable. An alternative approach is to assess the significance level (α) of the t-value against a predetermined threshold (e.g., 0.05). The analysis involves comparing the t significance value to 0.05, and the conditions are as follows:

1. If the significance of $t < 0.05$ then the hypothesis is tested, which means the independent variable has a significant effect on the dependent variable.
2. If the significance of $t > 0.05$ then the hypothesis is not tested, namely the independent variable has no significant effect on the dependent variable.

Research Hypothesis

The term "hypothesis" originates from Sanskrit, where "hypo" implies "less," and "thesis" means "opinion." Some also describe a hypothesis as a partially true belief. In essence, a hypothesis can be defined as a preliminary response or educated guess to a posed problem, necessitating empirical verification to establish its validity.

In this particular research, an associative hypothesis is employed. An associative hypothesis serves as a provisional answer to questions related to the association between two or more variables. In this case, the hypothesis posits that there is a substantial relationship between the impact of Sharia-compliant stocks, Islamic bonds, and Sharia-compliant mutual funds on national economic growth.

The research hypothesis can be articulated as follows:

H1: Sharia-compliant stocks have a discernible influence on national economic growth.

H2: The influence of Islamic bonds on national economic growth is evident.

H3: Sharia-compliant mutual funds exert a significant impact on national economic growth.

H4: The collective influence of Sharia-compliant stocks, Islamic bonds, and Sharia-compliant mutual funds on national economic growth is noteworthy.

In summary, these hypotheses represent tentative statements that the research aims to substantiate through empirical analysis, investigating the connections between financial instruments and national economic performance.

Results and Discussion

Sharia Shares and Economic Growth

The presentation of empirical findings concerning the impact of Sharia-compliant stocks on economic growth highlights how these financial instruments contribute to capital mobilization and equity investments within the framework of Islamic finance. Additionally, it delves into an analysis of the pivotal role that Sharia-compliant stocks play in advancing ethical and sustainable economic development.

The rapidly expanding landscape of Sharia-compliant stock trading offers an alternative avenue for Muslims with surplus funds to make ethical investment choices that are devoid of elements like Maisir (gambling), Gharar (excessive uncertainty), and Usury (interest). The growth in the number of Sharia-compliant stocks is evident in Table 4.1, illustrating consistent year-on-year expansion. Notably, Indonesia's financial regulatory authority (OJK) has released a roster of Sharia securities (DES) for the second period of 2022, encompassing 522 shares issued by public companies and other Sharia-compliant financial instruments.

Figure 2: Development of sharia share

In analyzing this research using EViews 12, the data model used is as follow: Y = f (X1 and X2)
Income per years = f (period l and period ll)
While the multiple regression equation is:
Income per years = X0 + X1 period 1 + X2 period ll

Dependent Variable: Y
Method: Least Squares
Date: 10/07/23 Time: 23:19
Sample: 1 5
Included observations: 5

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	473.7895	56.10816	8.444217	0.0137
X1	0.529370	0.242031	2.187197	0.1602
X2	-0.414123	0.249294	-1.661181	0.2386

R-squared	0.716099	Mean dependent var	516.8000
Adjusted R-squared	0.432198	S.D. dependent var	14.75466
S.E. of regression	11.11803	Akaike info criterion	7.938722
Sum squared resid	247.2211	Schwarz criterion	7.704385
Log likelihood	-16.84681	Hannan-Quinn criter.	7.309784
F-statistic	2.522353	Durbin-Watson stat	2.004110
Prob(F-statistic)	0.283901		

Figure 3: Eveiws result on sharia share

From the data obtained, the influence of variable x1 as period 1 based on the calculations of the Eviews program obtained a t-statistic value of 2.187197 with a probability value of 0.1602. with a significant condition of 5% (0.05), it can be concluded that period 1 owned by the community has an influence on variable y National economic growth, in other words the level or number of sharia shares has an influence and is significant on the level or amount of national economic growth.

From the data obtained, the influence of variable x2 as period 2 based on the calculations of the Eviews program obtained a t-statistic value of -1.661181 with a probability value of 0.2386. with a significant condition of 5% (0.05), it can be concluded that period 2 owned by the community has an influence on variable y National economic growth, in other words the level or number of sharia shares has an influence and is significant on the level or amount of national economic growth.

According to the results obtained from the sample data, it shows that the R-squared is 0.716099 and the adjusted are required is 0.432198. in accordance with the significant provisions above 5% (0.05), the adjusted R- squared value is accurate and credible.

Sukuk and Economic Growth

Presentation of empirical evidence regarding the influence of Sukuk on national economic growth. Discussion of the unique characteristics of Sukuk and how they attract investments. Analysis of the role of Sukuk in infrastructure development and fostering financial stability.

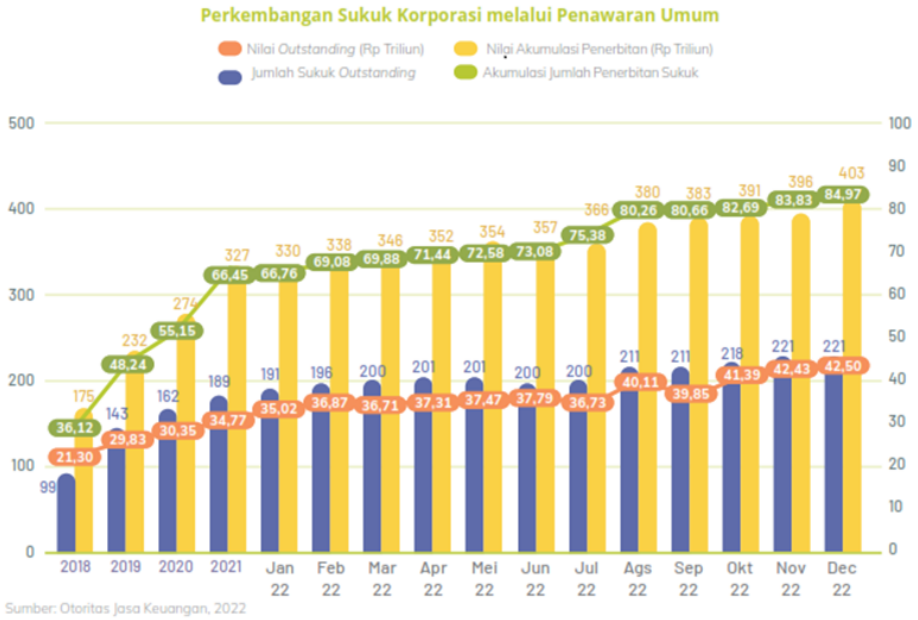

Figure 4: Development of sukuk

In analyzing this research using eviews 12, the data model used is as follow: Y = f (X1, and X2)

Income per years = f (Total Value (Rp. Trillion) of Sukuk emissions, and Total Value (Rp. Trillion) of Outstanding sukuk)

While the multiple regression equation is:

Income per years = X0 + X1 Total Value (Rp. Trillion) of Sukuk emissions + X2 Total Value (Rp. Trillion) of Outstanding sukuk

Dependent Variable: Y
Method: Least Squares
Date: 10/08/23 Time: 08:12
Sample: 1 5
Included observations: 5

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	542.1078	63.44054	8.545132	0.0134
X1	0.000226	0.000288	0.784712	0.5148
X2	-0.000493	0.000687	-0.717985	0.5473

R-squared	0.253336	Mean dependent var	516.8000
Adjusted R-squared	-0.493328	S.D. dependent var	14.75466
S.E. of regression	18.03046	Akaike info criterion	8.905712
Sum squared resid	650.1951	Schwarz criterion	8.671374
Log likelihood	-19.26428	Hannan-Quinn criter.	8.276774
F-statistic	0.339290	Durbin-Watson stat	3.311524
Prob(F-statistic)	0.746664		

Figure 5: Eviews result of sukuk

From the data obtained, the influence of variable x1 as Total Value (Rp. Trillion) of Sukuk emissions based on the calculations of the Eviews program obtained a t-statistic value of 0.784712 with a probability value of 0.5148. with a significant condition of 5%(0.05), it can be concluded that Total Value (Rp. Trillion) of Sukuk emissions owned by the community has an influence on variable y National economic growth, in other words the level or number of sukuk emissions has an influence and is significant on the level or amount of national economic growth.

From the data obtained, the influence of variable x2 as Total Value (Rp. Trillion) of Outstanding sukuk based on the calculations of the Eviews program obtained a t-statistic value of -0.717985 with a probability value of 0.5473. with a significant condition of 5% (0.05), it can be concluded that period 2 owned by the community has an influence on variable y National economic growth, in other words the level or number of sukuk emissions has an influence and is significant on the level or amount of national economic growth.

According to the results obtained from the sample data, it shows that the R-squared is 0.253336 and the adjusted are required is -0.493328. in accordance with the significant provisions above 5% (0.05), the adjusted R- squared value is accurate and credible.

Sharia Mutual Funds and Economic Growth

Presentation of empirical data on the impact of Sharia mutual funds on economic growth. Discussion of the diversification benefits and risk-sharing features of Sharia mutual funds. Analysis of how Sharia mutual funds contribute to financial inclusivity and long-term wealth creation.

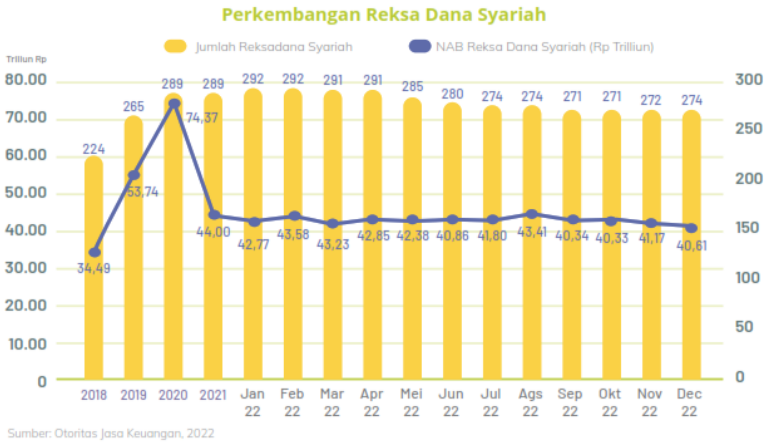

Figure 6: Develpoment of sharia mutual funds

In analyzing this research using eviews 12, the data model used is as follow:

Y = f (X1, and X2)
Income per years = f (Number of Sharia Mutual Funds, and NAB (Rp.Trillion) of Sharia Mutual Funds)

While the multiple regression equation is:
Income per years = X0 + X1 Number of Sharia Mutual Funds + X2 NAB (Rp. Trillion) of Sharia Mutual Funds

Dependent Variable: Y
Method: Least Squares
Date: 10/08/23 Time: 13:11
Sample: 1 5
Included observations: 5

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	510.1791	102.6381	4.970658	0.0382
X1	-0.038250	0.443641	-0.086219	0.9391
X2	3.40E-05	7.84E-05	0.434488	0.7063

R-squared	0.102538	Mean dependent var	516.8000
Adjusted R-squared	-0.794924	S.D. dependent var	14.75466
S.E. of regression	19.76752	Akaike info criterion	9.089667
Sum squared resid	781.5101	Schwarz criterion	8.855330
Log likelihood	-19.72417	Hannan-Quinn criter.	8.460729
F-statistic	0.114253	Durbin-Watson stat	2.838961
Prob(F-statistic)	0.897462		

Figure 7: Eviews result of sharia mutual funds

From the data obtained, the influence of variable x1 as Number of Sharia Mutual Fund based on the calculations of the Eviews program obtained a t-statistic value of -0.086219 with a probability value of 0.9391. with a significant condition of 5%(0.05), it can be concluded that Number of Sharia Mutual Fund owned by the community has an influence on variable y National economic growth, in other words the level or Number of Sharia Mutual Fund has an influence and is significant on the level or amount of national economic growth.

From the data obtained, the influence of variable x2 as Total Value (Rp. Trillion) of Outstanding sukuk based on the calculations of the Eviews program obtained a t-statistic value of 0.434488 with a probability value of 0.7063. with a significant condition of 5% (0.05), it can be concluded that period 2 owned by the community has an influence on variable y National economic growth, in other words the level or number of Sharia Mutual Funds has an influence and is significant on the level or amount of national economic growth.

According to the results obtained from the sample data, it shows that the R-squared is 0.102538 and the adjusted are required is -0.794924. in accordance with the significant provisions above 5% (0.05), the adjusted R- squared value is accurate and credible.

Discussion

Sharia-Compliant Financial Instruments:

Sharia Shares (Equities):

Sharia shares are a form of equity ownership in a company or enterprise that adheres to the tenets of Islamic principles. These principles forbid investments in businesses engaged in activities like gambling, alcohol, pork-related products, and financing that relies on interest payments. Sharia shares are bought and sold on stock exchanges just like regular stocks but undergo a stringent screening procedure to guarantee adherence to Sharia law.

Sukuk (Islamic Bonds):

Sukuk represent a class of fixed-income securities that offer an Islamic-compliant alternative to traditional bonds. These financial instruments are meticulously structured to adhere to Islamic principles, which specifically exclude any form of interest (riba). Sukuk are typically asset-based, backed by tangible assets or services, and they distinguish themselves by providing investors with a portion of the profits generated by the underlying asset, rather than interest payments.

Sharia Mutual Funds:

Sharia-compliant mutual funds serve as investment vehicles that aggregate contributions from various investors to construct diversified portfolios consisting of assets in adherence to Islamic principles. Expert fund managers oversee these funds, meticulously selecting investments that align with Sharia law. Investors in Sharia mutual funds enjoy the

advantages of diversification and the expertise of professional management, all within the confines of Sharia-compliant investment guidelines.

Influence on National Economic Growth:

Encouraging Investment

Sharia-compliant financial instruments attract a wider pool of investors, including those who prioritize ethical and moral considerations. This influx of capital into the economy can stimulate economic growth by fostering investment in various sectors.

Infrastructure Development

Sukuk play a vital role in financing infrastructure projects, which are essential for economic development. Governments and corporations can issue sukuk to fund projects such as roads, bridges, and utilities, leading to improved infrastructure and economic growth.

Diversification

Sharia shares, sukuk, and Sharia mutual funds promote diversification within an economy's financial market. Diversified investment portfolios reduce risk and contribute to the overall stability of financial markets, which is conducive to economic growth.

Financial Inclusion

Islamic finance principles prioritize financial inclusion and equity, making it accessible to a broader segment of the population. This can lead to increased participation in financial markets, which, in turn, can stimulate economic growth.

Foreign Investment:

The availability of Sharia-compliant financial instruments can attract foreign investors from Islamic countries, leading to foreign direct investment and capital inflow. This can have a positive impact on the national economy.

Challenges and Considerations:

Lack of Standardization

The interpretation of Sharia principles can vary among scholars and institutions, leading to differences in the screening criteria for Sharia-compliant investments. Standardization efforts are ongoing to address this issue.

Market Liquidity

Some Sharia-compliant instruments may suffer from lower liquidity compared to conventional counterparts. This can impact their attractiveness to investors and their effectiveness in stimulating economic growth.

Educational Efforts

Raising awareness and educating both investors and issuers about Sharia-compliant financial instruments is essential for their widespread adoption and impact on economic growth.

Conclusions

In this research, we have investigated the impact of Sharia-compliant financial instruments, specifically Sharia shares, Sukuk, and Sharia mutual funds, on the economic growth of a nation. Our analysis has provided valuable insights into the multifaceted role of these instruments within the context of Islamic finance and their contributions to shaping economic development. The following key conclusions emerge from our study:

1. Positive Influence on Economic Growth: Our findings demonstrate that Sharia shares, Sukuk, and Sharia mutual funds have a positive impact on economic growth through various means. They facilitate the mobilization of capital, attract investments driven by ethical considerations, and enhance financial stability.

2. Ethical and Sustainable Finance: Islamic financial instruments adhere to ethical and sustainable finance principles, making them appealing to investors seeking socially responsible investment opportunities. This fosters long-term economic sustainability and resilience.

3. Financial Inclusivity: Sharia-compliant financial instruments play a pivotal role in advancing financial inclusivity. Their incorporation of risk-sharing features makes them accessible to a broader spectrum of investors, including those who prioritize ethical investment practices.

4. Portfolio Diversification Benefits: Sharia-compliant instruments offer diversification advantages to investment portfolios, potentially mitigating systemic risks and improving overall portfolio performance.

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ID 21
How to become a solopreneur

Muenjit Jitsoonthornchaikul [1]*

[1] Faculty of Business Administration, Panyapiwat Institute of Management

* Correspondence: muenjitjit@pim.ac.th

Abstract

In todays' competitiveness of new graduates are increasingly together with unemployed people can't find the job that suit with their skills. This paper aims to motivate people set up business on your own and facilitate automated system with effective technology and innovation. This paper explores differentiation between entrepreneur and solopreneur. Steps to be solopreneur, how to create conceptual ideas for content business, how to design product or service different strategy from others in order to build consumer loyalty that leads to brand sustainability. Furthermore, the sense of one own business cultivation is not teach about entrepreneurship in academic course, but learn how to be your own boss with supplemental context for business consciousness is more challenging. It is not only education industry, but also family, society and related organizations should aware of advantage and opportunity in doing business form your competency based then cooperated with partner networking in next step.

Keywords: Solopreneur, Learning, Skill, Creative, Innovation

Introduction

Generally, there are two alternatives career paths, namely, self –employment and paid - employment. (Molaei et al., 2014) nowadays, the numbers of graduated unemployed are increasing because many undergraduate students have paid-employment intentions more than their self –employment intentions. In addition, skills of gradated unemployed are not fit with the skill- needed of job in the workplace.

Country development and economy growth achieves rely on several elements, one of the essential factor is the ecosystem of education including curriculum design that produce the graduated people ready to work with performances, and skills of entrepreneurship that are undertaken. Gerba (2012a) cited that the level of entrepreneurship related on the number of entrepreneurs, and capability of graduated people correlated with the demanded jobs (readiness to work). Moreover, the 17 UN Sustainable Development Goals (SGD) are the blueprint of peace and prosperity for people and planet, anyway, goal number 4 of sustainable development goals is about quality education (UN, 2024), namely, equitable quality education and promote lifelong learning opportunities for all. This goal number 4 concerns the quality education that it rely on many elements are modern education system, agile curriculum designing, A - player talents acquisition, future skillsets preparation, growth mindset cultivation, emotional intelligence quotient (EQ), adaptive quotient (AQ), immersive technology, creative innovation culture, and digital infrastructure are still needed.

There are many typologies of business ownership status are

Self-employment

- Entrepreneur (employer entrepreneur) is someone who create and operatehis own business with taking the risks and maintaining income for his employees. (Darreonna Davis 2023)
- Solopreneur (own – accounted worker) is self-employed individuals without employees and pursue his entrepreneurial activities on an individual basis. (Belt et al., 2015; Gopalkrishnan, 2015; Waas, 2017; Dvoulety, 2018)

In paid employment: a period of time that any employees have been hired by a business and received wage or salary on his own service. (Law insider, 2024)

Contingent worker: worker works with short term contract with the company (Katz and Kruger, 2019) including freelancer, alternative work arranger, temporary worker, flexible employee, nonstandard worker, independent contractor, agency worker, and gig worker (on-call worker). Gig work as a collection of activities involving micro tasks mediated by an online platform (Cropanzano et al., 2022) usually gig worker work alone without team (Friedman, 2014)

Currently, the diversity of society, the varieties of culture, and the complexity of workphenomenon have evolved that match with work fit and demanded skills with job characteristics. Hereby, advanced technology flexibly made remoted work that increase productivity, controlled cost, and also add choices in different working styles.

Therefore, the status of employment doesn't strict with full time employment or employer entrepreneurs with their own employees only.

Differentiation between entrepreneur and solopreneur

The empirical studied reveal the different between entrepreneur and solopreneur, we find that there are some determinants are not the same as the following:

Table 1: Terminology of Entrepreneur and Solopreneur

Determinant	Entrepreneur	Solopreneur
Investment	By your own self and team supporting	By your own self
Source of income beyond selling	Earn from business partnership	Earn from affiliated marketing from third party, sponsorship, freemium (free + premium), content subscription
Employee	Plug with employees	By oneself or plug with freelance or outsources
Team	With teamwork	Without teamwork, outsource, or freelance hiring in case
Management	Rigid management and controlling	Flexible management and controlling
Authority and Hierarchy	Decentralization hierarchy	Full power by oneself, empowerment
Consciousness	Profit, brand image and relationship retention	High passion, intention and doing with his own competency and energy
Skills	Management skill, team building, decision making skill, etc	Creative thinking skill, identity building, innovative ideas generating, etc
Occupation	Entrepreneur, businessman, startup	Seller, or product creator - affiliated marketer (publisher), affiliated shopper Educator collated with knowledge platform such as udemy, future skill, skillane, etc. Consultant includes business coach, money coach. Freelance website service such as fastwork.com, platform of enterprise (shutterstock.com) Others

From Table 1 indicates that these two words have similarity, and some issues are different, so we ought to understand the status of business ownership, and learn how to start to do business with right strategic planning, effective marketing tools, efficient resources investment and smart allocation, and sustainable brand building in the future.

The unfair advantages of solopreneur are it is more flexible to plan, do by their own, so it is free and agile for changing, and pay much effort and energy with carefully and keep consistency, including manage resources wisely such as money, know - how, tools, machinery, etc. On the other hand, solopreneur has more risks, less budget, and no team, so this reason solopreneur may hire freelance, contingent workers and outsources for specific task in occasionally that it can reduce fixed cost. However, solopreneur does not have team for supporting, including no network or authorized partners that means solopreneur ought to take completed responsibilities and burdens alone.

Steps to be solopreneur

Recently, many Bachelors graduate would like to be employed after they are graduated for gaining working experiences, and number of Master's graduate are over the job vacancy, these situations lead to unemployed people. In addition, their graduate's skills mismatch with job characteristics or demanded tasks that is one of the causes of low productivity, unqualified people lead to the criminal society, and crisis economic.

This paper recognized the quality of human resource in the country. Acceleration in the sense of solopreneur or cultivation the instinct of businessman is so challenging for new generation, especially gen Z (who born between 1998 and 2024). The author synthesized the manual kit tool with the right platform with business type and target group, including appealing marketing media and real selling techniques for commercial implications.

1. Inbounded with passion

Growth mindset with Instinctive successfulness or thrive on concentration with doing business is the basic characteristic for sole entrepreneur or solopreneur. Self - empowered stimuli by you own with intense energy and full willingness. Moreover, innovative passion bounded with the strong conscious, autonomous motivation focusing on passion which is driven by enthusiasm. It explores the formation of ideation through innovative activities, create entrepreneur culture and supporting environment for learning involved mechanism of "I am, I can, and I will" (Wang, et al., 2016).

2. Business idea/ concept formation

The source of business idea(s) ignites same as the creative thinking process; traditional thinking begins from divergent thinking to convergent thinking. (J.P. Guilford, 1956) It described two complementary cognitive methods for analyzing a problem and optimal solution choosing. Thinking from acquiring multiple types of products or service, increasing the likelihood of solution or need that fits with consumer satisfaction. The divergent approach tools such as brainstorm, ask the questions, draw the mind map, etc before thinking through convergent approach, namely, systematically analyze, screen out, or synthetized for the optimal product or service. Using this paradox thinking for supplement answer withhold divergent thinking, limitation of ideas for consideration, without convergent think, no real outcome of the best product or service.

Business idea of product or service is core value of product or service will frame consumer segmentation in terms of demographic (age, generation, gender, education level, income, occupation) geolocation –based, behavior and psychology lifestyle, attitude, socio-culture, frequency of lifestyle) segmentation in marketing strategic and implementation.

Irrefutably, service providing is the basic of traditional selling, no matter what you sell, service is action that made your brand differ from others, service made consumer impression, and memory in brand experiences. Therefore, solopreneur ought to design service strategy that it should accompany with core essential of product or service provides to customer persona and satisfaction.

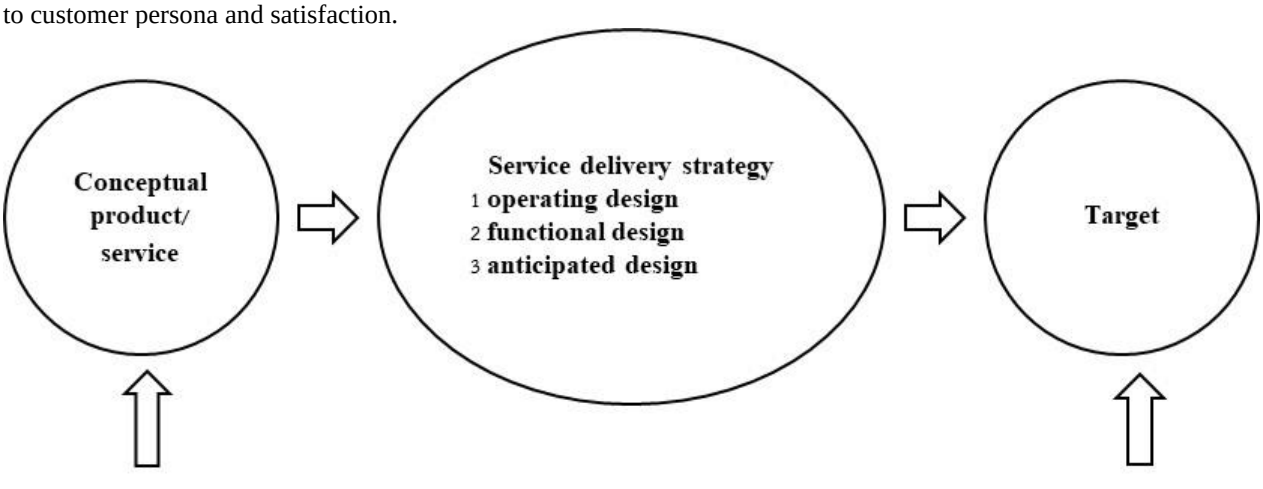

Figure 1: Service Design Model

From Figure 1, service design is the multidisciplinary (Teixeira et al., 2019; Furrer et al., 2016; Kurtmollaievetal, 2018; Patricioetal, 2018; Antons and Breidbach, 2018), whiles the service innovation design is the paramount for practices and research study as a priority. (Mahr et al.,2013; Ostrom et al., 2010; Teixeira et al., 2017; Patricio et al., 2018; Yu and Sangiorgi, 2018; Meroni and Sangiorgi, 2011). Service innovation design is focused on the outcome rather than how it was realized (Gustafssonetal, 2020) as firms start to use service strategies in designing news services (Cheng and Shiu, 2016). Aims of service design to create new service or improve existing service. Hereby, value creation is at the heart of strategic design by reflecting on practices of designing innovation strategies for integrated systems of products, services, and communication.

Levels of value (Manzini and Vezzoli, 2003)

Strategic design comprising of three level are:

1. Operational design

Operational design is to create customer value through differentiated service.

2. Functional design

Functional design is to create value through coordination of core function service process of providing.

3. Anticipative design

Anticipate design is to add value through anticipated changed service.

3. Build your own automated system

In this step, solopreneur must set system with the vigorous development of technology in industry 4.0 revolution, the attempts focus on creating fully automated systems, digital tools, and modern platforms. There are many processes in doing business such as production, logistic, marketing, advertising, and selling process.

1. Vertical supply chain integration

As solopreneur, supply chain management process is the beginning step for produce the product. The exploration and exploitation for the source of production may start from one's self - owner, self- supplier, original equipment manufacturer (OEM), original design manufacturer (ODM), some business owners decide to hire the small, cloud factory to produce the product by order in few units first in order to test the market, if the pilot product get high response, solopreneur will order the large quantity for cost controlling. Whiles, some solopreneurs may be the original brand manufacturer (OBM) who can run many activities by himself that including, distributor, supply chain and logistic controlling, taking ownership of many processes in the manufacture and ultimately, selling the products and providing the services by themselves. (Newman, et., al 2020).

2. Selling automation

In this step, it approaches customers in Omni channel that suits with contextual buying for each group of consumers, selective right timing is the opportunities for solopreneur. Sales automation is the software application that processed data both back office and front office including the purchased order receiving, coordinating, sell data analyzing, controlling, inventory management, sell forecasting, and after sell service work automatic between seller and buyer.

In online channel should build customer experiences with flexible, assortment of choices and effective price with comparable brands.

In physical channel should build customer experiences with product fulfil, multi-sensory appealing, warm human to human interaction, personal recommendation. Especially, physical channel can analyze consumers' route of shopping, the traffic of entrance – exit door, face expression, physical evident on that moment including temperature in the store, smell, or even service related with decision buying with footfall analytics. In addition, solopreneur should analyze store data in order to adapt online data marketing to connect seamless experiences 360 degree in hybrid customer experiences bundling.

3. Marketing automation

Build the marketing automation is an online marketing tool which support solopreneur in doing a business, there are two issues concerning, namely, time and cost. Automation can assist small business owner bring their strategy to run without spending the large resources. This tool, and technology work best when you know who the main loyalty consumer is and understand their lifestyle and shopping. Marketing automation tools works with algorithm for customized experiences based on consumers' preferences, behaviour, buying activities, etc. Furthermore, doing a

business by using your own, application software and automated process are very important for flexible, efficient, effective cost management. For example, advertising automation, communication automation, order receiving, sales automation, payment and customer support automation, and so on.

1. Communication automation

Marketing communication to consumers aims to inform, motive, and remind brand to consumer mind. Affiliate marketing is the revenue sharing marketing method for e- commerce only by which this method earns a commission for marketing another person's or company's products. In addition, communicated marketing tools includes automated e-mail with optional subscribe and unsubscribed, homepage, website, M - blog, mail magazine, video clip, YouTube, webinar, podcast, social media platform such as Tik Tok, Instagram, Facebook live, line add, messenger, chatting, review comment, feedback service rating.

2. Customer support automation

Automated customer support is the process that aims to reduce face to face experiences, human service providing or solving the problems. Automated customer support system can collect, analyzing and interpreted consumer behavior from physical data to online data for application. Social listening is the root of service improving and business development.

Hyper personalized marketing is an ultimate service design, modern consumer relationship management can create from understanding customer data (demographic, psychographic, and behavioral data), contextual data (surrounding purchasing), and physical data (geographic, store, or physical evident) with high technology such as generative AI, AR, BR, MR immersive technology for online virtual customer experiences, or provide product or service fit personal needs on at that moment such as sensor vending machine will introduce the chilled or warm beverage from the temperature on that time.

Moreover, customer community can be the powerful influencer for sharing from real, or unfiltered feelings "online salon" group, especially gen Z, or Alpha group. Therefore, a solopreneur ought to set and facilitated business automation through internet -based formation for real data.

4. Relationship retention

Although solopreneur starts from yourself, it does not mean we don't work with other parties. Put the efforts in any process that we can utilize our skills, knowledge, experiences, or technology, except in some tasks, we may hire freelance, or outsource in case for cost saving. However, network building will enhance local market from SME (small and micro enterprising) to global market as business partner, competitor(s), supplier, outsources, and consumer are very significant group. Indeed, consistency and transparency in running the business is a must. Imperatively, any process that related with other parties, especially consumer relationship retention is sensitive experiences, particularly, taking care with sincerity can build loyalty customer for future sustainable business.

Key success factors of solopreneur

Solopreneur will achieve in these aims is depend on many factors are as the following:

- Number and quality of knowledge and skillset that suits with context business environment, know – how product and added service differentiation, understand consumer profile.
- Level of motivation and intention and passion of solopreneur, readiness of cope with high obstacles alone that lead to willingness to do the action and solve the obstacles.
- Entrepreneurial education is more important than education in entrepreneurship in college because education for entrepreneur teach.
    - How to see and recognize the opportunity in the society.
    - Exploration in marketplace, observe and learn how to do made it differ.
    - Exploitation with smart contingent plan.
    - Support business environment.

It is imperative that supportive environments which decrease anxiety and foster potential productivity. Stay with interest surrounding for creativity whether smart people, lesson learn from valued social media, innovated books, interesting forum or live in suitable competitive surrounding can motivate for reskill and upskill yourself for future career path.

Discussion and conclusion

In the context of disruptive technology changing, education sector same as other industries have to adapt core of business to response for surviving. Numbers of unemployment, and new graduates' skills mismatch with job vacancy are increasing, stimulating information for being solopreneur enable this problem to be decreased. This paper recommends acknowledge students learn about education for entrepreneur, it is more important than education about entrepreneurship. According to many educational institutes' focuses on entrepreneurship curriculum or course about entrepreneurship that these contents are theories or fundamental business sometimes these information does not motivate enough how to be your own boss, furthermore, learned skills in classroom are not challenged for realistic learning in the real marketplace. Learning by do and educate how to be solopreneur first are the real experience that it may be fail, test, learn and success later. However, the needed skills in marketplace are fast changing to cope with the disruptive economy and society structure. Therefore, learning how to be business owner is so imperative challenging.

Briefly, cultivation in sense of solopreneur starts from your own consciousness, belonging to have full passion, active energy for creative thinking with innovation, including the needed future skillsets for career path with adaptability in new emerging conceptual ideas.

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ID 143
Assessing the Performance of PNU Accounting Students in Cooperative Education Programs from the Perspective of Participating Organizations

A-fif Salaeh[1]*, Kasmeeda Sa-ei[1], Haida Sudinpreeda[2], Sulfah Doloh[1], Arisuan Ta-leh[1], Sameeror Kaje[1], Anisa Sama[1] and Ruainee Mudo[1]

[1] Accounting Student, Faculty of Management Sciences, Princess of Naradhiwas University
[2] Lecturer of Accounting Department, Faculty of Management Sciences, Princess of Naradhiwas University

* Correspondence: afif2020@gmail.com

Abstract

This study aimed to assess the satisfaction of organizations with accounting students participating in Cooperative Education within the Faculty of Management Sciences at Princess of Naradhiwas University. The sample comprised 25 organizations, revealing a consistently high level of overall satisfaction with accounting students in Cooperative Education at the aforementioned faculty. Analysis across various aspects, including Personality, Work Achievement, Accounting Skills, Accounting Program, Responsibility, and Report, consistently demonstrated high satisfaction levels. Furthermore, organizations expressed a desire for increased duration for theoretical and practical training for students, highlighting the need for more comprehensive preparation. Additionally, there was a willingness among organizations to offer additional unpaid positions, indicating a recognition of the value of Cooperative Education and a commitment to further support student development. The findings from this research have significant implications for curriculum development and the ongoing refinement of the Cooperative Education system. By leveraging this data, educational institutions can tailor programs to better meet the evolving needs of both students and organizations, ultimately enhancing the success and effectiveness of Cooperative Education initiatives.

Keywords: Satisfaction, Student on cooperative education, Accounting, Bachelor of accounting program

Introduction

Work-integrated learning plays a pivotal role in driving national development in alignment with Thailand's 20-year strategy, aimed at propelling the nation towards Thailand 4.0 and fostering competitiveness in the global arena. This approach entails fostering partnerships between educational institutions and industries to cultivate graduates equipped with the requisite skills and competencies to meet the demands of the labor market and thrive in the 21st-century global economy. Integral to this initiative is a project which emphasizes collaboration with the private and industrial sectors to enhance the quality and employability of graduates through integrated teaching and learning processes, thereby contributing to the development of a highly competent workforce for targeted industries.

The Accounting Cooperative Education Program forms an integral component of the undergraduate curriculum, facilitating partnerships between universities and businesses to provide students with immersive internship experiences within the accounting profession. Under this program, students assume roles akin to employees within participating organizations, undergoing a structured internship period of at least 16 weeks. This format not only enhances students' professional skills through practical experiences but also adds value beyond conventional internships.

The Bachelor of Accountancy program at the Faculty of Management Sciences, Princess of Naradhiwas University (PNU), has forged strategic partnerships with various professional accounting bodies and entities, including the Institute of Certified Accountants in the Kingdom of Thailand, the Thai Institute of Certified Accountants, and both public and private sector accounting firms. These collaborations are instrumental in fostering the development

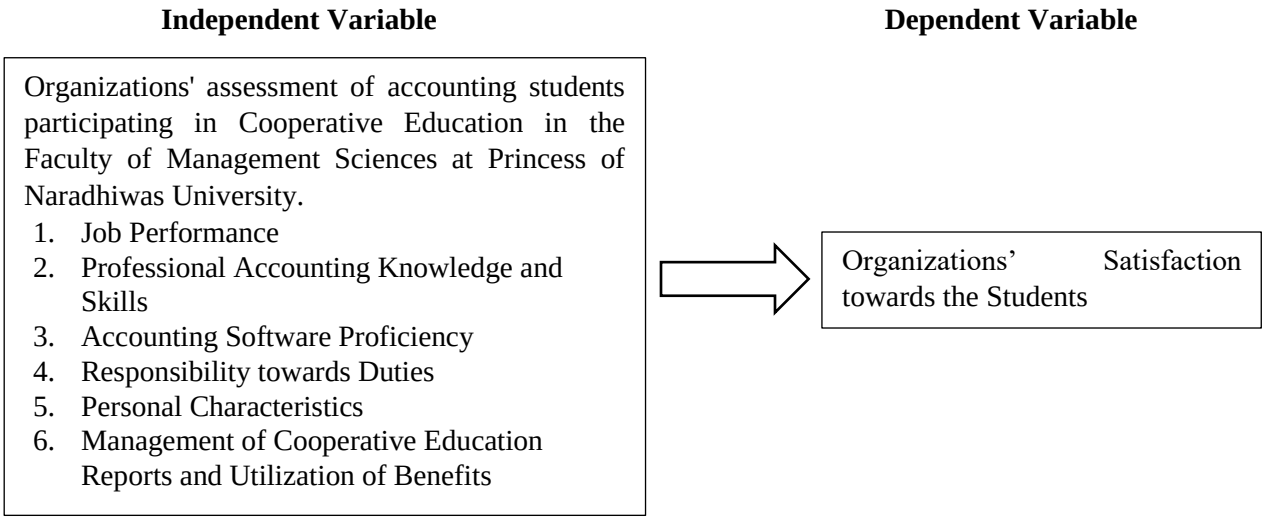
of professional accountants through concurrent cooperative education initiatives, enabling students to acquire practical accounting skills alongside their academic studies and facilitating seamless transition into the workforce upon graduation (Sudinpreeda, 2022).

Driven by the recognition of cooperative education as a catalyst for producing high-quality graduates, the faculty has embarked on a research endeavor to explore the satisfaction levels of partner organizations with accounting graduates from Princess of Naradhiwas University. This research seeks to inform curriculum enhancements and strengthen the cooperative education system, thereby fostering collaborative efforts to cultivate graduates who are well-equipped to meet the evolving needs of both industries and academia, ultimately contributing to the development of a skilled workforce.

Research Objectives:

1. To assess the satisfaction levels of partner organizations involved in Cooperative Education with students enrolled in the Bachelor of Accountancy program, Faculty of Management Sciences, Princess of Naradhiwas University.
2. To provide insights that can inform curriculum enhancements and improvements to the Cooperative Education system, ensuring alignment with the evolving needs of graduates and partner organizations.

The research's framework can be presented as follows:



Methodology

The research methodology adopted for this study is quantitative, employing questionnaires as the primary tool for data collection. The sampling technique utilized is purposive sampling, with the sample group comprising businesses that engage cooperative education students from the Bachelor of Accountancy program at the Faculty of Management Science, Princess of Naradhiwas University.

1. Population and Sample Group

The population and sample group for this research consist of 25 establishments that accept cooperative education students. These establishments are distributed as follows: 5 in Bangkok, 6 in Songkhla, 1 in Yala, and 13 in Narathiwat provinces.

2. Research Tools

The research instrument utilized in this study is a questionnaire designed to assess the satisfaction levels of businesses employing cooperative education students and professional experience trainees from the Bachelor of Accountancy program at the Faculty of Management Science, Princess of Naradhiwas University, during the second semester of the academic year 2565. The questionnaire underwent content validation by three experts, resulting in a high alpha coefficient of 0.96. It is structured into two main sections:

2.1. General Information of Respondents

Participants are required to provide demographic information, including Gender, Work Experience, Job Position Relevant to Cooperative Education Students, Type of Business, and Current Accounting Software Used by the Organization.

2.2. Satisfaction of the Organization with Cooperative Education Students

This section encompasses questions pertaining to various aspects, including Job Performance, Professional Accounting Knowledge and Skills, Proficiency in Using Accounting Software, Responsibility towards Duties, Personal Characteristics, and Management of Cooperative Education Reports and Utilization of Benefits.

3. Data Collection Method

Quantitative data collection was carried out using an electronic questionnaire distributed via Google Form. The questionnaire link was directly transmitted to respondents via email and the Line application.

4. Data Analysis Method

Data analysis and processing were conducted using the statistical software Jamovi (The Jamovi project, 2022). Statistical analyses were performed to derive various statistics related to satisfaction across six aspects: job performance, proficiency in using accounting software, responsibility towards duties, personal characteristics, and preparation of cooperative education reports. Descriptive statistics, including frequency distribution, percentages, mean, and standard deviation, were employed for analysis purposes.

Results and Discussion

The demographic analysis of questionnaire respondents reveals a predominance of females, comprising 96% of the sample, totaling 24 individuals. Moreover, the majority of respondents possess work experience exceeding 11 years, constituting 64% of the sample. In terms of job positions, cooperative education advisors represent the primary role, accounting for 56% of respondents. Regarding business types, accounting office establishments prevail, encompassing 44% of the surveyed organizations. Notably, the predominant accounting software utilized by organizations is the Express accounting software, adopted by 48% of establishments. Additionally, a comprehensive examination of satisfaction levels among organizations towards cooperative education students enrolled in the Bachelor of Accountancy program at Princess of Naradhiwas University was conducted across six distinct aspects; however, detailed results are not provided herein.

Table 1: Summary of Satisfaction Levels in Various Aspects of Accounting Students Enrolling in Cooperative Education Course

Aspect	Mean
Job Performance	4.34
Professional Accounting Knowledge and Abilities	4.28
Proficiency in Using Accounting Software Programs	4.27
Responsibility Towards Tasks	4.46
Report Preparation and Utilization	4.40
Personal Characteristics	4.75

Regarding job performance results:

Ability to perform assigned tasks successfully within the specified time frame (work quantity) is highly satisfactory (mean = 4.44).

Satisfaction with the accuracy, completeness, and effectiveness of work performance (job quality) is also highly satisfactory (mean = 4.24).

In terms of professional accounting knowledge and abilities:

Satisfaction with professional accounting knowledge sufficient to perform assigned tasks is highly satisfactory (mean = 4.12).

The ability to learn and understand work practices correctly and quickly is highly satisfactory (mean = 4.48).

Satisfaction with communication and presentation skills is highly satisfactory (mean = 4.28).

Satisfaction with management, planning, and decision-making is also highly satisfactory (mean = 4.24).

In terms of proficiency in using accounting software programs:

Basic proficiency in using software programs is highly satisfactory (mean = 4.44).

Ability to perform tasks and apply them to the workplace is highly satisfactory (mean = 4.24).

Accuracy in using accounting software programs is good (mean = 4.32).

Ability to access all menus within the software system is highly satisfactory (mean = 4.20).

Ability to input, process, and present accounting data accurately is highly satisfactory (mean = 4.08).

Ability to solve basic usage problems is satisfactory (mean = 4.08).

Proficiency in performing tasks using accounting software programs for self-improvement is highly satisfactory (mean = 4.28).

Proficiency in using other software programs such as Microsoft Word, Excel is highly satisfactory (mean = 4.48).

In terms of responsibility towards tasks:

Interest and dedication to work have the highest average rating (mean = 4.60).

Reliability and trustworthiness are also highly rated (mean = 4.52).

Ratings in the high category are for responsiveness to instructions (mean = 4.48) and for the ability to initiate work independently (mean = 4.24).

For personal characteristics:

Good interpersonal relationships are highly satisfactory (mean = 4.72).

Discipline and respect for the organization, integrity in the accounting profession, moral and ethical behavior, willingness to support and sacrifice for overall benefits, personal appearance and presentation, and being receptive to others' opinions and able to work in teams are all highly rated (mean > 4.64).

Overall, satisfaction is highest in the personal characteristic aspect (mean = 4.75), followed by responsibility towards tasks (mean = 4.46), report preparation and utilization (mean = 4.40), job performance (mean = 4.34), professional accounting knowledge and abilities (mean = 4.28), and proficiency in using accounting software programs (mean = 4.27).

In terms of personal characteristics, employers perceive students to exhibit high levels of appearance, behavior, interpersonal skills, discipline, organizational culture adherence, ethics, morality, and punctuality. These findings resonate with previous studies by Chollada (2008), which highlighted employers' high satisfaction with students' interpersonal skills, honesty, teamwork, and alignment with university values. Additionally, the moral and ethical requirements identified by Benjarattananon (2017) is consistent with employers' expectations of honesty and integrity.

Regarding responsibility towards tasks, employers view students as demonstrating high potential, including responsibility, trustworthiness, interest, initiative, and responsiveness to instructions. These observations align with Karaket's *(*2013) assertion that students' task responsibility stems from enhanced knowledge and understanding gained through continuous cooperative education.

Concerning report preparation and utilization, employers rate students' reports highly, citing planning, consistency, and organizational benefits. These findings mirror Wijit, Rakchan & Suwanmanee's (2019) study, which found similar perceptions of students' reports at Hat Yai University.

In terms of job success, employers perceive students as highly capable, emphasizing both quantity and quality of work. This aligns with Karaket's *(*2013) findings regarding the influence of cooperative education advisors in monitoring student progress and resolving issues effectively.

Regarding professional accounting knowledge and skills, employers recognize students' high proficiency, including expertise in professional fields, academic knowledge application, practical operations, communication, decision-making, management, planning, and continuous skill development. These findings are consistent with Chan-ngam's (2016) study on employer expectations and satisfaction with accounting graduates.

Regarding proficiency in using accounting software, employers acknowledge students' high proficiency, particularly in basic software usage, problem-solving, and Microsoft Word and Excel skills. The prevalent use of Express accounting software by employers reflects alignment with market demand and educational curriculum choices.

Conclusions

Overall, the findings of this study highlight the high level of satisfaction among employers towards cooperative education students enrolled in the Bachelor of Accountancy program at Princess of Naradhiwas University. Employers express particularly high satisfaction with students' personal characteristics, responsibility towards tasks, report preparation and utilization, job performance, professional accounting knowledge and skills, and proficiency in using accounting software.

These findings underscore the effectiveness of the cooperative education program in preparing students for the demands of the accounting profession. The positive perceptions of employers regarding students' personal characteristics, such as interpersonal skills, ethics, and punctuality, reflect the program's success in nurturing well-rounded individuals who are not only academically proficient but also possess the soft skills necessary for success in the workplace.

Furthermore, the high ratings for responsibility towards tasks and job performance suggest that students are equipped with the necessary competencies to excel in their roles within organizations. Employers' satisfaction with students' report preparation and utilization underscores the practical relevance and quality of the cooperative education experience, aligning with previous research in this area.

The positive feedback regarding students' professional accounting knowledge and skills, as well as their proficiency in using accounting software, indicates that the curriculum effectively addresses the needs of the accounting industry and equips students with the requisite technical skills.

In conclusion, the findings of this study provide valuable insights into the perceptions of employers towards cooperative education students in the Bachelor of Accountancy program. These insights can inform future program development efforts aimed at further enhancing students' readiness for the accounting profession.

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ID 162
The Influence of Government Support on the Competitiveness of Startup Businesses in Thailand

Amaravadee Wongtep[1]*, Sasiwemon Sukhabot[2] and Idsaratt Rinthaisong[3]

[1] Faculty of Management Sciences, Prince of Songkla University; amaravadee24@gmail.com
[2] Faculty of Management Sciences, Prince of Songkla University; sasiwemon.s@psu.ac.th
[3] Faculty of Management Sciences, Prince of Songkla University; idsaratt.r@psu.ac.th

* Correspondence: amaravadee24@gmail.com

Abstract

The objective of this research was to study the antecedent and consequence factors of competitive advantage. The sample used for this research was 406 people of the startup business entrepreneurs in Thailand. The data were collected by questionnaires. The data were analyzed with Partial Least Square SEM (PLS-SEM). The findings revealed that competitive advantage connected innovation capability and government support together. Government support had a significant direct influence on innovation capability and had a significant direct influence on competitive advantage. In addition, the results showed that innovation capability had a significant direct influence on competitive advantage. It also found that government support had a statistically significant indirect influence on competitive advantage through the innovation capability. In conclusion, government support is the antecedent factor of competitive advantage.

Keywords: Entrepreneur, Startup, Government support, Innovation capability, Competitive advantage

Introduction

Startups are businesses that emphasize the use of technology to create innovation in both products and services. This allows them to rapidly expand their customer base and grow exponentially. As a result, entrepreneurs and investors around the world are increasingly interested in starting startup businesses. Successful startups abroad can grow into large companies and are recognized for their impact on changing the global business landscape, namely, Google Inc. and Facebook Inc. Startups are the most important job creators since the global economic downturn that began in 2009. They can employ 60-70% of the total workforce (Mayer et al., 2013). Currently, 80% of medium-sized and small businesses that have been able to develop into large businesses are startups, while the other 20% are other types of businesses (Potjanajaruwit and Girdwichai, 2019). Therefore, startups are very important to the overall economy. Due to, government support and promotion, startups have grown steadily. During 2014-2016, there were approximately 100-600 startup entrepreneurs in Thailand. In 2017, the number of startup entrepreneurs increased to more than 8,500 startups. The data from the Ministry of Commerce indicates that the number of startup entrepreneurs increased to 50,000 in 2022 (Australian Government Austrade, 2018) that has created over 15,000 jobs in startups. There are 35 startup incubation units, 35 universities, and over 6 billion baht in startup investments. It is believed that startups will be an important mechanism for driving the Thai economy in the future (Forbes Thailand, 2018)

However, it has been found that startups have a high failure rate of up to 90% (Pakphum Ruekamet, 2561) (Nanda & Rhodes-Kropf,2013) have shown that more than 75% of new businesses, especially startups in the United States, cannot survive in the competitive market due to a lack of strategic planning, a lack of knowledge about raw materials, and, most importantly, a lack of creativity in innovation. In addition, startups lack the application of technology to create new innovations. This is consistent with Okrah and Nepp (2018), who found that most unsuccessful startups fail to apply innovation. While Bogers (2012, pp. 110) found that innovation is an essential tool for startups to overcome the disadvantages of being new and small (Liability of newness and smallness). Therefore, startups that want to be successful need to apply the concept of innovative capability.

Government support is important for bolstering business operations and investment in startups. The government sector is considered a crucial player in fostering national development, providing ample potential to support entrepreneurs. This support includes opportunities for accessing funding sources, legal facilitation, business operations, market creation, personnel development, and enhancing the living and business environment for entrepreneurs, including location and technology utilization in basic or advanced business operations. Guidelines that the government sector can adopt to enhance the country's potential include setting policies, providing funding support, enacting appropriate laws for efficiency, and attracting a large number of entrepreneurs and investors to invest in startups Samran and Nutchapong (2020).

The new Startup business era's technological advancements have caused the world to shift quickly, drastically altering labor processes and giving rise to new and creative company methods. Startup 4.0 might, in this fictitious case, boost output, improve productivity and launch new products and services. In today's technology-driven business environment, modern technology has increased commercial possibilities and given organizations a competitive and inventive edge that is necessary to stay competitive Dewi (2020). Startups in Thailand have a high growth rate and are expected to stimulate the country's economy further. As a result, the government has introduced various policies to support startups or the adoption of modern innovations in various industries to increase income, create new businesses, generate jobs, and sustain business growth**.**

Innovative capability and competitive advantage are key factors for startup success and global recognition. Any business that cannot invest in research and development to create new innovations will not be able to survive. This includes government support for research and funding (Okrah and Agbozo, 2018). Innovative capability will become an important part of all businesses, especially startups. (Khorshid, 2019). In the past, there has been no research on the impact of innovative capability on government support. However, some studies have examined the impact of innovative capability on competitive advantage (Anuwat Songsom, 2560). Some research has also examined the impact of innovative capability on the performance of startups (Okrah & Agbozo, 2018). However, there is still a lack of research that does not examine the impact of government support, innovative capability, and competitive advantage.

Moreover, a review of the literature reveals a gap in research. Some researchers have studied the impact of innovative capability on startup performance, while others have studied the relationship between other factors, not innovative capability, and startup performance. However, there is a lack of research on the relationship between government support, innovative capability, and competitive advantage. Therefore, the researchers are interested in studying the impact of these variables in order to develop strategies, projects, and action plans to present to relevant agencies to develop mechanisms to support startup entrepreneurs to improve their performance and growth, which will have an impact on the overall economy of the country.

Literature review

In today's dynamic business landscape, entrepreneurs face the challenge of formulating effective business strategies that enable rapid adaptation and excellence (Nurjaman, Rahayu, Wibowo, Widjajani, & Mujiarto, 2021). Resource-based approaches play a critical role in crafting these strategies, emphasizing the importance of leveraging valuable, rare, inimitable, and non-substitutable resources to establish sustainable competitive advantages (Iruthayasamy, 2021). This study adopts the Resource-based View Theory (Barney, 1991) to investigate how intangible resources of startups can be transformed into competitive advantages. By integrating and applying this theory to the intangible resources of startups, the study highlights the potential of these resources to create a unique and defensible position in the market (Bank, 2020). Companies utilize various capabilities to establish competitive advantages, aligning with the Resource-based View Theory. These capabilities include: Innovation capability (Hanelt et al., 2021; Skordoulis et al., 2020; Waqas, Honggang, Ahmad, Khan, & Iqbal, 2021): The ability to generate novel processes or products. Technology and innovation capabilities influence competitive advantage by introducing new knowledge and concepts for product and service development (Chutiwong & Kertsri, 2011).

Methodology

1. Population and sample

1.1 Population

The population used in the study was startup business entrepreneurs in Thailand. The total of 1,680 respondents National Innovation Agency (2022).

1.2 Sample

The rule of thumb is equivalent to saying that the minimum sample size should be ten times the maximum number of arrowheads pointing at a latent variable anywhere in the PLS path model Hair et al., (2013). However, PLS-SEM, like any statistical technique that requires researchers to consider the sample size against the model's background and data characteristics (Hair et al., 2011; Marcoulides & Chin, 2013). Specifically, the required sample size should be determined by effect size or R2 Cohen (1992). and means of power analyses Hair et al., (2013). based on the part of the model with the largest number of arrows pointing at a construct. In this study, 406 people were responded, accounting for 34.58 percent of the questionnaires. Which is sufficient for PLS-SEM analysis Hair et al., (2013).

1.3 Research instruments

Data were collected by questionnaires. The research variables are as follows.

- Government support (GS): The researcher used government support of Hudek et al. (2021). There were 5 questions. The questionnaire was 5-rating scales namely "never felt" to "always felt"
- Innovation Capability (IC): The researcher used innovation capability of Wang and Ahmed (2004). There were 19 questions. The questionnaire was 5-rating scales namely "never felt" to "always felt"
- Competitive Advantage (CA): The researcher used competitive advantage of Lestart et al. (2020). There were 12 questions. The questionnaire was 5-rating scales namely "never felt" to "always felt"

2. Data collection

Data collection was conducted using questionnaires sent via postal mail along with stamped envelopes for return. The process of data collection spanned three months, from January to March 2566 B.E. (2023 A.D.), and also utilized Google Forms.

2.1 Data analysis

The fundamental statistical analysis included Mean, Standard Deviation, and Pearson's Product moment Correlation Coefficient. In this analysis, the researcher used the reflective model to verify the quality of the measuring model by checking convergent validity. The researcher evaluated the measurement model based on the factor loading of the observable variable, which should be .7 or higher and the checking average variance average; AVE, which should be .5 or higher Fornell and Larker (1981). and checking composite reliability by considering rho coefficient, ρ_c with a value from .7 and above Chin (2009)

The research hypothesis is to check the structure model. The researcher analyzed the data with Partial Least Square SEM (PLS-SEM) by analyzing direct effect; DE), indirect effect (IE) and total effect (TE) of the antecedent variable and analyzed multiple correlations (R^2) and the impact of antecedent influences on consequence variables based on the f^2 value. It is a consideration when the antecedent variable is removed, the magnitude of the influence is. If the values were *0.02*, *0.15* and *0.35*, there was a small, medium, and large influence, respectively Cohen (1988) .

3. Research Framework

The researcher determines the symbols to represent variables as follows:

Government support (GS): encompasses operational assistance provided by the government sector, ensuring the efficacy and efficiency of governmental operations, and facilitating access to regulatory information and funding for projects, knowledge, and activities essential for conducting business efficiently Hudek et al. (2021).

Innovation Capability (IC): refers to a business's aptitude for generating acceptance through the utilization of novel ideas, processes, products, or services, constituting a vital resource that drives success. It comprises five elements: product, process, strategy, marketing, and behavior Wang and Ahmed (2004).

Competitive Advantage (CA): entails establishing a competitive edge for an organization, crucial for thriving in today's fiercely competitive market landscape. It comprises three elements: cost leadership, differentiation, and customer focus Lestart et al. (2020).

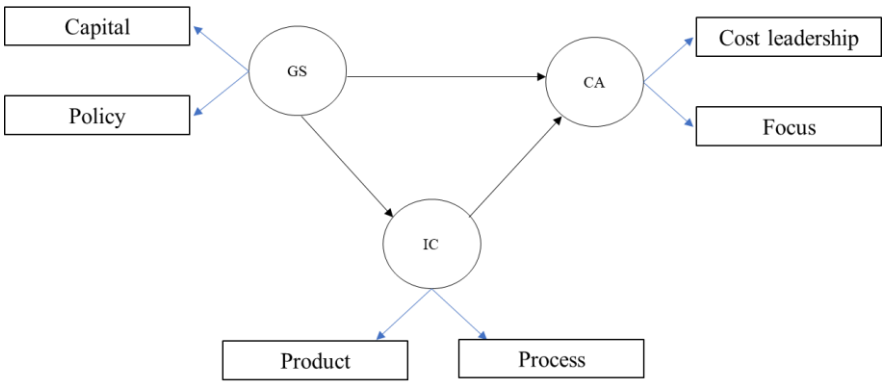

Figure 1: The model of the influence of government support on the competitiveness of startup businesses in Thailand

Results and Discussion

1 Basic statistics

The researchers analyzed the basic statistics consisting of the correlation coefficient (r), mean (mean) and standard deviation (S.D.) as shown in Table 1.

Table 1: Observed Variables of Correlation Coefficient (r), Mean (mean) and Standard Deviation (S.D.)

Variable	GS1	GS2	CL	FC	PC	PD
GS1	—					
GS2	0.508**	—				
CL	0.253**	0.216**	—			
FC	0.149**	0.171**	0.277**	—		
PC	0.276**	0.215**	0.277**	0.246**	—	
PD	0.213**	0.201**	0.312**	0.235**	0.340**	—
Mean	4.278	4.242	4.311	4.355	4.440	4.208
S.D.	0.568	0.493	0.406	0.396	0.357	0.303

Note. **Significant at the level of .01 significance.

From Table 1, it was found that the Pearson correlation coefficient between all the variables was between 0.149 and 0.508, which was statistically significant that correlated with the *.01* level, the mean was between *4*.208 and *4*.440**.** and the standard deviation (SD) is between 0.303 and 0.568.

2. Measurement model

The results showed that the latent variable had AVE between 0.6362-0.7537 and ρ_c was between 0.7768-0.8595 which was good Hair et al. 2017. The latent variable had AVE and ρ_c was higher than both criteria. When considering the discriminant validity, it was found that all AVE > R^2 values represented the measurement model for each latent variable with consistent validity and component confidence. It was believed that the measurement models in this research were of sufficient quality to analyze data with PLS-SEM .

3. Hypothesis testing

The research presented the results of Direct Effects: DE, Indirect Effects: IE and Total Effects: TE according to the conceptual framework in this research as shown in Table 2.

Table 2: The analysis results

Effect Model	Direct Effect (DE)			Indirect Effect (IE)			Total Effect	Cohen's f^2
	beta	S.E.	t-value	beta	S.E.	t-value		
GS -> IC	0.3205	0.0511	6.2694***	-	-	-	0.3205	0.1145
GS -> CA	0.1765	0.0439	6.6234***	0.1142	0.0206	5.5469***	0.2907	0.0349
IC -> CA	0.3562	0.0418	8.5209***	-	-	-	0.3562	0.1420
	IC			**CA**				
R^2	0.1030			0.1980				

Note: One tailed p-value, where * p <.05**,** ** p <.01**,** *** p <.001.

From Table 2, Government support had a significant direct influence on innovation capability (DE = 0.3205, t = 6.2694, p <.001) and had a significant direct influence on competitive advantage. (DE = 0.1765, t = 6.6234, p <.001) In addition, the results showed that innovation capability had a significant direct influence on competitive advantage (DE = 0.3562, t = 8.5209, p <.001). It also found that government support had a statistically significant indirect influence on competitive advantage (IE = 0.1142, t = 5.5469, p <.001) through the innovation capability.

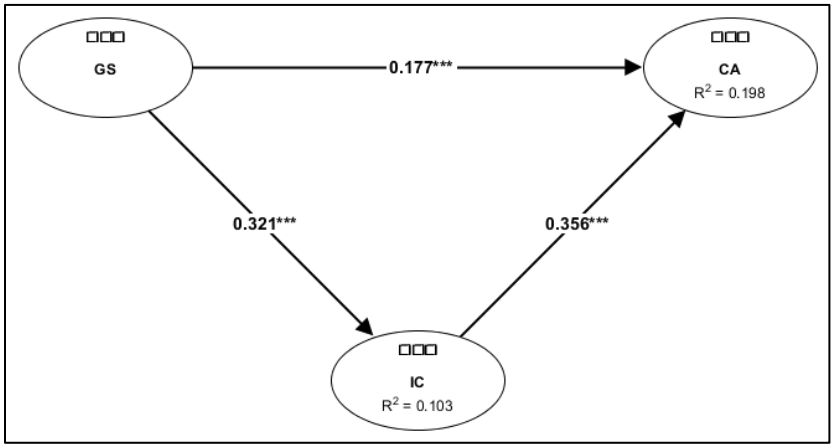

Figure 2: The analysis model of the influence of government support on the competitiveness of startup businesses in Thailand.

Conclusions and Suggestions

The findings revealed that government support had a significant direct influence on innovation capability (DE = 0.3205, t = 6.2694, p <.001) and had a significant direct influence on competitive advantage. (DE = 0.1765, t = 6.6234, p <.001) In addition, the results showed that innovation capability had a significant direct influence on competitive advantage (DE = 0.3562, t = 8.5209, p <.001). It also found that government support had a statistically significant indirect influence on competitive advantage (IE = 0.1142, t = 5.5469, p <.001) through the innovation capability. The government support was able to explain 10.30 percent variation in innovation capability (R^2 = 0.1030). While innovation capability was able to explain 19.80 percent variation in competitive advantage (R^2 = 0.1980). When considering the effect of antecedent factors on consequence factors when antecedent factors were excluded in the analysis model, it was found that the f^2 value was between 0.0349- 0.1420. It was demonstrated that antecedent factors affected the variable at a low to moderate level. In conclusion, government support is the antecedent factor of competitive advantage. While competitive advantage is consequence factors influenced by innovation capability and government support.

For the implications and contributions, the new knowledge gained from this study confirms that for startups, support from the government, competitiveness, and innovation play crucial roles in laying the groundwork for success. Innovation in startups can be achieved by innovating in product, processes, strategies, marketing, and behavior. Startups also rely on competitiveness as a key variable towards success, including leadership in costs, differentiation strategies, and niche marketing. In the success of startups, the government plays a significant role in terms of funding support and state projects. It is hoped that this study will drive the government to formulate strategies and policies to

foster the growth of startup entrepreneurs, while startup entrepreneurs themselves must strive to create competitive advantages and continuously develop technology for the sustainability and growth of their businesses.

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Resilience of Farmers Institutions to Survive in the Low Price of Rubber: A Case Study of a Farmer Institute Operating a Rubber Business

Khomsan Hlonglaloeng[1]* and Sasiwemon Sukahbot[2]

[1] Ph.D. students in the Doctor of Philosophy program in Management, Faculty of Management Science, Prince of Songkla University; caravan007_2@windowslive.com
[2] Associate Professor, Faculty of Management Science, Prince of Songkla University

* Correspondence: caravan007_2@windowslive.com

Abstract

This research study is qualitative research aimed at examining variables affecting the sustainability of rubber farmer institutions in five southern provinces of Thailand, namely Trang, Krabi, Songkhla, Nakhon Si Thammarat, and Surat Thani, totaling 30 institutions. In this research, rubber farmer institutions refer to cooperatives engaged in rubber business operations that have demonstrated good performance, have been in business for over 20 years, and have been able to sustain themselves amidst various crises i.e. resilience. The study utilizes in-depth interviews with open-ended questions to gather data. The interviewees consist of leaders of agricultural institutions, including chairpersons, vice-chairpersons, managers, and committee members, with at least one representative from each institution. These individuals were selected based on their responses indicating moderate to high levels of sustainability according to Bloom's (1971) criteria. The collected data were categorized into thematic categories and analyzed through content analysis. The credibility and validity of the data were confirmed using the Reviews Triangulation method. Representatives from all five provinces were invited to participate in reviewing and supplementing the data to ensure accuracy and completeness. From the study, the variables affecting the resilience of rubber farmer institutions can be summarized as follows: 1) Leadership 2) Governance 3) Business operations diversity 4) Ownership 5) Teamwork 6) Welfare benefits

Keywords: Agricultural institution, Organizational resilience

Introduction

Natural rubber is a significant economic crop in Thailand. Thailand is the world's largest producer and exporter of natural rubber. In the year 2023 (B.E. 2566), Thailand exported the highest quantity of natural rubber to China, totaling 516,359 metric tons, accounting for 38.64% of global exports. Malaysia followed, accounting for 10.70%, then Japan at 8.75%, the United States at 8.73%, and South Korea at 4.60% (Wiparaya, 2017). Despite bringing substantial revenue into the country, rubber farmers, who are the primary producers, continue to face various challenges. These challenges include plummeting rubber prices due to the global rubber market's buyer-oriented structure. Thai rubber entrepreneurs use international rubber prices as reference prices for domestic trading, which leads to fluctuating prices in the actual market (Kritsani, 2014). As a result, rubber farmers have been facing hardships due to declining rubber prices, leading to protests to urge the government to intervene and address the issue. Consequently, the government has promoted and supported the formation of agricultural institutions, such as cooperatives and farmer groups, to increase the value of rubber products, negotiate prices, solve the problem of low rubber prices, and improve the quality of rubber sheets to meet market demand and command higher prices. However, these agricultural institutions themselves encounter various challenges, especially during times of rubber price crises. Agricultural institutions face losses as smoke-sheet rubber production takes several days before reaching the selling stage, and prices continuously decline. Additionally, agricultural institutions bear high production costs, including

labor, logging, and acid costs. Moreover, in terms of institutional management, agricultural institutions lack effective supervision and auditing systems, resulting in opaque management practices, member distrust, and leaders' inability to address these issues. Consequently, many agricultural institutions fail to sustain themselves and eventually close down.

In the past, research was conducted and frameworks were designed to sustain organizational resilience. For example, Alliger et al. (2015) stated that organizations that sustain themselves can anticipate challenges and plan to address conflicts before they arise or at the earliest stages as the first step in managing difficult situations. They can help reduce, minimize, or even avoid the impact of unexpected events. Additionally, Bhamra et al. (2011) mentioned that future research on organizational resilience should focus on topics such as measuring organizational resilience and key features of organizational resilience, which align with the research that the researchers have studied to provide guidelines for agricultural institutions to adapt in situations of low rubber prices and fluctuations. There is a few of researches on the sustainability of agricultural institutions, and historically, these institutions have shown minimal adaptation. For example, Pruesa et al. (2018), the researcher found that this research could significantly benefit agricultural institutions and contribute to academic knowledge. Given the challenges outlined above, the researcher is interested in studying the variables that impact the organizational resilience of agricultural institutions.

Literature Review

Development of the Conceptual Framework for Institutional resilience Concepts related to Agricultural Institutions: Agricultural institutions refer to groups or organizations that arise from groupings (Royal Institute, 2020) and have specific, clear characteristics or provide benefits to groups in their professions (Patharinsri et al., 2015). These institutions are legally registered by the Department of Agriculture Promotion, Ministry of Agriculture and Cooperatives, which is the amalgamation of farmers to collectively gather agricultural produce for price negotiation (Asawatep et al., 2019). Examples include rubber fund cooperatives, agricultural cooperatives, cooperative unions, and farmer groups. For this research, the focus group is on agricultural institutions that are cooperatives engaged in rubber farming business, duly registered in accordance with the law, and involved in the rubber industry.

Concepts and Theories of Organizational resilience

Organizational resilience refers to an organization's ability to adapt and recover from increased changes and sudden disruptions (Gittell, 2008), in order to return to a state of normalcy after facing crises (Linnenluecke, 2017). It helps organizations to survive and achieve success. Based on a literature review on organizational resilience, four components can be identified: 1) Adaptation (Linnenluecke, 2017), 2) Collaboration (Zutshi et al., 2021), 3) Leadership (Sawalha, 2015), and 4) Business network (Wipawal, Limpaiboon, et al., 2019).

The objective of this article is to study variables that affect the resilience of agricultural institutions engaged in rubber farming businesses.

Methodology

Step 1: Data Collection Using In-depth Interviews

In this step, data will be collected through in-depth interviews with targeted individuals from agricultural institution leadership positions, including the chairperson, vice-chairperson, manager, and committee members, from 30 agricultural cooperatives across five provinces in the southern region of Thailand (Trang, Krabi, Surat Thani, Nakhon Si Thammarat, and Songkhla). Each cooperative will be represented by 1-2 individuals. The targeted cooperatives are those demonstrating good performance, profitability, and having operated for over 20 years. The selection of cooperatives meeting these criteria will be conducted by the Cooperative Offices of the respective provinces. For the data collection tool, interviews were utilized. The researcher gathered relevant content from documents, electronic databases, theoretical frameworks, and related research works to develop a preliminary interview instrument. This instrument was then presented to three advisors, including the academic supervisor and qualified experts, for content validation and refinement based on their feedback. The finalized interview instrument, divided into three sections, was then prepared for use in interviewing the target group.

Section 1: General Information of Respondents

Section 2: Interview on the Resilience Strategies of Agricultural Cooperatives to Survive in the Face of Declining Rubber Prices: Investigating the Case of Agricultural Cooperatives involved in Rubber Production. The questionnaire consists of 4 questions as follows:

Question 1: Organization's background/history, organizational management, current problems, limitations, and organization's needs.

Question 2: When facing various crises such as low rubber prices, how does the organization adjust?

Question 3: In the past, which agencies have supported/collaborated with the organization, and how did they provide support or collaborate?

Question 4: Do you think your organization will survive in the next 10 years?

- Survive: What percentage? And why?
- Unable to survive: Why?

Section 3: Recommendations for improving and developing strategies for resilience of agricultural institutions amidst low rubber prices: A case study of agricultural institutions engaged in the rubber business.

Step 2: Categorize data obtained from interviews into thematic categories and conduct content analysis to identify variables affecting the sustainability of agricultural institutions; subsequently, validate the credibility and validity of the data or findings through the review triangulation method.

Representatives from the target group of 143 individuals, selected based on Bloom's (1971) criteria for moderate and high survival rates, were invited to participate in this review. The researcher presents the analyzed data and allows representatives to collaboratively review and supplement the information to confirm its credibility.

Representatives from the target group of 14 individuals which comprises 7 individuals from Group 1, consisting of administrators from the agricultural institution, provided interview data indicating that the institution has a high survival rate, with 7 individuals (80-100% survival rate) and individuals from Group 2, comprised of administrators from the agricultural institution, provided interview data indicating that the institution has a moderate survival rate, with 7 individuals (60-79% survival rate). They utilized Bloom's (1971) criterion-referenced assessment criteria to further examine and enhance the completeness of the data.

Results and Discussion

Based on interviews with agricultural institution leaders, it was found that the majority are male, aged between 40 and 70 years old. Most of them were previously members of cooperatives before becoming leaders, which gives them experience and understanding of cooperative management. From the data analysis, it can be concluded that the context of agricultural institutions that can sustain themselves in periods of low rubber prices.

1) Businesses with over 20 years of operation, mostly established around 1994-1995, often received government funding to build rubber processing plants aimed at increasing the value of rubber production and addressing the issue of low rubber prices.

2) The management structure is clearly defined, typically consisting of a cooperative president, vice president, cooperative board members, cooperative manager, and auditor, each serving a term of two years with a maximum of two consecutive terms. Management operates transparently and is subject to scrutiny.

3) Engaging in more than one business venture, besides rubber-related activities, targeted cooperative groups also operate various other businesses concurrently, including:

- Fertilizer blending business for distribution to members.
- Procurement and distribution business for products such as rice, chemical fertilizers, formic acid, acetic acid, agricultural chemicals, and agricultural equipment and materials.
- Credit business providing deposit and withdrawal services.
- Oil palm purchasing business.
- Distribution point for Thailand's Rubber Authority's fertilizers to farmers.
- Acting as a middle-market network for purchasing smoked rubber sheets and field latex rubber sheets.
- Other businesses such as purchasing dried betel nuts and offering garden plowing services.

4) Members have mutual trust and a sense of collective ownership, with participation in various forms within the cooperative, including:

- Consistently selling rubber to the cooperative, regardless of price fluctuations, as a regular practice.
- Members supporting products procured by the cooperative for sale due to their affordability, proximity, and alignment with members' needs, thereby generating income and profits for future dividends.
- Members receiving capacity development through training organized or coordinated by the cooperative, such as proper rubber tapping techniques and sustainable rubber garden management by the Rubber Authority of Thailand.
- Cooperatives regularly disseminating information to members to ensure equal awareness of benefits and welfare they receive.
- Cooperatives providing opportunities for members to contribute ideas, suggestions, and needs through monthly meetings, annual general meetings, New Year celebration events, and Cooperative Day celebrations.

5) Providing welfare to members and contributing to society, every cooperative offers various forms of member welfare and social assistance summarized as follows:

- Compensation for members' medical treatment and hospitalization expenses in case of illness.
- Funeral expenses and condolences for members in the event of death.
- Education fund for members' children with good academic performance.
- Annual profit sharing.
- Educational field trips.
- Training programs for skill development in various areas.
- Rights to purchase products at discounted prices from the cooperative.
- Additionally, cooperatives contribute to society through activities such as providing educational scholarships, awarding prizes on Children's Day, contributing to charitable works, supporting temple construction, repairing public roads, and donating to disaster relief funds.

6) Managers have a vision and work as a team. From interviews, it was found that successful cooperatives owe their success partially to having visionary managers with foresight, knowledge, and adaptability in various crises. They work and make decisions collectively as a team, whether in the aspects of rubber trading, business expansion, or problem-solving within the cooperative. Management within the cooperative yields profits and coordinates with both government and private sectors to actively participate in supporting cooperative operations.

The problems and limitations of agricultural institutions.

From interviews with 30 cooperatives in 5 southern provinces, it was found that all cooperatives faced similar problems and limitations as follows:

1) Decrease in the supply of raw rubber latex due to a reduction in rubber cultivation areas, with farmers shifting to oil palm cultivation due to lower disease incidence and higher prices. Some farmers also switched to durian cultivation due to its strong economic viability and high value.

2) Narrow price differentials between raw rubber latex and smoked rubber sheets resulted in low profits for cooperatives, sometimes leading to no profits at all during certain periods.

3) High production costs, including increased prices of wood for smoking, formic acid, and citric acid, as well as rising labor costs. When cooperatives have to bear higher production costs, their profits decrease.

4) High business competition, with several private buyers of raw rubber latex in nearby areas providing farmers with more options, especially during periods of higher rubber prices, leading to intense competition.

5) Inability of cooperatives to set their own rubber prices.

6) Regulatory constraints hampering cooperative operations, such as restrictions on purchasing raw rubber latex only from members and prohibiting purchases from external parties.

7) Lack of continuous government support for various projects, resulting in surplus rubber products without proper distribution channels, leading to losses for cooperatives.

8) Lack of full assistance from relevant agencies when cooperatives face various problems, forcing them to overcome crises on their own, which sometimes leads to closures.

9) Rubber plantations of members facing recurring diseases every year, with related agencies unable to efficiently address these issues, resulting in reduced production and quality of rubber latex.

The needs of agricultural institutions are as follows:

From interviews with all 30 cooperatives across 5 provinces, it was found that each cooperative has different needs as follows:

1) Expansion of additional businesses to increase income streams for the cooperatives, such as establishing businesses for purchasing oil palm, bottled water production, gasoline stations, and credit services.

2) Improvement and development of production capabilities, including increasing the number of rubber tapping stoves, upgrading wastewater treatment facilities to meet standards, repairing rubber sheet processing facilities to maintain good condition and standards compliance with Good Manufacturing Practice (GMP), and expanding block compression plants.

3) Increasing the value of rubber by producing smoke-mixed chemical rubber and manufacturing rubber products such as flip-flops and synthetic mats from para rubber.

4) Genuine and continuous support from the government sector, playing a supportive role in listening to and solving problems together with the cooperatives, not leaving them to face problems alone until they are forced to close operations**.**

From the data analysis conducted through thematic categorization and content analysis of the interviews, six variables affecting the sustainability of agricultural cooperatives were identified:

1. Leadership qualities identified from the interviews include:

- Visionary and Analytical Skills: Able to foresee market trends and accurately analyze the ups and downs of rubber prices.
- Honesty and Transparency: Regularly audits financial records, ensures equal access to information for all members, complies with cooperative regulations, and undergoes rigorous financial audits.
- Management Expertise and Networking: Possesses knowledge, skills, and experience in management, collaborates with both public and private sector networks, and is trustworthy and decisive. Also, embraces new technologies and innovations.
- Proactive Approach: Engages in regular member feedback, seeks additional business opportunities, explores markets for optimal returns, and adapts to changing circumstances, such as selling rubber in advance during price declines or switching to fresh rubber sales to maintain workforce income. Additionally, explores value-added rubber products like compressed rubber blocks.

In summary, leaders play a crucial role in guiding organizations to achieve their objectives and goals, especially during periods of low rubber prices. They rely on individuals with knowledge, capabilities, experience, and the ability to adapt appropriately to lead the organization to survive amidst the low rubber price situation.

2. Governance from interview findings reveals the following patterns:

1) Governance by related agencies comprises:

1.1) Provincial Cooperative Office acts as registrar overseeing cooperative adherence to laws and regulations.

1.2) Cooperative Auditing Office establishes systems and conducts biannual audits of cooperative accounting.

1.3) Department of Cooperative Promotion advises and mentors cooperatives, offering consultation and guidance.

2) Governance by auditors involves comprehensive assessment of cooperative operations, including accounting systems and business activities. Auditors, who must be cooperative members, undergo training from the Cooperative Auditing Department. Each cooperative must have at least one auditor.

2.1) Governance by cooperative presidents, managers, and board members entails:

2.1.1 Daily inspection of rubber trading to prevent fraud.

2.1.2 Segregating member shares and deposit accounts to prevent misuse within cooperatives.

2.1.3 Tracking non-selling member activities to address issues and provide solutions.

2.1.4 Ensuring equitable information disclosure to all members.

In summary, governance is crucial in terms of ensuring compliance with various laws and regulations, conducting accurate audits, overseeing the operations of cooperatives in all aspects to prevent corruption, continuously monitoring members, and ensuring equal disclosure of information to all members.

3. Business operation of diversity Based on the interviews, cooperatives primarily engage in para rubber-related businesses, such as purchasing raw rubber latex for processing into smoked sheet rubber, and some produce block rubber (Crepe Rubber). They also manufacture various rubber products like para rubber pillows, mattresses, signposts, and barriers. Additionally, almost every cooperative conduct other business alongside rubber operations:

- Fertilizer blending for distribution to members.
- Procurement and sale of various products such as rice, chemical fertilizers, formic acid, and ascorbic acid, agricultural chemicals, and agricultural equipment.
- Credit services including deposit and withdrawal facilities.
- Purchase of oil palm.
- Distribution of Thailand's Rubber Authority's fertilizers to farmers.
- Acting as a network market for purchasing smoked sheet rubber and block rubber.
- Miscellaneous activities such as purchasing dried betel nuts and providing garden plowing services.

In summary, diversification in business operations is crucial and highly necessary. Diversifying business ventures not only reduces risks but also provides multiple revenue streams. Having a diversified portfolio of businesses mitigates the impact of low returns in one sector, as other businesses can support and balance overall income.

4. Ownership from the interviews, members feel a sense of collective ownership through:

- Encouraging shared ownership and mutual benefits by providing equal opportunities for members to participate, contribute ideas, plan together, and access information equally.
- Working as a team, making decisions collectively, listening to each other's opinions, such as in advance rubber selling, recruiting new members, and allocating various benefits.
- Respecting and honoring each other, being sincere and avoiding power struggles or egotism.
- Internal communication through regular monthly meetings, annual general meetings, and consistent member follow-ups.
- Developing capabilities and fostering interrelations, such as sending staff for GMP standard training, rubber grading, accounting system training, sustainable rubber plantation management, rubber tree maintenance, and ethical tapping. Additionally, there are study tours, National Cooperative Day activities.
- Contributing to society and promoting community involvement through awards and scholarships for children's activities, weaving and fabric making, disaster relief donations, temple construction funds, and public road repairs.

In summary, fostering a sense of collective ownership among members is a powerful strategy to cultivate love and commitment within an organization. Encouraging members to invest both physically and emotionally in the institution strengthens its stability and longevity, making it resilient and sustainable.

5. Teamwork from the interviews, the team-oriented working pattern is reflected in:

1) Joint decision-making in cases of rubber trading, expanding new business ventures, operational planning, member tracking, and problem-solving.

2) Division of roles and responsibilities according to suitability in various production processes, purchasing, rubber price analysis, coordination with relevant agencies, and daily rubber trading account auditing. These practices emphasize collaboration and teamwork among members to ensure effective decision-making, efficient operations, and problem resolution.

Working as a team is of utmost importance as it highlights the significance of collaboration and collective effort within an organization. It facilitates achieving common goals, making joint decisions, and effectively addressing complex problems due to the division of tasks and collaborative efforts. Overall, teamwork plays a crucial role in building an efficient and sustainable organization amidst continuous change.

6. Welfare benefit from the interviews, it was found that cooperatives provide various forms of welfare benefits to their members, including:

- 1.Yearly dividend payments.

- 2.Compensation for members' medical expenses and hospital stays due to illness.
- 3.Funeral expenses in the event of a member's or their spouse's death, including the provision of a funeral bier.
- 4.Providing educational scholarships for members' children who demonstrate academic excellence.

Providing welfare benefits to members is crucial within an organization as it significantly impacts their satisfaction and willingness to remain associated with the agricultural institution. Offering good welfare benefits fosters a sense of loyalty among members, which is a key factor in retaining high-quality members and reducing turnover within the agricultural institution.

Conclusions

The objective of this research was to study the variables affecting the sustainability of agricultural cooperatives engaged in rubber-related businesses through in-depth interviews using open-ended interview guides. Subsequently, the data obtained from the interviews were categorized into thematic categories and analyzed through content analysis. To ensure credibility and validity, data were triangulated using the review triangulation method.
The study found that the variables affecting the sustainability of agricultural cooperatives are as follows:

1*)* Leadership 2*)* Governance. 3*)* Business operations diversity. 4*)* Ownership 5*)* Teamwork. 6*)* Welfare benefits.

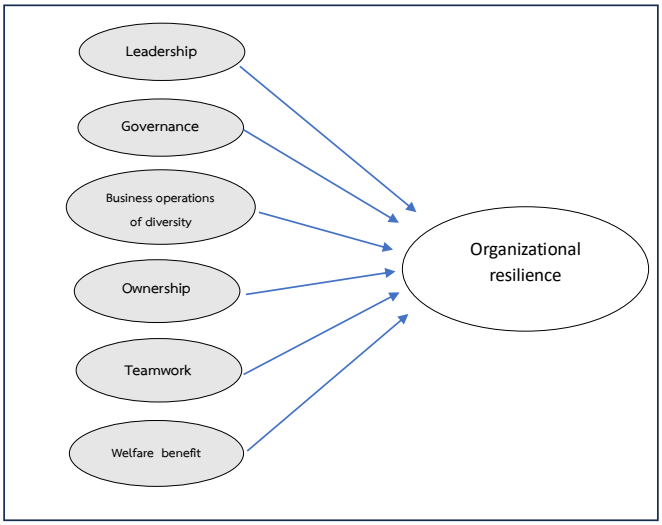

Figure 1: Conceptual framework

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ID 142
Financial Management Strategies for the Funding Support of a Community Business Start-Up Loan: A Case of Cho-Ai-Rong's Durian Paste

Haida Sudinpreeda[1]*, Nifateehah Pattanawong[1] and Natewadee Petpradub[1]

[1] Department of Accountancy, Faculty of Management Sciences, Princess of Naradhiwas University

* Correspondence: Haida.m@pnu.ac.th

Abstract

The purpose of this qualitative study is to investigate the financial management practices of durian paste business enterprises in Narathiwat's Cho-Ai-Rong district and explore strategies for accessing funding from a Business Start-up Loan. To gather data, the study employed in-depth structured interviews as a data collection tool with key informants from 9 entrepreneurial groups. The tool was previously reviewed by the experts. The findings indicated that the entrepreneurs lacked systematic financial management practices, such as maintaining financial records and creating financial plans, which are crucial for obtaining support from the loan scheme. This deficiency not only impedes entrepreneurs' ability to understand their income and profits but also deprives them of proper financial management knowledge. To acquire the community business start-up loan, the study recommends the following financial management approaches: (1) designing financial documents in the correct format, (2) developing a comprehensive community business plan, (3) evaluating performance during operational cycles, and (4) collaborating with government and private sector networks to enhance the communities. These approaches are expected to help the entrepreneurs enhance their community business plans, create products that meet the global market's requirements, and elevate their businesses to the level of "community businesses". Additionally, the research recommends presenting proposals through community platforms.

Keywords: Financial management, Strategy, Community business start-up loan, Durian paste

Introduction

Thailand has encountered numerous economic crises throughout its history, leading to multifarious challenges experienced by individuals across all strata of society. Among the affected groups, grassroots citizens represent a substantial segment of the country's population. Each government administration has consistently prioritized addressing economic predicaments at the grassroots level to confront poverty, enhance the quality of life for the majority of the populace, and attain sustainable development and well-being. A noteworthy example of this approach involves the establishment and advancement of diverse occupational groups that cater to the aptitudes and wisdom inherent within the community, thereby incentivizing individuals to pursue livelihoods that generate income. This multifaceted approach aims to foster favourable living conditions, bolster self-esteem, and facilitate enduring development, consequently engendering robust and self-sufficient communities (Piyachat, 2019). As a response to the aforementioned challenges, the government has implemented measures aimed at resolving these issues. This has involved the allocation of budgetary resources to provide support and the deployment of government agencies across various sectors to actively engage in developmental endeavours. The overarching objective is to establish a solid foundation within each community, thereby enabling every village to achieve long-term self-reliance and attain an improved quality of life (Langkulsen, 2011). Community enterprises serve as a means to foster economic development by bringing together community members to engage in business activities encompassing product manufacturing, service provision, and other ventures. These activities are undertaken by a collective of individuals sharing a common way of life who assemble with the purpose of conducting such entrepreneurial endeavours. These enterprises, whether

structured as legal entities or informal associations, aim to generate income and foster self-reliance at the family level. Historically, the government has prioritized the advancement of community enterprises with the objective of realizing predetermined goals. This support has been extended through financial assistance and knowledge dissemination pertaining to product development. The intention behind these initiatives is to facilitate the progression and elevation of community enterprises into higher-tier business entities. Nevertheless, numerous community enterprises encounter significant challenges that impede their ability to achieve the established objectives. Such obstacles include difficulties in management, marketing, finance, accounting, and securing government support. Consequently, efforts must be devoted to enhancing knowledge and skills in these areas to promote the development of community enterprises (Promsakha Na Sakolnakorn & Sangkharat, 2013).

Narathiwat province has been identified as one of the designated regions within the southern border area, as determined by the Office of the National Economic and Social Development Council (NESDC). This selection is based on factors such as the profound impact of the COVID-19 pandemic and the readiness of provinces to engage in area development mechanisms, as well as the imperative for continuous operation. Through a Focus Group Discussion involving relevant stakeholders, an examination of COVID-19's repercussions on the agricultural sector and the exploration of development models for problem-solving have shed light on the plight of agricultural entrepreneurs in Narathiwat province. They have been identified as the most adversely affected group and thus require targeted development efforts to address these challenges effectively. Furthermore, among the group of entrepreneurs in Narathiwat province, the foundation entrepreneurs engaged in the processing of agricultural products, specifically durian, have emerged as the most feasible and prepared to contribute to the overall development efforts. Their existing infrastructure, expertise, and market presence make them well-positioned to actively support and drive developmental initiatives in the region.

Within Narathiwat province, Cho-Ai-Rong District stands out as the primary hub for durian processing enterprises. This district not only holds the distinction of being the largest durian processing area within Narathiwat province but also potentially within the entire southernmost provinces of Thailand. It is categorized as a community enterprise specializing in the processing of durian products, particularly in the form of durian paste. The prevalence and significance of durian processing activities in Cho-Ai-Rong District underline its pivotal role in the regional economy and highlight its potential as a centre for durian-related industries.

Through an assessment of the financial circumstances of durian processing product operators in Narathiwat province, it was discovered that nine groups of entrepreneurs were interviewed to gather their perspectives. The findings revealed that all of these entrepreneur groups encountered challenges in accessing funds required for working capital, raw material procurement, and business expansion. Additionally, restrictions were observed in terms of augmenting production capacity and enhancing the development of the production process. These issues hinder the advancement of product quality to meet market demands and impede competitiveness within the marketplace. One of the primary reasons why entrepreneurs face challenges in accessing financing is their failure to adhere to accounting standards and formats mandated by the law. For instance, inadequate cost calculations, neglecting to account for asset depreciation, and not including machinery and labour costs in product costing calculations contribute to the underestimation of product costs. Consequently, the credibility of performance calculations is compromised. Furthermore, entrepreneurs often fail to comply with the accounting requirements outlined in the Revenue Code (Tax Law), which stipulates that business operators are liable for personal income tax payments and must prepare accounting records or report daily income and expenditure using the prescribed format mandated by the law.

Despite the existence of accounting entries among durian pasting operators in Cho-Ai-Rong District, it has been observed that these entries are not entirely accurate. Consequently, the entrepreneurs lack a clear understanding of their business's actual performance and financial status. While they may perceive profits from their goods' sales, the reality is that they are experiencing financial losses. As a result, they face difficulties in utilizing the prepared accounting statements as evidence when seeking loans from various financial sources or institutions.

In light of these challenges, the research team must expedite the resolution process by enhancing the financial capabilities of these entrepreneurs. This will enable them to access financing opportunities and effectively manage their businesses.

Methodology

In this research endeavor, we meticulously employed a qualitative research methodology to investigate the subject matter. The comprehensive elucidation of our methodology is delineated below:

Sampling technique and sample size

The study encompassed a targeted group of entrepreneurs engaged in durian processing products within Narathiwat province. The selection of representative participants adhered to a specific sampling approach, resulting in the inclusion of the following individuals: 1) A cohort of five individuals associated with *Ilyas Durian pasting*; 2) A group of five individuals affiliated with *Aslan Durian pasting*; 3) A cluster of five individuals linked to *Bang Loh Durian pasting*; 4) A group of twenty individuals comprised of farmers' housewives from Ban Bukit, specializing in durian pasting and dried garcinia (*Housewives Durian Pasting and Dried Garcinia Group of Ban Bukit*); 5) Two individuals affiliated with *Ming Durian pasting*; 6) Twelve individuals engaged in durian pasting from Ban Bakit (*Ban Bukit's Durian Pasting Group*); 7) A group of five individuals involved in *Sawdoh Durian pasting*; 8) A ten-person cohort from the *Bukit Fruit Processing Group*; and 9) A group of five individuals associated with *Bukit Budo Durian pasting*. All sampled individuals were located within the designated target area of development, aiming to extract valuable insights regarding financial management guidelines for fostering community-based business loans.

Tools for data collection

The employed methodological tools in this investigation encompassed semi-structured interviews and observations, thoughtfully designed to align with the research objectives. The comprehensive elucidation of these tools is provided below:

Semi-Structured Interview

The data collection process employed a semi-structured interview approach aimed at gathering pertinent information. The interview sessions were guided by a set of carefully constructed questions designed to address the research objectives and elicit valuable insights regarding the financial management practices and guidelines for community-based business loans.

The first set of questions focused on assessing the financial management condition of the group. Participants were inquired about the organization of financial documents within the group, aiming to gain an understanding of the existing practices in place. Furthermore, the interviews aimed to explore the components of the current Financial Plan, shedding light on its comprehensiveness and effectiveness.

Moving forward, the interviews delved into the guidelines for financial management in the context of community building business loans. Participants were probed regarding their knowledge and understanding of accounting principles, assessing their familiarity with fundamental concepts. The processes involved in issuing accurate financial documents were examined, seeking insights into the practices employed by the participants. Additionally, the interviews aimed to gather information on data review practices to facilitate the creation of a comprehensive community business plan.

Another aspect explored during the interviews was the evaluation of the implementation cycle and the establishment of cooperative relationships in community development. Participants were encouraged to share their experiences and insights on collaborative efforts with network partners from both the public and private sectors. The carefully crafted questions utilized in the semi-structured interviews aimed to ensure that a comprehensive range of topics related to the research objectives was covered. Through these interviews, valuable data was collected, providing insights into the financial management practices and guidelines for community-based business loans.

Observation

This phase of the study involved observing the accounting records, books, and supporting documents pertaining to the community enterprises' financial transactions. Additionally, attention was given to the physical location of the books and related documents, as well as the storage areas designated for goods, raw materials, and assets within the community enterprises.

Data analysis

Data analysis in this research entailed the execution of a content analysis approach on the financial management condition of durian pasting operation (in the formation of a local business enterprise) located in the Cho-Ai-Rong District of Narathiwat Province. The data for analysis were derived from interviews, as well as observations and the utilization of stored data. The collected data were meticulously organized, analyzed, and interpreted to facilitate an assessment of the financial management condition of durian pasting operation and the formulation of financial management guidelines for community business loans. The findings are presented descriptively and narratively, conveying a comprehensive portrayal of the observed information.

Results and Discussion

The following table presents an assessment of the financial management practices of Cho-Ai-Rong SMEs, conducted with the aim of guiding the development of strategies to facilitate their access to loans. Cho-Ai-Rong SMEs exhibit commendable financial standing characterized by the absence of debts and consistent financial liquidity. However, a lack of systematic financial management practices, along with incomplete accounting records and production cost calculations, necessitates a comprehensive evaluation to formulate effective loan access strategies.

Table 1: Assessment of Financial Management Practices for Cho-Ai-Rong's Durian Paste SMEs

Group Name	Financial Standing	Debt	Financial Management Practices	Accounting Records	Production Cost Calculations
Ilyas Durian pasting	Favorable, no debts, continuous liquidity	Absent	Lack of financial management practices	Absent	Incomplete
Aslan Durian pasting	Favorable, no debts, continuous liquidity	Absent	Lack of financial management practices	Absent	Incomplete
Bang Loh Durian pasting	Faced financial challenges, total debt: 1,500,000 Baht	500,000 Baht from relatives	Lack systematic financial management practices	Partial (related to purchases)	Incomplete
Housewives Durian Pasting and Dried Garcinia Group of Ban Bukit	Indebtedness, reliant on borrowing for working capital	Present	Lack of systematic financial management practices	Partial (recorded wages)	Incomplete
Ming Durian pasting	Obtained a loan of 900,000 Baht	Present	Lack of financial management practices	Partial (recorded wages)	Incomplete
Ban Bukit's Durian Pasting Group	Faced indebtedness, implemented financial management strategies	Present	Implemented financial management strategies	Partial (recorded wages)	Incomplete
Sawdoh Durian pasting	Favorable, no debts, continuous liquidity	Absent	Lack of financial management practices	Partial (recorded wages)	Incomplete
Bukit Fruit Processing Group	Commendable, no debts, continuous liquidity	Absent	Implemented effective financial management practices	Partial (recorded wages)	Incomplete
Bukit Budo Durian pasting	Indebtedness, difficulties in debt repayment	Present	Lack of financial management practices	Partial (recorded wages)	Incomplete

The assessment of financial management practices for Cho-Ai-Rong SMEs reveals both strengths and areas for improvement. While the group demonstrates commendable financial standing with no debts and consistent liquidity, the absence of systematic financial management practices poses significant challenges. Without proper financial oversight and comprehensive accounting records, the ability to assess the group's financial performance and make informed decisions is hindered. To address these deficiencies and enhance their access to loans, it is imperative for Cho-Ai-Rong SMEs to implement robust financial management strategies. This may include establishing clear accounting procedures, maintaining accurate records of expenses and revenues, and conducting regular financial

analyses to identify areas for optimization. By addressing these issues, Cho-Ai-Rong SMEs can strengthen their financial management practices and position themselves more favorably for loan acquisition and sustainable growth.

The Strategies for Enhancing Access to Funding Program

Based on the given information, here is a comprehensive overview of the strategies that can be reported for all nine SMEs to improve their access to loan programs.

Firstly, establishing robust financial management practices is essential for Durian Paste SMEs in Cho-Ai-Rong to strengthen their fiscal foundations and secure crucial funding resources. Implementing efficient accounting systems and maintaining meticulous records not only simplifies transaction tracking and documentation but also facilitates comprehensive financial analysis, enabling informed decision-making. Developing tailored business plans that encompass unique features, market insights, and growth strategies provides a roadmap for future endeavors. Simultaneously, addressing indebtedness and optimizing liquidity through debt reduction plans and securing additional working capital sources are critical for ensuring financial stability.

Secondly, adhering to government SME classification criteria and offering suitable collateral can enhance eligibility for loan programs, thereby improving access to vital funding resources. Maintaining organized business records streamlines tracking and analysis processes, while enhanced financial analysis practices empower Durian Paste SMEs to optimize pricing and profitability, collectively strengthening their financial standing and viability.

Thirdly, capacity-building initiatives and financial education programs play a crucial role in equipping Durian Paste SME owners with the necessary skills to navigate financial complexities adeptly. Offering targeted training programs and workshops focusing on financial planning, record-keeping, and cost analysis enhances competency in financial management. Access to financial education resources further enriches SMEs' financial literacy, enabling them to make prudent decisions and ensure financial sustainability.

Fourthly, collaboration with government agencies and private sector networks unlocks valuable resources and expertise, fostering mentorship, networking opportunities, and access to potential markets and funding sources. These partnerships augment growth prospects and sustainability by leveraging external support and guidance.

Fifthly, facilitating access to community platforms amplifies Durian Paste SMEs' visibility and connectivity within the entrepreneurial landscape, creating opportunities for growth and investment. These platforms serve as vital conduits between SMEs and potential investors or lenders, facilitating information exchange and fostering collaborative ventures. Support mechanisms for developing comprehensive business plans, including mentorship programs and expert feedback, enhance strategic planning and viability.

Finally, emphasizing accurate financial reporting, analysis, and production cost calculations empowers Durian Paste SMEs to gain insights into profitability and make well-informed financial decisions. Addressing indebtedness and optimizing liquidity through debt reduction strategies and working capital financing options fortify financial resilience and viability. By embracing these strategies, Durian Paste SMEs elevate their financial management practices, meet loan program eligibility criteria, and enhance access to funding for sustained growth and development.

Conclusions

In conclusion, this research article examined the conditions for Thai SMEs to access loan program and identified the existing problems and obstacles faced by nine specific SMEs. The findings of the study shed light on the strategies and preparations necessary for these SMEs to improve their access to the loan program and enhance their overall financial management practices. The study recommends a comprehensive set of strategies for each SME based on their specific challenges and goals. These strategies include strengthening financial management practices, developing comprehensive business plans, addressing indebtedness and improving liquidity, meeting classification criteria and providing collateral, building trackable business records, and enhancing financial analysis.

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ID 307
Vigilance in Vitality: Tertiary Care Hospital's Risk Management Mastery

Syeda Tooba Asif Zaidi[1], M. Mutasim Billah Tufail[2], Ghania Fatima[3]* and Sadia Perveen[4]*

[1] Department of Management Sciences, Bahria University, Karachi; syedatooba0001@gmail.com
[2] Department of Management Sciences, Bahria University, Karachi; muhammadmutasim@gmail.com
[3] Department of Management Sciences, Bahria University, Karachi; ghaniafatima16@gmail.com
[4] Department of Management Sciences, Bahria University, Karachi; sadiaparveen@indus.edu.com

* Correspondence: ghaniafatima16@gmail.com, sadiaparveen@indus.edu.com

Abstract

The purpose of this study is to provide a "Plan" to ensure the smooth execution of the Tertiary Care Hospital Project by identifying potential risks, evaluate their impact, and suggest effective mitigation strategies. It aims to navigate the complexities and uncertainties inherent in establishing significant healthcare infrastructure, highlighting the project's dedication to thorough risk management. This study introduces a thorough plan for integrating risk management mastery of tertiary care hospital in four phases. By merging risk assessment tools applied on critical risks, our approach furnishes a study structure for achieving desired results. The implementation of diverse tools has yielded significant benefits as they have enhanced patient safety, operational efficiency and continuous improvement, as their application have underscored the importance of proactive risk management.

Keywords: Forecasting, earned value analysis, Decision tree, PERT, Healthcare system

Introduction

The health care delivery system is a structured setup designed to effectively distribute resources and funds to serve a country's population. A well-organized infrastructure promotes improved health outcomes, benefitting the nation's workforce and contributing to overall human welfare and economic stability (Neelam, 2014). This system is very complex in Pakistan because of its structure subdivided into federal and provincial governments, supported by private sector. Different institutes such as provincial and district health departments, parastatal organizations and non-governmental organizations are mainly involved in delivering healthcare services at different levels to address the health care needs of huge population. There are also urban and rural disparities in health care delivery with an imbalance of professional work force.

Despite the fact that efforts are being made to increase the facilities to address the healthcare needs, the population growth as well as other factors such as lack of funding and resources, inadequate infrastructure, corruption and mismanagement, insufficient training and education has generated an unmet demand at all levels in the country, including the metropolitan like Karachi.

This Tertiary Care Hospital Project is dedicated in meeting the local community's healthcare needs through the incorporation of state-of-the-art medical equipment with a floor within the premises of cancer facility where Cyber Knife Robotic Arm for the treatment of cancer will be installed, and the establishment of comprehensive healthcare services. This paper aims to identify potential risks, assess their impact, and propose effective mitigation strategies. Recognizing the inherent complexities and uncertainties associated with such a significant healthcare infrastructure, the Tertiary Care Hospital acknowledges the importance of thorough risk management. This introduction sets the stage for a detailed exploration of the project's risk management strategies. As the project endeavors to uphold stringent quality standards and navigate regulatory intricacies, the subsequent sections will delve into various aspects of risk management, including methodologies, specific risk categories, and recommended mitigation strategies (AZ, 2024).

Furthermore, the project has forged partnerships with external risk management consultancy firms to hire managers' in-order to conduct impartial audits and assessments. These collaborations not only bring additional

expertise but also inspires confidence among the team regarding results of its risk management approach (Morgan, 2023). This forward-looking approach not only strengthens the risk management capabilities but also cultivates a culture of improvement and innovation.

Literature review

Risk management

Risk can be defined as potential of experiencing both losses and gains due to being exposed to hazard or consequences of occurrence of risky event. Risk may result in the unfavorable outcome while striving to achieve a particular goal (Sunaryo, 2017). This involves the potential for human injury, property damage, or environmental harm, either individually or in combination. Thus, risk analysis entails identifying hazards, estimating event probabilities, and evaluating event consequences. Consequently, risk management involves preemptively identifying potential risks, analyzing them, and implementing preventive measures to mitigate or control the risk (Gauri, 2016-17). According to (Flyvbjerg, 2003), the primary causes of the mega projects paradox are attributed to inadequate attention to risk and a deficiency in accountability within the project decision-making process.

In problem recognition, the fishbone diagram emerges as a crucial visual tool for systematically identifying and analyzing the root causes of specific risks. (Elshabrawy, 2021)In his study recognizes the potential of fishbone tool for analyzing root cause of specific risks in hospitals. This diagram encourages a proactive approach to risk mitigation by guiding the development of preventive measures and targeted strategies. In alignment with principles of continuous improvement, it also serves as a documentation method, visually capturing the hospital's risk management efforts. (Ciocoiu, 2010).

The systematic risk assessment approach is essential in identifying, evaluating, and managing potential risks across healthcare operations. This method ensures a comprehensive understanding of clinical, operational, financial, and regulatory risks, categorizing and prioritizing them based on severity, likelihood, and impact. Utilizing quantitative methods enables precise resource allocation and cost-effective mitigation strategies. The risk assessment approach offers decision support for selecting between alternatives, accepting activities and products, and implementing risk-reducing measures (Aven, 2016).

Forecasting refers to the process of predicting future project outcomes and trends. This qualitative method is used because no authentic data is available. This entails gathering subjective insights, expert opinions, and developments that may affect the project's success. The primary objective of conducting a forecasting analysis for this project is to systematically predict and evaluate potential challenges, risks, and opportunities (Turner, 2012).

The project management system encompasses numerous tools and techniques aimed at controlling key elements of projects, including schedule, cost, quality, risk, communications, and procurements, to achieve project success and optimal performance. Earned Value Analysis (EVA) stands out as the foremost tool for measuring project performance, widely adopted by numerous organizations as reported by (Nouban, 2020), (Bryde, D, 2018).

The Monte Carlo method offers a straightforward approach and valuable insights into project risks, which are crucial for understanding the resilience and robustness of a network (Faryal Erhun, 2005). Focused on utilizing this method to estimate losses in a supply network. The insights gained from the analysis are beneficial for executives and supply chain managers in effectively executing projects.

Methodology

This paper introduces a well-organized and thorough risk management approach specifically designed for tertiary care hospital. The methodology consists of four clear stages dedicated to evaluating, analyzing, and minimizing risks across different aspects within the hospital environment. Commencing with the identification of issues and utilizing tools like the Fishbone Diagram, the methodology advances through risk assessment, qualitative analysis, and culminates in quantitative evaluation. Each phase integrates particular tools and strategies tailored to tackle the distinctive hurdles and uncertainties encountered by contemporary healthcare institutions.

This methodology offers a systematic approach to assessing risks across various domains within. By incorporating both qualitative and quantitative analysis methods, it provides an understanding of risk culture and the implementation of strategies in order to eradicate or reduce them. . It begins with the phase of **1. Problem recognition** that is employing tool of **1.1 Fishbone Diagram** to uncover underlying causes. Subsequently, the second phase **2. Risk Assessment Approach** is applied, utilizing tolls that includes **Assumption Log, 2.1 Risk Register, 2.2**

Rumsfeld Matrix, 2.3 Contingency Plan, and **2.4 Project Management Repository** in which issues and lessons are incorporated. The third phase **3. Qualitative Risk Analysis** involves **3.1 Forecasting Government Health Budgets** which is used to mitigate **risk 11.3** to gauge the potential impacts, while the fourth and last phase **4. Quantitative Risk Analysis** comprises tools that are **4.1 Earned Value Analysis** to mitigate **risk 2.4** exchange rate, **4.2 Decision Tree** to mitigate **risk 2.1** parity of dollar, **4.3 PERT scheduling for technology acquisition** to mitigate **risk 4.1** software, and other techniques of **4.4 Technical Performance Analysis,** and **4.5 Monte Carlo Analysis** to assess the likelihood and impact of identified risks. This cohesive methodology ensures a thorough understanding of risks and facilitates informed decision-making through the project lifecycle.

Result and discussion

1. Problem recognition

1.1 Fishbone diagram

Visually illustrating contributing factors promotes collaboration among diverse stakeholders and facilitates a comprehensive understanding of the complexities involved. The fishbone diagram's role extends to enhancing communication, supporting ongoing learning, and providing a valuable record for future reference and analysis, rendering it indispensable for the hospital's overall risk management strategy (Ciocoiu, 2010).

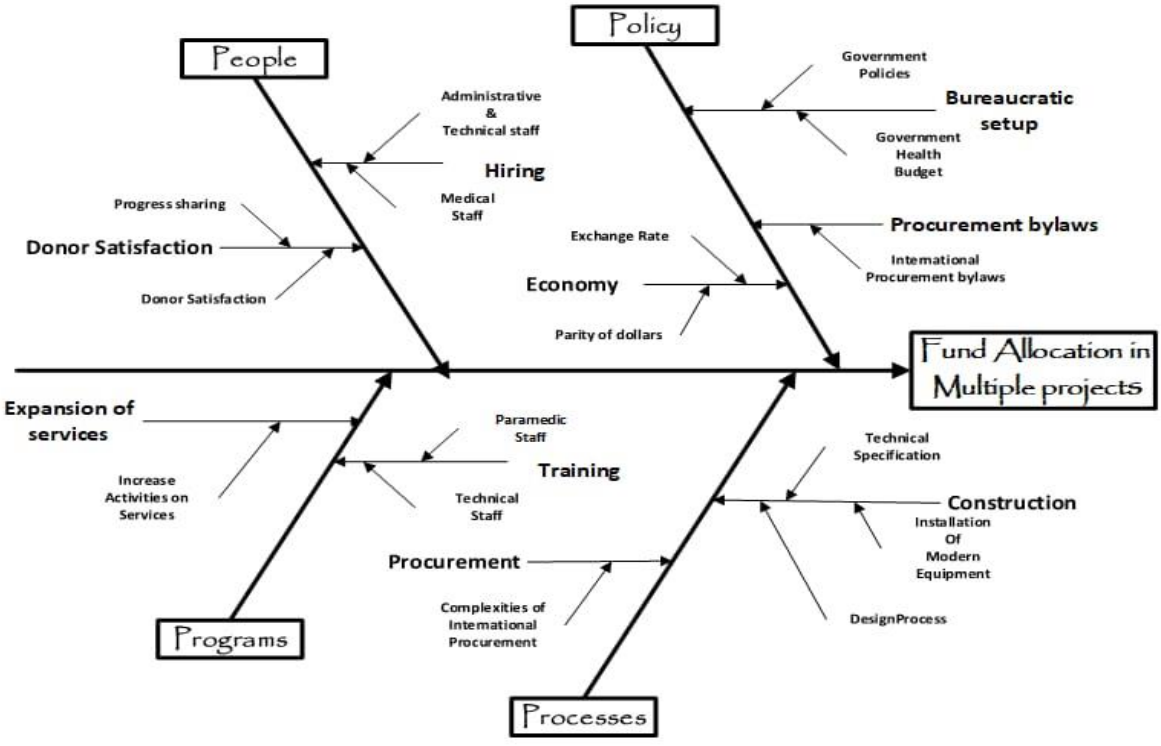

Figure 1: Fishbone

2. Risk assessment approach

The systematic approach of identifying risks empowers hospitals to proactively address challenges, enhance patient safety, and fortify organizational resilience (Control, 2023).

Table 1: Assumption Log

Assumption Log				
Project: ***Vigilance in Vitality: Tertiary Care Hospital's Risk Management Mastery***				**Date:**
ID	**Category**	**Assumption**	**Responsibility**	**Actions**
001	**Political**	• The hospital faces exposure to potential alterations in government healthcare policies or regulations.	Management/ Project Team	• Proactively engage with governmental bodies to stay informed about potential policy shifts.
002	**Economic**	• Economic downtown impacting fundraising efforts & Budget overruns.	Finance Director	• Implement cost-effective practices through regular financial audits & Establish financial reserves to withstand economic downturns.
003	**Social**	• Challenges in addressing diverse cultural needs of the local community.	HR Director	• Execute community engagement programs to foster positive relations.
004	**Technological**	• Integration challenges with new technologies, medical systems & Data security concerns.	Engineer/IT	• Implement robust cyber-security measures to safeguard patient data. •
005	**Legal**	• Non-adherence to medical regulations.	Compliance Officer	• Establish a robust legal compliance team to stay abreast of evolving regulations.
006	**Environment**	• Impact of adverse weather conditions on construction progress.	Project & Construction Manager, Site Supervisor, Project Team	• Develop disaster preparedness plans for potential environmental emergencies. •
007	**Technical**	• Potential technical glitches or, malfunctions in the operational use of installed equipment.	Compliance Officer, Operations Manager	• Implement backup & recovery systems to ensure the integrity of data.
008	**Commercial**	• Unforeseen public health events.	Public Health Department	• Diversify revenue streams by strategic partnerships and service expansions.
009	**Operational**	• Technology integration issues.	Operations Manager	• Conduct routine operational audits to identify and address potential challenges.

2.1 Risk register

The risk register holds a central position within the risk management framework. The risk register aids in regulatory compliance, fosters a culture of continual improvement and serves as essential documentation for audits and reviews. In essence, it plays a crucial role in proactively addressing challenges, enhancing patient safety, and strengthening the overall resilience of the hospital (Asana, 2024).

By consolidating risk data in a central repository, the register empowers decision-makers with the necessary insights to make judicious choices regarding resource allocation and risk mitigation strategies (Medgy, n.d.).

Table 2: Severity of Impact

Level	**Severity of Impact**		**Frequency**
	Time	**Cost**	
Very low	6 Months	30 Million	Once in 3 Years
Low	8 Months	35 Million	Once in 1 Year
Medium	10 Months	40 Million	Once in 6 Months
High	12 Months	50 Million	Once in 3 Months
Very High	18 Months	80 Million	Once in a Month

Table 3: Probabilities

Level	Severity of Impact (I)	Probability (P)	Frequency (P x I=R)
Very low	10%	0.1	1
Low	30%	0.3	9
Medium	50%	0.5	25
High	70%	0.7	49
Very High	90%	0.9	81

The severity matrix categorizes risks based on their potential repercussions on the hospital. This impact can be assessed across various dimensions, including time, financial implications, frequency, and severity of consequences. For instance, a risk deemed to have a "very high "impact might result in costs exceeding $80 million and disruptions occurring monthly, whereas a risk with "very low" impact might only incur minimal expenses and have negligible consequences.

The probability table compliments the severity matrix by assigning a likelihood rating to each risk. This rating spans from "very low" to "very high" and indicates the expected frequency of the risk event. For example, a risk with a "very high" probability might be anticipated to occur monthly, while a risk with a "very low" probability might only manifest once every three years.

Table 4: Risk Register

Risk ID	Risk Category	Risk Description	Impact	Prob.	Impact (%)	Prob. (%)	Risk
1a	Political						
	1.1	Import of equipment	V.L	H	70%	0.1	7
	1.2	Elections & Political events	M	M	50%	0.5	25
	1.3	Market Access Barriers	M	M	50%	0.5	25
2a	Economic						
	2.1	Parity of dollar	V.H	H	70%	0.9	63
	2.2	Demand	M	M	50%	0.5	25
	2.3	GST	M	M	50%	0.5	25
	2.4	Exchange rate	V.H	V.H	90%	0.9	81
3a	Social						
	3.1	Cultural differences	L	L	30%	0.3	9
	3.2	Gender	L	L	30%	0.3	9
	3.3	Communication	M	H	70%	0.5	35
4a	Technological						
	4.1	Software	H	VH	90%	0.7	63
	4.2	Breach of protected health Information	L	L	30%	0.3	9
	4.3	Advance tools	L	H	70%	0.3	21
5a	Legal						
	5.1	Land Issue	V.L	V.L	10%	0.1	1
	5.2	Patient safety	V.L	V.H	90%	0.1	9
	5.3	False Claims Act	L	L	30%	0.3	9
6a	Environment						
	6.1	Waste Disposal	L	V.H	70%	0.3	21
	6.2	Water & Sanitation	L	H	70%	0.3	21
	6.3	Harmful exposure to chemicals	L	L	30%	0.3	9
7b	Technical						
	7.1	Availability of technicians	L	M	50%	0.3	15
	7.2	Upgrading of technology	M	H	70%	0.5	35
	7.3	Maintenance of equipment	M	M	50%	0.5	25
8b	Environmental						
	8.1	Discrimination	V.L	L	30%	0.1	3
	8.2	Harassment	L	M	30%	0.5	15
	8.3	Bullying	M	H	50%	0.7	35
9b	Commercial						
	9.1	Social Seminars	V.L	L	30%	0.1	3

Risk ID	Risk Category	Risk Description	Impact	Prob.	Impact (%)	Prob. (%)	Risk
	9.2	Students Workshop	V.L	L	30%	0.1	3
	9.3	Medication management	L	H	70%	0.3	21
10b	perational						
	10.1	Management of OPDs	M	M	50%	0.5	25
	10.2	Inadequate staffing	L	L	30%	0.3	9
	10.3	System failure	L	V.H	90%	0.3	27
11b	Political						
	11.1	Workplace politics	L	L	30%	0.3	9
	11.2	Intellectual Property challenges	M	M	50%	0.5	25
	11.3	Government Health Budgets	M	V.H	50%	0.9	45

By amalgamating the probability and impact ratings, the risk register assigns a risk score to each identified threat. This scoring system facilitates prioritization endeavors, guiding resource allocation towards mitigating the risks with the highest potential for causing significant disruptions or incurring substantial costs.

Table 5: Probability Impact Matrix

PROBABLITY IMPACT MATRIX					
Risk Probability	**Risk Impact (Severity)**				
	very low	**Low**	**Medium**	**High**	**Very High**
Very High				2.1	2.4
High					4.1
Medium			1.2, 1.3, 2.2, 2.3, 7.3, 10.1, 11.2	3.3, 7.2, 8.3	11.3
Low		3.1, 3.2, 5.3, 11.1, 6.3, 10.2	7.1, 8.2	4.3, 6.2, 9.3	10.3, 6.1
very low	5.1	8.1, 9.1, 9.2		1.1	5.2

After compiling the risk register, it becomes crucial to establish a comprehensive risk management plan. This plan should delineate strategies for identifying, assessing, mitigating, and monitoring risks throughout the project's duration. It is also essential to define clear roles and responsibilities for all stakeholders involved in risk management activities. Regular reviews and updates of the risk register are necessary to ensure timely addressing of emerging risks and to maintain the project's alignment with its objectives. (Bell, 2021).

This ongoing review process fosters a culture of proactive risk management within the hospital, facilitating the early identification and mitigation of potential threats. Moreover, a meticulously maintained risk register bolsters the hospital's capacity to demonstrate compliance with regulatory requirements and serves as invaluable documentation during audits and reviews (Sweeney, 2005).

2.2 Rumsfeld matrix

The Rumsfeld Matrix, is crucial in organizing and analyzing risks according to their levels of certainty or familiarity (O'Donnell, 2022). Within the context for a tertiary care hospital, this matrix serves as a valuable tool for categorizing and addressing various types of risks. Here is a breakdown:

This framework assists the hospital's stakeholders comprehend the dynamic nature of risks, fostering a proactive approach to risk mitigation and organizational preparedness.

Table 6: Rumsfeld Matrix

UNKNOWN KNOWNS • Technological risks	KNOWN KNOWNS • Operational risks • Technical risks • Commercial
UNKNOWN UNKNOWNS • Regulatory risks	KNOWN UNKNOWNS • Political risks • Economic risks • Social risks • Technological risks • Legal risks • Environmental risks

2.3 Contingency plan

Tertiary Care Hospital aims to strengthen its operational capabilities, guaranteeing uninterrupted healthcare services even when confronted with unexpected challenges. This plan covers the overall risks that are mentioned in the Risk Register (Jerry F., 2000).

Table 7: Contingency Plan

	Category	Contingency Plan
Key Elements	Communication Protocol	• Establish transparent communication procedures.
	Emergency Response	• Develop and practice emergency procedures.
	Resource Management	• Identify alternative suppliers for critical resources.
	Technology and Data Protection	• Regular backup critical data and systems.
	Incident Detection	• Establish a vigilant monitoring system.
Activation and Execution	Decision Making	• Form a crisis management team with defined roles.
	Communication Management	• Promptly activate communication channels.
Testing	Report and Evaluation	• Conduct regular emergency reports for effective evaluation.
Continuous Improvement	Plan Review	• Regular updates.

Regular testing ensures effectiveness, while documentation and reviews support continuous improvement (Ganesh, n.d.).

The contingency plan for critical risk 2.4 exchange rate and 2.1 dollar parity is to consistently monitor fluctuations and establish financial reserves. Employing financial instruments such as forward contracts or options and diversifying currency holdings can further mitigate exposure. For risk 4.1 Software, regular updates and comprehensive data backups to promptly address vulnerabilities & for risk 11.3 Government Health Budgets, diversify sources to decrease dependence on government budgets, advocate for increased healthcare funding through lobbying and partnerships.

2.4 Project management repository

Through an issue Log, it monitors challenges encountered during project execution, such as construction delays and budget overruns, while a Lesson Learned Register captures valuable insights from past projects, fostering knowledge sharing and improvement. . Utilizing data analysis and reporting capabilities, it facilitates informed decision-making resource allocation optimization. Overall, the repository nurtures a culture of continuous improvement by leveraging past experiences to enhance project management practices and outcomes (Wynne, 2013).

Table 8: Project Management Repository

Issue ID	Description	Category	Resolution/Actions
LLR-001	Construction delays due to site conditions	Schedule Management	Conduct thorough site assessments before project initiations
LLR-002	Budget underestimation for advanced equipment	Cost Management	Involve procurement specialists in initial budget estimation
LLR-003	Flexibility in facility design for unexpected demand	Design Management	Incorporate scalability in facility design to accommodate unexpected growth
LLR-004	Robust IT infrastructure planning	Technology Management	Involve IT specialists early; conduct thorough technology assessments
LLR-005	Equipment vendor evaluation and support	Procurement Management	Establish rigorous vendor evaluation criteria; ensure prompt support agreements

3. Qualitative risk analysis

Forecasting government health budget

The provided table delineates a step-by-step process for forecasting Government Health Budgets, offering a systematic approach to the task. Following this, the table outlines stages such as analyzing budget trends, identifying pertinent variables, selecting suitable forecasting models, and training them with historical data. It also underscores the significance of parameter optimization and validation methods to refine model performance. Overall, it presents a thorough framework for effectively forecasting government health budgets, ensuring informed decision-making and resource allocation in healthcare planning management (John L., 2007).

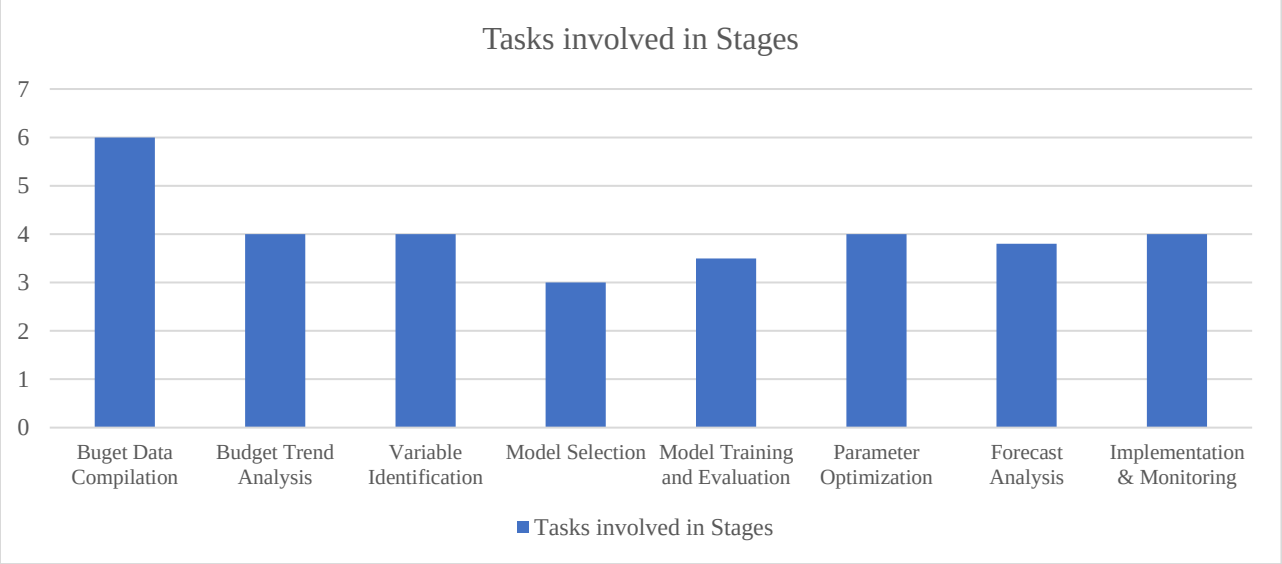

Figure *2*: Forecasting models & stages

- X-axis represents stages of the model that are selected in the process.
- Y-axis represents the tasks involved in each stage of a model.

This bar chart provides a clear visual representation of models and stages. At a glance, it is shown that which area receives the most focus overall and how the importance of each model varies.

The above graph encompasses gathering varied budget data sources shown at scale of 6 to create a through plan. A detailed analysis of budget trends at scale of 4 offers insights into data characteristics, while relevant variables also at scale of 4 are identified to ensure accuracy. Selecting an appropriate model present at scale of 3 includes assessing its effectiveness across different scenarios, with real-world data used for training and evaluation on scale of 3.5. Fine-tuning parameters enhances precision are placed at scale of 4, and validation against actual budget results ensures alignment and insight into key factors on scale of 3.8. Ultimately, the model is integrated into operational processes with ongoing monitoring for performance on evaluation and adjustments as needed at scale of 4.

4. Quantitative risk analysis

Quantitative risk analysis enhances the precision of decision-making, introduces a numerical frame work and resource allocation, ultimately fortifying the hospital's capacity to manage risks and ensuring patient safety and operational fortitude. (Galway, 2004).

4.1 Earned value analysis (EVA)

Earned value analysis (EVA) involves comparing planned values, earned values, and actual costs. This analysis helps project managers identify discrepancies in schedule and budget, enabling them to take corrective actions promptly (Standards, 2019).

By leveraging EVA, we gain a comprehensive understanding of the divergence between the planned and actual values, offering insights into both Schedule Variance (SV) and Cost Variance (CV). It acts as a beacon, enabling to make informed decisions, optimize resource utilization, and ensure fiscal prudence. In essence, EVA becomes an indispensable tool for steering the healthcare project towards success by aligning performance metrics with budgetary constraints and facilitating a triumphant course correction (Mohammad Tawalbeh, 2020).

4.2 Decision tree

Continuing with Earned Value Analysis, the decision tree reappraises Schedule Variance and Cost Variance. If both metrics fall within the predefined acceptable range, project execution persists. Conversely, if either SV or CV exceeds the acceptable threshold, strategic adjustments are one again set in motion. This decision tree serves as an exhaustion guide, ensuring a methodical and informed approach to navigate the intricacies of the dollar parity problem within the healthcare sector (D. Davis, 2024).

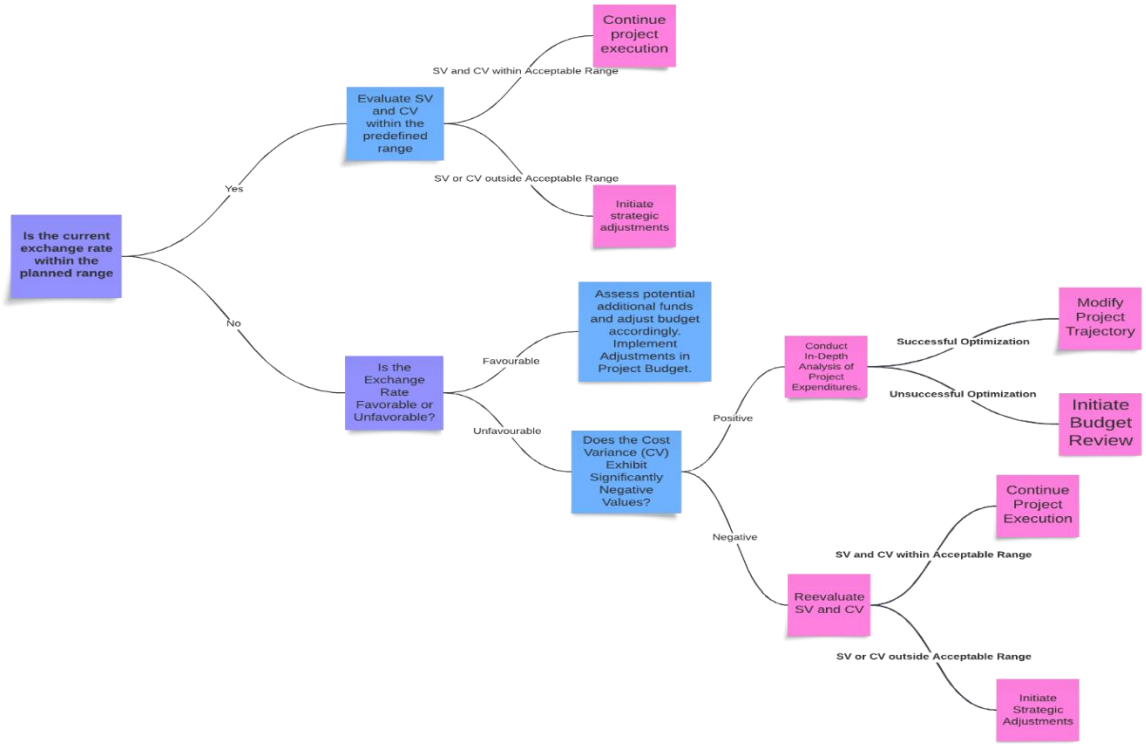

Figure 3: Decision Tree

This meticulously crafted decision tree provides a systematic approach to navigate the intricacies landscape of dollar parity in the context of Patient's Aid Foundation's healthcare project.

4.3 Implementation of pert to develop an effective schedule for the acquisition of technology

For a project like tertiary care hospital, it's very important to implement software, hardware and IT network for multiple tasks to make this a successful healthcare project.

Software systems are not only needed for the advanced equipment but also to keep day-to-day records, appointments, patients history and other important information readily available for important decision making for medical treatments (REBECCA KITZMILLER, 2006). An effective project planning with a robust schedule may help in timely installation of highly advanced equipment such as cyber knife robots, CT scanners, Magnetic Resonance Imaging (MRI) etc., which actually require good considerations of cost, time, quality and risk factors. Collaboration among technology management department, IT and other groups of experts and thorough planning of the project will ensure the optimal procurement throughout the procurement stages (McGeary, 2019)**.**

Though we have many effective scheduling tools available to carry out different phases of a project, Program Evaluation Review Technique (PERT) can be implemented to develop an effective schedule for the project.

We can divide the Technology acquisition for this project into two major phase.

1. Phase I (Hardware Procurement)
2. Phase II (systems Installation)

Sequential activities on which a PERT diagram can be generated by allocating time frame for each individual activity, suggested from vendor, technologists and other group of experts, can be as follows:

Table 6: Activity Phases

S. No	Activity code	Activity
Phase 1 (Hardware Procurement)		
1	**A**	Market Assessment
2	**B**	Development of SOW
3	**C**	Request of quotation
4	**D**	Vendor selection
5	**E**	Review of Architectural, Electrical, Mechanical and Plumbing Design
6	**F**	Order placement
7	**G**	Equipment Arrival
Phase II (System Installation)		
8	**H**	Physically installation of equipment
9	**I**	Equipment setup/ configuration
10	**J**	Testing
11	**K**	Training & education
12	**L**	Maintenance

- **Planning and scheduling project cost**.

The best approach in budgeting Process of a project is to divide the project into manageable activities spanning over the period of weeks or months for the smooth release of budgets. However, for any changes in project schedule request by the client can be added using various techniques such as **crashing** or **resource leveling.**

4.4 Technical performance analysis

Technical performance analysis includes evaluating the hospital's infrastructure, clinical workflows, quality metrics, and incident reporting systems, patient satisfaction, and regulatory compliance. The assessment involves scrutinizing the condition and maintenance of medical equipment, pinpointing inefficiencies in clinical processes, monitoring key quality and safety indicators, implementing robust incident reporting mechanisms, gathering patient feedback, and adhering to regulatory standards. (Sadeghzadeh, 2019).

The analysis shown in the graph below represents that the height of each segment within a bar reflects the relative importance placed on that specific criterion within that technical area. A taller segment signifies a greater emphasis.

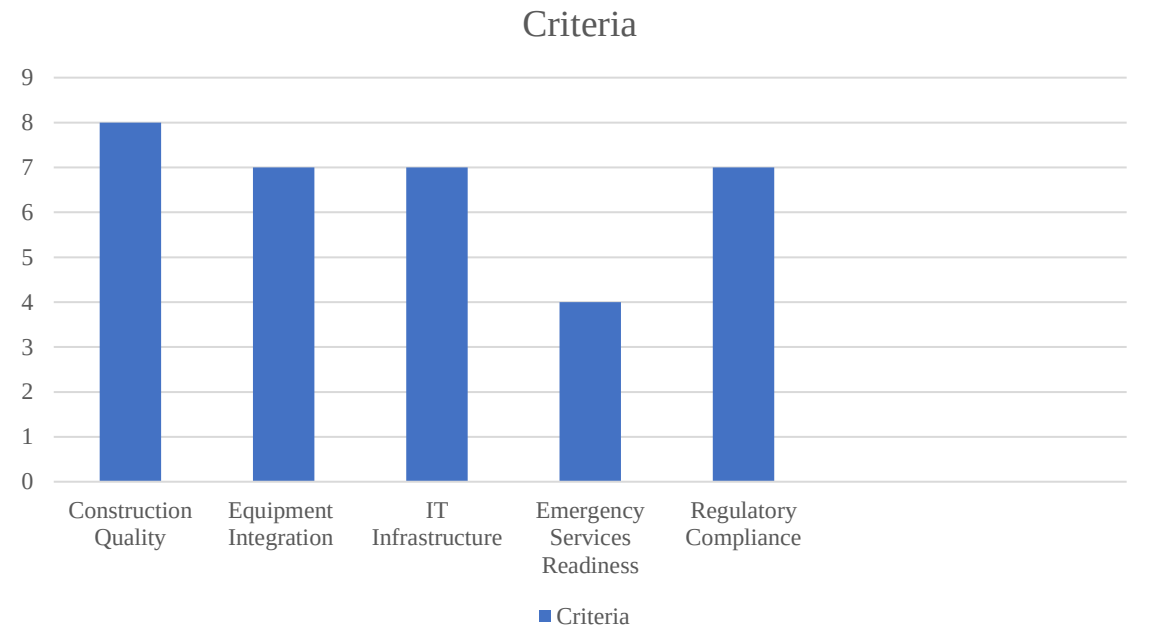

Figure 3: Technical Performance Analysis

X-axis represents the technical areas.

Y-axis represents the different types of criteria that involves assessment, evaluation, examination, conduct, implementation, and reviews.

Criteria to ensure the construction quality, involves a third party team for inspection which is given on the scale of 8. Collaborate with biomedical engineers and IT specialists to seamlessly integrate equipment is present at scale of 7. Perform testing and security assessments for IT infrastructure aligns with equipment integration is also at scale of 7. Keep compliance documentation updated and engage with regulatory authorities regularly is shown at scale of 7. Simulate emergency scenarios to assess response times and resource accessibility is placed at scale of 4. These steps collectively ensure technical readiness and compliance.

4.5 Monte Carol Analysis

One of the biggest challenges for a healthcare organization is managing operational efficiencies and reducing costs to provide quality health care. Supply chain is a complex operation in a tertiary care hospital because of the need for adequate and accurate medical supply according to the patient's need. Monte Carlo simulation can be a very effective tool for a hospital inventory control system. With the help of Monte Carlo simulation method, the hospital inventory control department can model different scenarios and their potential outcomes concerning inventory management (Andrew Potter, 2009). This method may help in maintaining optimal inventory levels, forecasting demand fluctuations, and identifying bottlenecks in the supply chain process.

Conclusion

The risk mitigation plan for establishment of a Tertiary Care Hospital Project emphasizes the crucial role of effective risk management in ensuring its successful implementation. Through meticulous identification of potential risks, evaluation of their impact, and formulation of mitigation strategies, the project aims to navigate the inherent complexities of establishing significant healthcare infrastructure. Employing a comprehensive risk management methodology and proactive decision-making, the project seeks to minimize disruptions and maximize outcomes, ultimately delivering advanced medical services to the local community.

Incorporating a robust risk assessment plan can yield a plethora of benefits crucial for its sustained success. By enhancing patient safety, improving operational efficiency, bolstering resilience, ensuring regulatory compliance, and cultivating a culture of continuous improvement, the hospital can deliver high-quality healthcare services tailored to

meet the needs of its patients. These long-term effects are paramount for maintaining the reputation of a hospital as a trusted healthcare provider.

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ID 309
Risk Assessment of Construction Projects Using Semi-Quantitative Analysis- A Comprehensive Approach

Sajid Khan[1]*, Subhan Siddiqui[2], Rehan Saleem[3] and Faisal Rehman[4]

[1] Bahria University Karachi Campus (BUKC) 13 National Stadium Rd, Karachi; nedianengr@gmail.com
[2] Bahria University Karachi Campus (BUKC) 13 National Stadium Rd, Karachi; abdulsubhan176@gmail.com
[3] Bahria University Karachi Campus (BUKC) 13 National Stadium Rd, Karachi; rseahlainm@gmail.com
[4] Bahria University Karachi Campus (BUKC) 13 National Stadium Rd, Karachi; faisallakhair722@gmail.com

* Correspondence: nedianengr@gmail.com

Abstract

Construction industry plays a vital role in the development of any nation. In the era of progressive globalization every sector prone to risk and construction industry has no exception. There are various risks involved in the construction project that can significantly impact its progress and if not managed properly will impede the success of the project. Therefore, accurate and effective risk assessment is necessary to proactively manage risks and apply risk mitigation strategies. This study proposes a comprehensive risk management approach in construction projects by semi-quantitative analysis. Qualitative expert judgment with quantitative data has been used to evaluate and prioritize risks based on probability (P) and impact(I). For a systematic evaluation of risk, a survey-based study has been conducted which aims to investigate the risk management practices in the construction sector. A risk assessment matrix has been proposed and numerical values have been assigned to each risk to establish a semi-quantitative risk assessment framework. Risk responses and contingency plans for the risks have been identified which demonstrate the practical applicability and reliability and can be a good starting point for planning the future risks. The analysis indicates that approximately 15% of the risk associated with construction project are severe in nature and require immediate action and decisive mitigation strategy. Similarly, 50% of the identified risk possess moderate level of severity, while not as immediately critical but still demand a prompt action and require short term planning to effectively address and manage the risks and 30% of the risk fall under Low severity and shall be kept in watch list and require long term planning while remaining 5% are acceptable and temporary in nature indicating minimal impact or negligible likelihood of occurrence and remain withing acceptable tolerance level.

Keywords: Risk management (RM), Semi-quantitative, Construction, Project management, Risk assessment, PMBOK

Introduction

A risk is an unpredictable event or a situation that, if it happens, has either a positive or negative impact on one or more project objectives. In order to overcome or successfully handle the risk event, a risk management framework is used. Risk management is regarded as one of the important and most significant parts of project management's ten knowledge areas of PMBOK (Adeleke et al., 2016). The main purpose of the risk management process is to assure that all potential risks of the project (both threats and opportunities) are identified, their impact is reviewed and analyzed and accordingly, the risk management plans developed and implemented to overcome or minimize the effects of Negative risks (threats) and maximize the positive effects (opportunities) on the project throughout the life cycle of the project (Epstein, 2014). In order to optimize the chances of project success, risk management has to undergo seven risk management processes as identified by PMBOK-6. They are, Plan risk management, identify risk, perform qualitative risk analysis, Perform Quantitate risk analysis, Plan risk responses, implement risk responses, and Monitor Risks. When we talk about the project, there is always some risk associated especially with construction projects which are higher than other types of economic industry. The risk condition becomes worst for the stakeholders if the risks have not been managed properly as a result the industry is facing poor performance. These risks can create a

chaotic condition and can affect the iron triangle of the project which includes schedule, costs & quality. These unmanaged risks cause damage to the project objective in the long run (Taofeeq & Adeleke, 2019).

Projects in the construction sectors varied in size (small, large, and medium) and involve risk of varying degrees of impact (Hwang et al., 2014). Large infrastructure projects with high budgets have a high monetary risk (Nawaz et al., 2019) but (Smith & Bohn, 1999) reported that small projects are susceptible to more risks are more challenging than big projects due to their inherent characteristics e.g. resource limitations, tight project deadlines, market competition, and little profit margin (Hwang et al., 2014). Researchers have developed many RM structures or frameworks to identify the various risk types (TECOP), focus on the risk identification process, and proposed various theoretical and mathematical models for effective and efficient management of risk in construction projects (Irlayici Cakmak & Tezel, 2019).

As discussed in the above paragraph, there are various risks involved in Construction projects that can create significant challenges to project execution. Some of the general risk types encountered in construction projects are (Szymański, 2017):

- Bad or unrealistic work schedule
- Equipment/Construction machinery failure,
- Employees' absence (illness, strike)
- Employees' qualifications (employees' performance)
- Poor management of material resources, supplies, and personnel,
- Timely supply of construction materials,
- Construction materials quality,
- Protests (e.g. ecologists, local population)
- Maintaining standards,
- Insufficient control
- Extending the scope of work,
- Poor work organization

Researchers had identified different methods and mathematical models that are generally used in the risk management process and are also used in construction projects. They are, Methods: Brainstorming, Delphi method SWOT analysis, Ichikawa method, lesson learned from past projects, Expert Judgement etc. (Nawaz et al., 2019). Mathematical Models: PERT method Decision trees, Probabilistic methods, probability theory, Fuzzy sets, Artificial neural networks (Szymański, 2017). For better project realization, it is essential to apply effective project management practices and to choose the right risk management method and tools. The project management has to monitor the risks continuously and manage them effectively (Buganová & Šimíčková, 2019).

This research paper aims to explore the implementation of risk management in construction projects by using a semi-quantitative analysis. Our research method will focus on exploring and interpreting subjective experiences by using techniques such as interviewing subject matter experts, Observations, historical data, and industry research. To achieve this, we organized our research in the following ways, (i) identify, and prioritize the risk (ii) Evaluate the identified risk (iii) Estimate the risk. The assumptions that are considered in our study are (i) variation in risk management practices across regions, project type, and size of the project (ii) Some experts are hesitant to disclose certain risk information (iii) Limited generalizability (iv) credibility and trustworthiness of the collected data.

Literature Review

The study of risk management began after World War II. Modern risk management started from 1955-1964 when academic books were published by Mehr and Hedges in 1963. The content of the books covered the topic of pure risk management excluding corporate financial risk management. People from engineering backgrounds develop technological risk management models in parallel. There are Operational risks as well and is regulated by bank and insurance companies. The operation risk partially covers the technological risk also. Engineers also put the political risk of projects under technological risk (Fraser & Simkins, 2009). In 1982, Crockford emphasize the necessity of separating pure and speculative risk within an organization due to operation convenience with a major focus on pure risk. Speculative risk as mentioned is mostly associated with financial risk and hence it has been separated from the pure risk

In the Mid-1950s, a new form of pure risk management emerges as an alternative to market insurance to cover the rising cost of certain business risks (Fraser & Simkins, 2009). In the 1960s, contingent planning activities, risk prevention, or self-protection activities were developed against some losses e.g. work-related illness and accidents, etc. In the 1970s insurable and uninsurable risks began and developed very quickly till the 1980s. In the 1980s companies e.g. financial institutions, banks insurance companies start to consider the financial risks. International regulation regarding risk management also began in the 1980s. In the 1990s operational risk and liquidity risk management emerges to manage or cover the risk arising from the failed operational process and financial obligations. In 2002 "The Sarbanes-Oxley Regulation" was implemented in the US to enhance risk management and accountability within organizations. New York stock exchange (NYSE) implemented risk management governance for companies at the same time in the year 2002

In 2005, ISO - International Organization for Standardization write a new global "guideline" for the definition, application, and practice of risk management, with a target date of 2009 for approval and publication (Fraser & Simkins, 2009). Having gone through the evolution of general risk management history from World War II till 2005, we now shift our focus to construction risk management. Global construction risk management (CRM) research work has been started in full swing since 2000 and is progressing to date. Researchers have produced increasing publications in this era and identified multiple categories of risk in construction projects. The literature reviews onward will explore the risk management process which includes risk identification, risk evaluation techniques, risk responses, and the general concept of risk management from published research papers around the globe.

Fundamentals of Risk Management

Risk management is an important part of project management. In the past, construction risks were either not taken into account or were handled randomly (Potts et al., 2017). Effective risk management was defined as a formal, integrated, and continuously controlled process for setting priorities, finding sources of uncertainty, evaluating them, and coming up with management responses to find a good balance between risk and opportunity (Thevendran & Mawdesley, 2004). This means making good things more likely and helpful to happen and making bad things less likely and helpful to happen (PMBOK guide), Seventh Edition). In the end, risk management can be used as a tool to figure out how to avoid, lessen, or reduce risks.

Risks and Uncertainties

The difference between uncertainty and risk is that risk is an uncertainty that can be seen, but uncertainty is a risk that can't be seen (PMBOK 7th Edition). There is a connection between uncertainty and the project goals. Uncertainty becomes a risk if it affects the project goals. "Risk," on the other hand, is often used in more than one way "Opportunity or positive risk" and "threat or negative risk". Risk management is most often used in projects, where risks are uncertain things that could affect the project goals (Raz & Hillson, 2005).

Risk Management Process

Risk management can be done in many different ways and with many different models, but in the construction industry, the main way risk is managed is in four steps. Identifying and classifying risk sources, analyzing risk assessment, coming up with ways to deal with risks, controlling risk, and monitoring risk sources (Raz & Hillson, 2005).The risk management process helps keep track of and define all of a project's risks in a planned and cost-effective way and to keep an eye on and lessen the impact and overall likelihood of events that are seen as bad (Sawhney et al., 2014).

Risk Identification

People often think that finding risks is the most important part of managing risks (Sirshar et al., 2019). The goal isn't to make only the perfect predictions about what will happen in the future but to find high-impact sources of risk that could happen on a specific project. Through risk assessment, one has to identify the risk and use currently available information as well as from previous projects to make informed decisions to help resolve the current one (Zhang, 2016). We have to make sure that the potential risks are measured and dealt with in a way that makes it possible to promote safety and achieve the overall goals. Risk management has to be an ongoing process because risks change over the course of a project's life cycle (Raz & Hillson, 2005); (Potts et al., 2017); (Moza & Paul, 2017).

Risk Evaluation

The qualitative evaluation of risk includes setting up a risk hierarchy, its scale, the things that cause it to happen, and any possible dependencies. The hierarchy is based on how likely something is to happen and how it will affect the strategy. There is a probability matrix of effects in the PMBOK that helps make this risk hierarchy (PMBOK 7th Edition). Qualitative risk analysis so that they can be looked at more closely or directly reduced. The management team looks at each risk that has been identified to see how likely it is to happen and how it will affect the project goals. PMBOK also tells how the impact scale shown in the probability impact matrix affects a project's cost, time, scope, and quality goals.

Risk Responses

There are different ways to respond to risks. For each risk, choose the strategy or combination of strategies that are most likely to work. PMBOK suggests four ways to handle project risks:

Avoid:

When the project team takes steps to get rid of a threat or keep it from influencing the project, this is called risk avoidance. It could mean changing some parts of the project management plan or the goal that is in danger to get rid of the threat and make it less likely to happen.

Transfer:

When you transfer a threat, you give it to someone else so they can handle the risk and deal with the consequences if it happens.

Mitigation:

Mitigation is the process of taking steps to make a threat less likely to happen or to make it less harmful if it does happen.

Acceptance:

Acceptance is when the project team knows about a threat but does nothing about it. Part of active acceptance is coming up with a plan B. On the other hand, passive acceptance means doing nothing but thinking about the threat every now and then.

Control Risk:

Monitor Risks is the process of keeping an eye on how agreed-upon risk response plans are being carried out, keeping track of known risks, finding and analyzing new risks, and figuring out how well the risk process is working throughout the project. The main benefit of this process is that it lets project decisions be made based on the most up-to-date information about both the overall risks of the project and the risks of each individual project. This is done over the course of the project (PMBOK 7th Edition).The Monitor Risks process should be used to keep an eye on the project work for new, changing, or old individual project risks as well as changes to the level of project risk as a whole. This will make sure that the project team and the people who matter most to the project know how much risk they are facing right now. Performance is part of the process of "Monitor Risks" (PMBOK 7th Edition). During project execution, information is gathered to see if: the risk responses set up are working; the level of overall project risk has changed; the status of identified individual project risks has changed; new individual project risks have come up; the risk management approach is still right; the project assumptions are still true; risk management policies and procedures are being followed; reserve funds for cost or schedule is needed (PMBOK 7th Edition). PMBOK has provided a comprehensive methodology for managing project risk effectively. It encompasses various tools and techniques that can be utilized for risk assessment. Some of them are listed here.

The jury of Executive Opinion (Expert Judgment)

A small group of experts and managers work together to estimate demand using knowledge and mathematical models.

Delphi Method:

The group will keep going through the iterative process until everyone agrees on something.

Root cause identification:

The 5 Whys is a way to get to the bottom of a problem by repeatedly asking "Why?" The idea is to ask "Why?" at least five times or until you get to the real problem.

Brainstorming workshops:

Brainstorming is a way for people to work together to come up with ideas or solve a problem. It encourages people to be creative, to be open, and to work together.

Risk Matrix:

It Considers how important it is, placing each risk in order of importance based on occurrence likelihood and effect.

All the methods listed above have their own importance and researchers have based their studies on them as per their requirements and the nature of the study. We will mostly conduct our study based on Expert Judgment, brainstorming, and a risk matrix.

The Related Theory of Research

Risk categorization proposed per sector (Irimia-Diéguez et al., 2014)

Sector / Type of risk	Aeronaut.	Airport	Building	Energy	Rail	Refinery	Road	Space exploration	Other	Non-specific	% of papers
General	1	0	2	2	2	5	3	2	7	15	46.15%
Design	0	0	1	1	1	0	1	0	1	1	7.69%
Legal / political	0	1	1	0	2	0	1	0	1	1	7.69%
Contractual	0	0	0	0	2	0	2	0	0	0	5.13%
Construction	1	2	4	4	5	0	2	0	6	11	42.31%
Operation	0	3	1	1	0	0	1	0	1	0	8.97%
Labour	0	0	0	0	0	0	0	0	0	1	1.28%
Clients/society	0	1	1	2	2	1	1	0	3	2	14.10%
Financial / economic	0	0	0	1	2	0	0	0	1	2	7.69%
Force majeure	0	1	0	0	0	0	0	0	0	0	1.28%

The risks from previous papers are looked at by taking into account how they were categorized. In the table above, a summary of the number of papers is given for each type of risk for a different sector that was looked at. The percentage of papers for each type of risk is shown in the last column. The data represented here is extracted from 78 papers. Since any paper can study a type of risk featured in several sectors, the sum of percentages displayed here is more than 100%. The main risk that has been looked at is the construction risk, which mostly comes in the form of cost and time overruns. The construction risk constitutes 42.31%. A major factor is also the 14.10% risk related to clients and society. Rarely are risks caused by "force majeure" and risks related to workers looked at. A lot of the studies look at risks in a general way, 46.15 percent of the total papers, don't talk about any specific risks (there are 36 references that represent 46.15% of total papers)., Out of 78 papers, there are 42 papers that talk about specific risks and the height risk among specific risks is the construction risk as mentioned above.

Risk assessment technique and process

Risk assessment is the overall process of risk identification, risk analysis, and risk evaluation. Risk Identification is where we try to find out what can happen, when, where why, and how. Risk Evaluation is to determine probability, its impact and determine the level of risk. Estimate risk is to compare with defined criteria and set priorities (Tufail et al., 2019).

1. Risk Identification

The first step in the risk management process is to identify potential risks, which is a key part of figuring out risks in the construction field. If certain risks aren't identified, the wrong steps might be taken to deal with them, which could cause the project to deviate from its goals (Taofeeq & Adeleke, 2019). Construction projects are often hampered by unknowns that can cause delays, higher costs, and problems with the quality of the work.

To identify the construction risk, a comprehensive study of academic and grey literature has been conducted. The "PESTLE" analysis framework was used to identify the risk elements. The PESTLE stands for Political, Economic, Social, technological, legal, and Environmental. The term PESTLE has been in regular use for the last 10+ years but its true history is yet unidentified. In the 1980s, several other authors including Fahey, Narayanan, Morrison, Renfro, Boucher, Mecca, and Porter included variations of the taxonomy classifications in a variety of orders: PEST, PESTLE, STEEPLE, etc. (Rastogi, 2016).

Political Risk:

Political risks in construction projects refer to potential challenges or uncertainties that may arise due to the political situation or environment in which the project operates**.** Political risks include 1) Change in Foreign Policies (Trade restrictions, labor mobility, and immigration) 2) Corruption (Internal corruption, Political party in control) 3) Govt. Policy Change (change in local code, prioritization of govt. project) 4) Regulation & Legislation (Environmental and safety regulations, permit and license) 5) Disputed Land

Economical Risk:

Economic risks in construction projects refer to possible issues or uncertainties that arose due to economic factors that may harm the financial viability, costs, and project profit. Some important economic risks in construction are 1) Inflation, Currency destabilization & Devaluation, 2) Cost Variance, scope variation, and scope creep 3) Accidental Loss (Collapse during construction) 4) Shortage of Funds for Construction 5) Supply Chain disruption.

Social Risk:

Social risks in a construction project refer to the possible issues or challenges due to the project's impact on the community or stakeholders in the surrounding of the projects. Social risks may include, 1) Poor Relationships with stakeholders 2) Health & Safety at the construction site 3) Challenges due to adjacent projects 4) labor unions 5) a dispute over wages 6) Ethnic Biases

Technological Risk:

Technological risks in construction projects are the potential challenges or uncertainties related to the use and implementation of technology in construction processes. These risks arise due to the complexity, compatibility, reliability, and security aspects of technology. Technological risk in construction is the chance that 1) Machines and tools breakdown during construction 2) Unavailability of technology and software 3) Unavailability of relevant Experienced technical staff 5) Sole distributor of specific technology 6) Data Loss

Legal Risk:

Legal risks in construction projects are potential legal challenges, disagreements/disputes, or non-compliance with laws and regulations that arise during the lifecycle of the project. Potential legal risks may include 1) Noncompliance with the environmental protection agency 2) Contract Breach 3) Site Casualties, legal dealing 4) Damage to external dry and wet utilities 6) Statuary Approvals

Environmental Risk:

As the name implies, environmental risks are the challenges faced in a project due to the environment and have a big impact on the project's progress. The environmental risk factor in construction project includes 1) Ecological risk 2) Weather and Climatic Conditions 3) Construction waste 4) Health & Safety Issues (Non-Bio-degradable waste) 5) Natural Disaster

By thinking about these risk categories and doing a thorough examination within the context of building projects, interested parties can identify possible hazards, figure out how they might affect the project, and come up with ways to reduce the risk. A proactive approach to reducing risks is what makes it possible for construction projects to be finished on time.

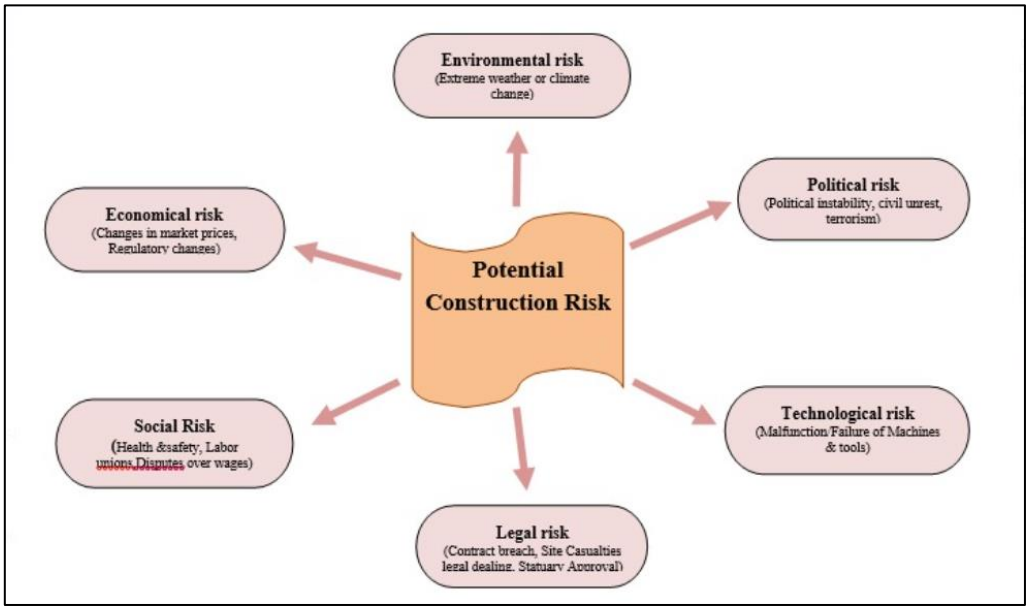

Figure 1: Supply Risk Indicator

2. Risk Evaluation

Risk evaluation is the second step after the risk identification process. It typically involves identifying the risks, assessing their probabilities and impacts, ranking them, and screening out minor risks. There are three main ways to look at risks: qualitatively, semi-quantitatively, and quantitatively (Emblemsvåg & Endre Kjølstad, 2006).

The Qualitative methods typically refer to data gathering and analysis techniques that use purposive sampling and semi-structured, open-ended interviews (Krishna, 1999) .It is also based on past records, staff knowledge, and expert opinions. During the evaluation process, the level of risk is measured subjectively using words or scales. This technique shows its worth when information isn't completely clear and numerical patterns can't be easily used to evaluate risks. In qualitative risk assessment, different risk factors, like likelihood and outcome, are given verbal ratings like "very low," "low," "medium," "high," or "very high." They are often used because they can streamline the risk assessment process, and reduce the number of inputs needed. The qualitative approach required the opinion of 12 participants after that a saturation level is achieved (Fugard & Potts, 2015). Even though qualitative analysis techniques don't have accurate measurements, experts often prefer them because they are easy to use, can handle ambiguity, can be changed, and shorten the time it takes to analyze.

In comparison to qualitative risk analysis, quantitative risk analysis is complicated and requires a lot of time to convert mathematical and statistical tools to convert the gathered risk information to a measurable value. For more accurate results, hundreds of thousands of samples are required. However, a limited budget and lack of resources make it quite difficult to manage on a large scale (Dudwick, 2006), (Tufail et al., 2019).

We will focus on the semi-quantitative method which will be our basis for risk evaluation pertaining to construction projects. This method will provide an intermediate formation of qualitative and quantitative (numerical-based) assessment of potential risks. Researchers have identified the semi-quantitative analysis as a good technique for risk assessment with an argument that quantitative analysis is taking probabilities and impact into consideration only, the risk picture should highlight the following aspects, in addition to presenting probabilities and expected values 1) uncertainties in phenomena and processes, 2) manageability factors (Aven, 2008).To accurately express probabilities and impact semi-quantitative analysis as a better approach than Quantitative analysis. The advantage of this method is to analyze a large pool of data without using complex mathematical models. Risk probability (chance of occurrence) and Impact (level of severity) will be measured by assigning numerical values on a rating scale and analyzed by using mathematical formulas (Karabacak & Sogukpinar, 2005); (Tufail et al., 2019). Numeric values (Impact-I) are multiplied with probability(P) to give a probability-impact (P x I) score for each risk, which determines the relative priority of each risk to be evaluated (PMBOK 7th Edition). The semi-quantitative approach is still a

probabilistic approach and is based on expert judgment. The result obtains by this method are more accurate than qualitative analysis but less accurate than the quantitative assessment.

3. Systematic Approach for Data Acquisition and Assessment

Our study is based on a mixed approach to identify and evaluate the potential risks in construction projects. The term mixed approach means here to carry our study 1) By a structured search for articles employing both qualitative and quantitative analytic techniques 2) Through Interview sessions/Survey with experts in the field of construction 3) through personal observation, experience, and judgment. The mixed approach (1) & (2) is used by other researchers as well including (El-Sayegh et al, 2018). The Interview/Survey has been conducted among 12 experts in the field of project and construction management from various regions. The risks identified above in the risk identification section are presented in tabular form to the experts during the interview process. It has been asked to identify additional risks which they experienced during the project's construction. The experts are then asked to rank the risk from low risk (1) to considerable high risk (5) and their probabilities from very low (VL) to Very high (VH). To smoothen this process frequency and severity risk rating table has been established before the interview process which is presented below.

Table 1: Frequency and Severity Risk Rating Scale

Probability			+/– Impact On Project Objectives			
Level	**Rating the Frequency of Risk**	**Score**	**Time Delay**	**Cost (Loss)**	**Rating the Severity of Risk**	**Score**
Very High	Once or more than once in one year	5	>6 Months	>$ 5M	Very significant impact on the overall functionality	E
High	At least twice in 4 years	4	3-6 Months	$1M-$5M	Significant impact on the overall functionality	D
Medium	Up to about once in 7 years	3	1-3 Months	$501K-$1M	Some impact in key functional areas	C
Low	once or twice in 10 years	2	1-4 Weeks	$100k-$500K	Minor impact on the overall functionality	B
Very Low	May or not occur in 10 years	1	1 Weeks	<$100K	Minor impact on secondary functions	A

The scores provided by the experts will be used to calculate the associated risks in using the Probability Impact matrix (PIM). Risk Probability (likelihood) is represented as a "Very High" (VH), 'High' (H), 'Medium' (M), 'Low' (L), and 'Very Low' (VL) with a score of 5, 4, 3, 2,1 respectively. Similarly, risk impact (Severity) is represented as "Very High" (VH), 'High' (H), 'Medium' (M), 'Low' (L), and 'Very Low' (VL) with a score represented in A, B, C, D, E respectively. The probability of occurrence of risk is divided into five levels starting from very low with a probability of 0.1 to very high with a probability of 0.9. The severity of impact is from 10% to 90%. This is shown in the table below.

Table 2: Risk Evaluation Matrix & Probability Impact Weighted Matrix

Score Probability Impact Matrix (PIM)						
VH (5)	0.9	9	27	45	63	81
H (4)	0.7	7	21	35	49	63
M (3)	0.5	5	15	25	35	45
L (2)	0.3	3	9	15	21	27
VL (1)	0.1	1	3	5	7	9
Risk probability (Likelihood)		10%	30%	50%	70%	90%
		VL(A)	L(B)	M(C')	H(D)	VH(E')
		Risk Impact (Severity)				

Probability Impact Matrix (PIM)					
VH (5)	5A	5B	5C	5D	5E
H (4)	4A	4B	4C	4D	4E
M (3)	3A	3B	3C	3D	3E
L (2)	2A	2B	2C	2D	2E
VL (1)	1A	1B	1C	1D	1E
Risk Probability (Likelihood)	VL(A)	L(B)	M(C')	H(D)	VH(E')
	Risk Impact (Severity)				

Political risks (1.1 in the risk register below) were taken as the first risk for semi-quantitative analysis. The First identified risk is "Change in Government Policy". According to the experts, the probability of happening this

risk is between 3 to 5 years. The impact of this risk as highlighted is a 3 to 6-month delay in the project. This may be due to the change in government. The Probability and Impact Score obtained from the survey is 3C, 3C, 3E, 4E, 2D, 2C, 2C, 3D, 3D, 3C, 3D, 5B which correspond to the risk scores of 25, 25, 45, 63, 21, 15, 15, 35, 35, 25, 35, 27 respectively. Since the survey is conducted among experts from various regions with different years of experience, size, and nature of projects, there found variability in the data as shown above. We have adopted an average method to derive the overall risk score of the particular risk which is 31 in this case. The overall score is rounded off to the nearest number in Table 2 which is 35 and lies in the Medium Risk range according to Table 3 and colored as Orange. The risks with similar scores e.g. 2E (27) & 5B (27) has been analyzed in the data string and the prevalent risk score or repetitive risk score will be selected. The risk response plan against this risk (Risk register 1.1) would be "Accept" and the contingency plan against this risk would be "Create alternative construction plans to adapt to policy changes". It is to be noted that Contingency planning and Risk responses are not the fixed rules and may vary according to the experience of the risk management team, the current scenario of the project including available resources, time, budget and other constraints.

In the same fashion, all other risks have been analyzed one by one with the experts and the respective score has been calculated which is summarized in Table 4 below. The evaluated risk can be prioritized with respect to the associated risk score for further actions. A risk assessment score index with four levels of assessment is established with the help of a probability impact matrix (PIM). This table will help in deciding the action required for each risk with respect to its risk score. The risk with the highest score required immediate attention while the risk with low priority is to be kept on the watch list. The risk assessment score index is shown below in Table 3.

Table 3: Risk Assessment Score Index

Risk Assessment Index	Criteria	Risk Score
3E, 4E, 4D, 5C, 5D,5E	Immediate Action required	45-81
2D, 2E, 3C, 3D, 4C, 5B	Unacceptable, short-term planning required	21-35
1D, 1E, 2B, 2C, 3B, 4A, 4B,5A	Unacceptable, long-term planning required	7-15
1A, 1B, 1C, 2A, 3A	Acceptable, temporary no action required	1-5

The risk I. Ds have been placed in the probability impact matrix (risk placement matrix) to categorize risk with respect to priority. The table serves as a dashboard for communicating risk to stakeholders at a glance and helps in risk planning also. The aim of the risk management team is to move the risk from the red zone to the blue zone, after putting contingency planning in place. The risk placement matrix is shown below in Table 5.

Table 4: Risk Register

Risk Register (PESTLE) P= Probability I= Impact							
Risk I.D	**Risk Cat**	**Risk Description**	**(P) (I)**	**Avg. Score (Round Off)**		**Risk Response**	**Contingency Plan**
1.1	Political	Govt. Policy Change (change in local code, prioritization of govt. project)	3D	31	35	Accept	Create alternative construction plans to adapt to policy changes.
1.2		Change in Foreign Policies (Trade restrictions, labor mobility, and immigration)	2D	22	21	Accept	Create a comprehensive communication strategy.
1.3		Corruption (Internal corruption, Political party in control)	4C	32	35	Mitigate	Establish a strong oversight committee with external auditors.
1.4		Regulation & Legislation (Environmental and safety regulations, permit, and license)	4B	19	21	Accept	Adjust construction plans and timelines to comply with changing laws.
1.5		Disputed Land	2D	22	21	Mitigate	Negotiate and mediate a land dispute with relevant parties.

Risk Register (PESTLE) P= Probability I= Impact							
Risk I.D	**Risk Cat**	**Risk Description**	**(P) (I)**	**Avg. Score (Round Off)**		**Risk Response**	**Contingency Plan**
2.1	Economical	Inflation, Currency destabilization & Devaluation	4D	47	49	Mitigate	Monitor inflation rates and adjust project budget and timelines.
2.2		Cost Variance, scope variation, scope creep	4D	45	49	Mitigate	Set up a strong monitoring and control system to keep track of costs and changes to the project's scope.
2.3		Accidental Loss (Collapse during construction)	2C	16	15	Mitigate	Set up a strong network of communication with the right government agencies.
2.4		Shortage of Funds for Construction	3E	36	35	Mitigate	Look for additional funding from alternative sources or consider cost-cutting options.
2.5		Supply Chain disruption	2E	28	27	Mitigate	Find alternative suppliers and different ways to get materials and resources.
3.1	Social	Poor Relationship with stakeholders	3D	37	35	Mitigate	Set up open channels of communication, deal with concerns quickly, and look for mediation.
3.2		Health & Safety at the construction site	3C	23	25	Mitigate	Establish communication protocols with stakeholders and local authorities.
3.3		Challenge due to adjacent projects	2C	12	15	Mitigate	Assign project manager efficiently and set up clear communication channels.
3.4		labor union, a dispute over wages	3E	12	15	Mitigate	Do regular wage audits, and work with labor unions.
3.5		Ethnic Biases	2C	13	15	Mitigate	Train all project team members on diversity and inclusion.
4.1	Technological	Machine and tools breakdown during construction	5B	26	25	Mitigate	Keep a backup stock of essential equipment, set up a team that can troubleshoot equipment.
4.2		Unavailability of technology and software	4B	20	21	Mitigate	Execute manual tracking and reporting mechanisms.
4.3		Unavailability of relevant experience technical staff	2D	21	21	Mitigate	Select and train substitute personnel internally.
4.4		Sole distributor of specific technology	2D	18	21	Accept	Identify substitute providers, formulate a transition tactics.
4.5		Data Loss	2D	18	21	Mitigate	Execute frequent data backups and take advantage of cloud storage.
5.1	Legal	Noncompliance with the environmental protection agency	2C	14	15	Mitigate	Establish strict compliance measures and recruit a team of specialists to ensure all

Risk Register (PESTLE) P= Probability I= Impact							
Risk I.D	**Risk Cat**	**Risk Description**	**(P) (I)**	**Avg. Score (Round Off)**		**Risk Response**	**Contingency Plan**
							measures are followed by team.
5.2		Contract Breach	3C	24	25	Mitigate	Involve a legal representative to evaluate the violation, bargain for a settlement, and take legal action if required.
5.3		Site Casualties, legal dealing	4B	19	21	Mitigate	Set up safety programs, train workers, do inspections, and limit your legal liabilities.
5.4		Damage to external dry and wet utilities	2C	15	15	Mitigate	A detailed survey of existing utilities approved by all stackholders prior to commencement of work.
5.5		Statuary Approvals	3C	24	25	Mitigate	Hire a team of experienced lawyers to speed up the process of statutory approval.
6.1	Environmental	Ecological risk	3C	24	25	Mitigate	Hire lawyers to make sure you're following environmental laws, getting the permits you need, and dealing with any future environmental problems.
6.2		Weather and Climatic Conditions	3C	24	25	Accept	Set up alternative construction schedules and work methods, get weather insurance.
6.3		Construction waste	4B	20	21	Mitigate	Make sure safety rules are followed strictly, do regular inspections, and set up an effective way to get rid of debris.
6.4		Health & Safety Issues (Non-Bio-degradablewaste)	5A	20	21	Mitigate	Set up a complete waste management system to sort non-biodegradable trash and get rid of it.
6.5		Natural Disaster	2D	22	25	Accept	All construction will stop right away, and workers will be moved to a safe place until it's safe to go back to work.

Table 5: Risk Placement Matrix

VH (5)		**1.1, 1.2,1.3**	**2.1,2.2,2.4,3.4**		
H (4)	**1.4,2.3,3.3**		**1.5,2.5,3.1,3.2,4.1,4.3**		
M (3)		**3.5,4.2,5.1,5.3,**		**4.4,4.5,5.2,5.5**	**6.1,6.2,6.5**
L (2)					
VL (1)				**5.4,6.3,6.4**	
Risk Probability (Likelihood)	**VL (A)**	**L (B)**	**M (C')**	**H (D)**	**VH (E')**
	Risk Impact (Severity)				

Results Of Discussion

When comparing with other research works, we found that prior research papers on construction management predominantly covering the risk analysis by qualitative analysis approach, with few employing semi-quantitative approach. Qualitative approach has the limitation of not using the probability and impact of the risk and hence are based on subjective human judgement, thereby compromising accuracy. In contact, we have adopted the semi-quantitative approach which is more accurate and based on the numerical values to derive the risk rating to determine the level of severity of the risk which in turn, enable to take inform decision for risk mitigation and enhances overall risk planning efficiency. Furthermore, the semi-quantitative approach presented in prior research, typically focus on the identification and prioritization of risks neglecting risk response planning and contingency planning. In contrast, our study addresses this gap by progressing to from risk identification and prioritization factoring in severity to comprehensive risk evaluation, we presented all the identified risk in the form of risk register with robust risk response and contingency planning.

Conclusion

Risk identification and its evaluation are the keys to any risk management process. The results obtained after this process can be integrated with other project management processes for the overall evaluation of the project. Five risks per risk category of PESTL make the total identified risk reach 30 in number that has been presented in this paper. On analyzing this risk, we come to conclusion that approximately15% risks are severe in nature and require immediate action while 50% risks are of moderate severity, 30% risks fall under low severity level and the remaining 5% are acceptable and do not require any immediate action.

The identified risks in this study are evaluated using semi-quantitative research. This technique improves the reliability and validity of the risk assessment process. Mixed-method research method as used in this study is extremely useful for revealing the experiences and research of people extracted from various journals and through interviews with construction experts as well.

A comprehensive list of identified risks has been arranged in the form of a risk register. The probability and impact have been assigned to each risk in numeric to give a clear sense of understanding. The score is placed in a separate matrix to help identify the levels of risk at a glance without going into more detail. This paper also suggests the contingency planning of each risk which can act as a good starting point for construction people in risk planning.

We have tried to cover most of the risk aspect in construction but still, there is some limitation which is beyond our approach. They are (i) Variation in risk management practices across regions, project type, and size of the project (ii) Some experts are hesitant to disclose certain risk information (iii) Limited generalizability (iv) Credibility and trustworthiness of the collected data (v) Severity percentage of risk calculated are based on collected data, with their accuracy contingent upon the correctness of data. To address these limitations, future studies should consider diversifying risk management and covering factors like risk perceptions and management practices across various regions, sizes, and types of projects.

Recommendations

This study shall provide a systematic approach of identifying, analyzing, and evaluating risk by using various tools and techniques and provide practical insights (extracted from other research articles) for the future researchers, project managers, construction manager and other people related to construction management The study shall also provide the solution to effectively address and manage the identified risks by employing risk response and contingency planning elucidated in the paper.

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Determinants of Students Satisfaction in Online Learning: A Case Study at Monywa University of Economics

May Thu Khaing[1]*, Josu Alexwin[2] and Thin Thin Aye[3]

[1] Monywa University of Economics, mtk.kudaw@gmail.com
[2] Health Education and Literacy Project(HELP), dralexwin@gmail.com
[3] Monywa University of Economics, thinthinaye3969@gmail.com

* Correspondence: mtk.kudaw@gmail.com

Abstract

This study explores the determinants of student satisfaction in online learning, namely, interaction, course structure, instructor knowledge and facilitation, motivation, and support for studies at the Monywa University of Economics. The population of the study is 250 online students in the Master of Marketing Management (MMM) programme and Diploma in Business Studies (DBS) programme of Commerce Department at Monywa University of Economics., and 120 students were selected according to stratified random sampling. The primary data were collected from 120 students using structured questionnaires with a five-point Likert scale. Data was analyzed by using descriptive and regression analysis. The results show that Instructor Knowledge and Facilitation is the most influencing factors. Interaction, course structure, motivation, and support for studies also significantly impact student satisfaction in online learning. Therefore, interaction, course structure, instructor knowledge and facilitation, motivation, and support for studies are vital for student satisfaction in online learning, although the generalization of the study is limited due to the scope.

Keywords: Perceived learning, Satisfaction, Online learning, MUE

Introduction

Globalization has created a "marketplace" for all universities; in other words, students have more choices for their study with a possible balance between cost and quality (Ben Jaafar et al., 2022). The sudden shift from traditional to entirely online classrooms has promoted online learning significantly more than ever (Dhawan, 2020). Consequently, student satisfaction has continuously changed to adapt to the situation. Online learning refers to an electronic learning environment where, unlike traditional learning, there are no physical peer learners, and there is freedom of time and space. However, e-learning makes learning flexible and provides an alternative for those who cannot attend traditional classrooms.

With the growth of technology and the Internet, e-learning has secured a good position in the academic world. At times, e-learning is included in distance education (Bates, 2005). Indeed, there are numerous pros of online learning, especially in modern times, but conversely, some concerns lead to the attrition of online learners and eventually impede the progress of online courses (Baber, 2020).

The pandemic of COVID19 has forced educational institutes, including instructors and learners, to move online, with which they were unfamiliar (Henriksen, Creely, & Henderson, 2020). There are many studies on student satisfaction, especially at the tertiary levels. Based on the form of the learning process, these researchers focus on two main areas: (1) traditionally face-to-face classrooms and (2) online learning (including different forms of online learning such as blended-learning, or utter online learning, etc.) (Baber, 2020). These studies propose many factors related to student satisfaction in higher education institutions, such as teaching/learning quality, community interactions, facilities quality, etc. Other factors affecting student satisfaction in online learning include student interaction, instructors, course management and structure, technology and instruction methods.

Human resource development (HRD) has been playing a vital role in every sector for developing a country. HRD is also a dynamic process, which continues evolving new knowledge and practices, necessitated by the exigencies of the situational challenges, filled by human idealism, supported by a growing knowledge base about human systems and chiseled by pioneering practitioners. HRD has become very important not only in administration but also in the corporate world. In such a scenario human resource development becomes very important as new opportunities emerge. Thus, countries are focusing on enhancing their existing human capital to have competitive advantages not just regionally but also globally.

MUE is the sole economics university located in the Sagaing region in Monywa, northwestern part of the country. It delivers business classes with five major departments: the Department of Commerce, Department of Management Studies, Department of Statistics, Department of Economics, and Department of Applied Economics. It also includes four supporting departments and two administrative departments.

As an initiative of MUE, it started delivering virtual programs to follow social distancing during the pandemic, and unfortunately, it took longer when the political changes in Myanmar. Thus, the existing seven programs of MUE have changed from in-person courses to virtual courses, and somehow, many opportunities have been created for students who live in remote areas and other states and regions. Therefore, the study aims to find determinants of student satisfaction in online learning, namely, interaction, course structure, instructor knowledge and facilitation, motivation and support for studies.

Objectives of the Study

1. To identify determinants of student satisfaction with virtual programs
2. To analyze the effect of determinants on students' satisfaction of the virtual programs

Literature Review

Elliott and Healy (2001) define satisfaction as students' experience when they start their education and after graduation. Also, they indicate that students feel satisfied when their academic experience or performance matches their expected outcomes of choosing a particular program or institution. Cojocariuet al. (2014) proposes that online learning is using internet-connected computers to make learning happen anywhere and anytime. Aldridge and Rowley (1998) categorize students' satisfaction into two main measurable domains: (1) the teaching and learning process, and (2) complete students' experience. Student satisfaction is defined under those two domains in the online learning environment (Aldridge & Rowley, 1998).

Muilenburg and Berge (2005) identified eight barriers that prevent students from satisfactory online education: administrative and technical issues, lack of academic and technical skills, interaction, motivation, time, and support for studies, and accessibility and affordability of Internet usage. Similarly, Baber (2020) performed a comparative analysis to investigate the determinants of students' learning satisfaction on undergraduate students from South Korea and India. The study discovered that variables such as interaction in the classroom, student engagement, course structure, teacher awareness, and facilitation positively influence students' perceived learning satisfaction.

Baber (2020) said that with particular expectations on interactions in the classroom, course structure, teacher awareness and facilitation. Dziuban, Wang, and Cook (2004) concluded that students were more likely to evaluate courses and instructors with satisfactory ratings if they believed their professors communicated effectively, facilitated or encouraged their learning, organized the course effectively, showed interest in students' learning and progress, demonstrated respect for students, and evaluated students' work accurately.

Research Hypothesis

Interaction can be categorized into three dimensions: interaction with instructors, interaction with peers, and interaction with content (Moore, 1989). The interaction factor is a major catalyst of student satisfaction (Baber, 2020). A course structure is better defined as the design, development, planning and organization of a course (Garrison et al., 2000) and is a main contributor to students' satisfaction and academic achievements (Kim & Lee, 2014). Eom and Ashill (2016) found out that the instructors' experience and knowledge can significantly influence students' satisfaction. Students' self-motivation has a significant relationship with UNITAR College online learning students' satisfaction (Raime et al., 2020). Student satisfaction is the subjective perception, on students' part, of how well a learning environment supports academic success (Lo, 2010). Therefore, the study proposed:

H1: Interaction has a significant and positive impact on student satisfaction in online learning.

H2: Course Structure has a significant and positive impact on student satisfaction in online learning.

H3: Instructor Knowledge and Facilitation has a significant and positive impact on student satisfaction in online learning.

H4: Motivation has a significant and positive impact on student satisfaction in online learning.

H5: Support for Studies has a significant and positive impact on student satisfaction in online learning.

Measures and Methodology

This study applied quantitative and qualitative data. Primary data were collected through Google form (or) Gmail by using structured questionnaires from students of virtual programs in the Commerce Department. There are two virtual programs (DBS and MMM) in Commerce Department. There are almost 250 students in two virtual programs. The sample size was determined using the formula "Taro Yamane" (Yamane, 1967) with stratified random sampling method. The tolerance level is 95% or less than 5%, so the total samples are set up for 150 sets. However, 120 usable responses are applied for descriptive and regression analysis after removing incomplete data.

Secondary data are gathered from theories, research papers, articles, journals, websites, and other sources. The study focused only on opinions about the satisfaction of virtual program students in the Commerce Department. The analysis is also based on primary data from the Commerce Department's virtual programs, but the study's generalization was limited in the current situation of the department's programs. Descriptive and regression analyses describe the student's perception of online learning and examine the determinants of student satisfaction in online learning.

Results

According to descriptive analysis of the demographic characteristics of the respondents, the number of female respondents is higher than that of male respondents. Most of the respondents are between 31 and 40 years old, and most of the respondents are bachelor's degree holders. Most of the students' occupation is company staff.

In order to explore the impact of interaction, course structure, instructor knowledge and facilitation, motivation and support for studies on student satisfaction in online learning, regression analysis was conducted. Table 1 describes the results of the regression analysis of the study.

Table 1: The Impact of Determinants on Student Satisfaction

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	**Std. Error**	**Beta**		
Constant	1.143	0.242		3.620	0.000
Interaction	0.500***	0.223	0.635	0.822	0.002
Course Structure	0.802***	0.252	0.590	3.186	0.000
Instructor Knowledge and Facilitation	0.871***	0.218	0.676	3.995	0.000
Motivation	0.594***	0.231	0.076	9.976	0.001
Support for Studies	0.348***	0.204	0.409	3.721	0.000
F	: 31.877***				0.000
R	: 0.768				
Adjusted R^2	: 0.571				

Source: Survey Data (2023)
Independent Variables – determinants
Dependent Variables – student satisfaction
*** Correlation is significant at the 0.01 level (2-tailed)

According to the results of multiple linear regression analysis, it is found that the estimated effect of determinants on student satisfaction model is significant at 1% level as the calculated value of F is 31.877 with p-value of 0.000 < 0.01. The adjusted R^2 value is 0.571 which means that 57.1 % of perceptions of students' satisfaction is explained by determinants on student satisfaction of the programs.

According to Table 1, interaction contributes the most satisfaction in online learning at a 0.001 significant level, and the coefficient of interaction is 0.500. In other words, if the students think that interaction is good, they will satisfy in online learning. Instructor knowledge and facilitation is the second most significant effect on student satisfaction in online learning at a 0.001 significant level, and the coefficient of course structure is 0.802 and 0.871. This means that if the instructors have more knowledge and facilitating ability, the students will be more satisfied with online learning. Course structure is the third most significant effect on student satisfaction in online learning at a 0.001 significant level, and the coefficient of course structure is 0.802 and 0.871. If the course structure is appropriate for current students, they tend to be more satisfied with online learning. Motivation and support for studies also significantly affect student satisfaction at a 0.01 significance level, and the coefficient of motivation and support for studies is 0.594 and 0.348. It reveals that students will be satisfied with online learning if they maintain their motivation and support for studies. After analyzing the effect of determinants on student satisfaction, it can be said that all variables affected student satisfaction.

Discussions

This study aimed at identifying the determinants of student satisfaction with online learning. The literature established five hypothesized relationships between 5 different factors: interaction, course structure, instructor knowledge and facilitation, motivation and support for studies, and student satisfaction. Based on the hypotheses testing results, it was concluded that there were five determinants of student satisfaction in online learning. Interaction has a positive significant impact on student satisfaction. This result is in line with Moore's findings (2014). Course structure has an impact on student satisfaction. This finding is consistent with the studies of AlSheeb et al. (2018).

An instructor in an online environment plays two significant roles: a designer and a facilitator (Martin, Wang, & Sadaf, 2018). During course instruction, the instructor has to act like a 'facilitator' to facilitate learning and actively engage in discussions with learners (Riva, Davide, & IJsselsteijn, 2003). The facilitating role of the instructor and the knowledge he/she possesses influences the student learning outcome and satisfaction. The results show that instructor knowledge and facilitation are essential determinants of students' learning outcomes and satisfaction.

Student motivation is a crucial element of a successful learning outcome in both offline and more online education. Motivation is an important determinant of student satisfaction. The past studies of Bolliger et al. (2010) and Hsu et al. (2019) support the findings of this study. Support for studies has a positive and significant effect on student satisfaction. Students constantly seek something useful for their educational experience and future in any learning environment, primarily online. This assumption is similar to the findings of Nguyen et al. (2016) and AlSheeb et al. (2018). Student satisfaction is the subjective perception, on students' part, of how well a learning environment supports academic success (Lo, 2010). These factors are essential to increase student satisfaction in online education and might be guidelines for future online courses.

Suggestions and Recommendations

Course structure has a positive effect on perceived learning. According to this study, the program should continue provide good course structure. And it should regularly update course structure because it is essential to a positive impact on programs and helps keep students feel worthwhile in attending the program. It should continue to make flexible time for students, which is a good way to satisfy them. Meeting the objective of the course subjects that are required for students In addition, it should meet the objective of course structure and increase student perceived learning. The programs should support courses that include more and more subjects that are required of students. Besides, the course structure had to be modified to fit the online learning needs, which may have enhanced the student's perceived learning.

Instructor knowledge and facilitation has a positive effect on perceived learning. However, the programs must continue to teach with professional teachers in their respective subjects. The instructor has to act like a 'facilitator' to facilitate learning. The facilitating role of the instructor and the knowledge he/she possesses influences the student perceived learning and satisfaction. The instructors had to adjust themselves to a changing environment, get their technical skills polished during the process, and provide technical expertise facilitation to the students new to this environment. The programs should mainly teach students to understand more than conventional methods. It should also pay attention to the students' opinions and discussions in class. In addition, it should continue to develop the expertise and teaching style of the teachers. It should train to have the necessary technical skills for online teaching.

Student-perceived learning has a positive effect on student satisfaction. Therefore, it can be concluded that if the students are much more satisfied with perceived learning, they will be much more satisfied with online learning.

Therefore, the programs should focus on student-perceived learning, which can improve satisfaction. The more perceived learning is, the more satisfied they are at a higher level. Students are satisfied with the course modality in delivery and staff responsiveness to technical support. Besides, students are satisfied with the academic advisor to follow up and support the program's webinars, seminars, and courses.

Needs for Further Research

This study emphasizes the effect of determinants of student satisfaction of the virtual programs of Commerce Department. In further research, it should study other determinants of student satisfaction. Further research should study the barriers of online learning on perceived learning and satisfaction. Nowadays, every organization is using online learning for all study. Due to the time constraints, only a few samples were taken from two department virtual programs. Examining the determinants on perceived learning and satisfaction of offline classrooms is also important. Finally, more exploration studies could be conducted to identify more determinants of student satisfaction with online learning.

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Leadership Styles and Organizational Commitment at Selected Hotels in Naypyitaw, Myanmar

Thin Thin Aye[1]*, Prof Dr Saw Htay Myint @ Josu Alexwin[2] and May Thu Khaing[3]

[1] Monywa University of Economics, thinthinaye3969@gmail.com
[2] Myanmar Creative University, MCU, dralexwin@gmail.com
[3] Monywa University of Economics, mtk.kudaw@gmail.com

* Correspondence: thinthinaye3969@gmail.com

Abstract

This study aims to identify leadership styles and organizational commitment at selected hotels in Naypyitaw. The main objectives of this study are to identify dominant leadership styles, to analyze the effect of leadership styles on job satisfaction and to analyze the effect of job satisfaction on organizational commitment at selected hotels in Naypyitaw. Hotel 101, Mingalar Thiri Hotel, Hotel Max, Tungapuri Hotel and Royal Naypyitaw Hotel are selected in this study. The required primary data are collected from 120 employees at selected hotels in Naypyitaw by using simple random sampling method with structured questionnaires and five-point Likert scale. In this study, descriptive statistics and multiple linear regression analysis are used. The findings of this study reveal that the supportive and participative leadership styles are the dominant leadership styles at selected hotels in Naypyitaw. The supportive and participative leadership styles have more effect on employees' job satisfaction than directive leadership and achievement-oriented leadership style. And then, job satisfaction has significant and positive effect on organizational commitment at selected hotels in Naypyitaw.

Keywords: Leadership style, Job satisfaction, Organizational commitment

Introduction

The hotel industry is facing a formidable set of challenges today. Economy of Myanmar much depends on hotel industry development. So, the aspect of hotel industry must be deeply concentrated. An organization needs to possess appropriate leadership design to attain their goals and to enable the achievement of the staffs at a personal aspect. Improper leadership style affects negatively the development of the industry since managers do not have necessary leadership skills to lead the organization to attain its target purpose. Increased level of employee job satisfaction and organizational commitment results in the attainment of organizational objective.

Leaders use the different leadership styles for different situations. To be qualified employees, the role of principles is important to lead and manage the employees efficiently and effectively. In this study, the selected hotels in Naypyitaw are chosen as the study area. Naypyitaw is the capital and third-largest city of Myanmar. Naypyitaw has many interesting places and famous palaces. Naypyitaw has some international standard hotels and many motels. Leader is responsible for managing employees and be able to make decision for the department. Leader guides and provides employees with good knowledge and skill to have better performance. Leader should practice and implement their leadership skill in managing their employees carefully. Leader provides the needed information and helpful suggestions to carry out the work. Therefore, this study aims to identify leadership styles and organizational commitment at selected hotels in Naypyitaw.

Objectives of the Study

1. To identify dominant leadership styles at selected hotels in Naypyitaw.
2. To analyze the effect of leadership styles on job satisfaction at selected hotels in Naypyitaw.
3. To analyze the effect of job satisfaction on organizational commitment at selected hotels in Naypyitaw.

Measures and Methodology

This study only examines to identify dominant leadership styles (directive, supportive, participative, and achievement-oriented), to analyze the effect of leadership style on job satisfaction and to analyze the effect of job satisfaction on organizational commitment at selected hotels in Naypyitaw. This study applies qualitative and quantitative research methods. Primary and secondary data are used in this study. The required primary data are collected from selected hotels in Naypyitaw by using simple random sampling method with structured questionnaires and five-point Likert scale. In this study, there are 35 hotels with 3 stars in Naypyitaw. Among them, Hotel 101, Mingalar Thiri Hotel, Hotel Max, Tungapuri Hotel and Royal Naypyitaw Hotel are selected to study because they are situated within easy reach of all surrounding tourist destinations, provide good quality of services and have better customer feedback. There are 180 employees in five selected hotel in Naypyitaw. This study focused on 120 employees from selected hotel in Naypyitaw by using Yamane's formula: $n=N/(1+Ne^2)$. The descriptive statistics, and multiple regression analysis are used for this study. Secondary data and other information are obtained from relevant book, internet website, previous research papers and reference books.

Literature Review

Relationship between Leadership Styles and Job Satisfaction

Evidently, leadership style and job satisfaction have been extensively researched within the hospitality industry. Leadership is the process where leader influences employees' behavior to achieve organizational goals and objectives. Researchers have found that leadership styles have strong and positive influence on job satisfaction. Relationship between leadership styles and job satisfaction exists but it can vary from people to another person, leadership styles are dimensions of job satisfaction.

Understanding how leadership style impacts on employee's behaviors are considered as a critical factor in developing and maintaining work environments that promote for higher employee performance (Hong et al., 2016). Researchers do confirm a positive relationship between leadership styles and organizational commitment. A study by Yahaya and Ebrahim (2016) suggested that leadership styles could be considered as an antecedent to organizational commitment. Previous studies also concluded that such a positive relationship does exist between leadership styles and organizational commitment (Yiing & Ahmad, 2009). Riaz and Haider (2010) stated that employees are feel high level of satisfaction when they are given advancement increase in pay or provided with an opportunity for skill development.

There are many factors that may enhance job satisfaction of employees like working conditions, work itself, supervision, policy and administration, advancement, compensation interpersonal relationships, recognition and empowerment (Castillo & Cano, 2004) but leadership has a major relationship to enhance employees' job satisfaction. The four path-goal leadership styles related positively to employees' job satisfaction. Mahdi et al. (2014) also explain that directive leadership is associated with direct work process words such as "what to do," "how to do," "where," "when," and "who should do." Employees who work under a supervisor with a participative leadership style show commitment, involvement, and loyalty (Islam et al., 2018). Park and Shin (2021) argued that participative leaders enhance employees' ability to share innovative ideas and solutions. Such leaders also consider that this was the preferred style of leadership by employees and it was favorable for enhancing the commitment of employees (Bhatti et al., 2019). Therefore, participative leadership style was positively related to commitment to service. Therefore, it is important that relationship between leadership styles and employees' job satisfaction in any organization.

Relationship between Job Satisfaction and Organizational Commitment

Meyer et al. (2002), job satisfaction is a determinant of employees' commitment. Job satisfaction and organizational commitment focuses on employees' feelings, thoughts and emotional reactions in their work within the organization.

Committed and satisfied employees normally have a high performance which contributes towards organizational productivity (Samad, 2007). These two key concepts are very important because job satisfaction and commitment are the main determinants of employee turnover, performance, and productivity (Okpara, 2004). Aamodt (2007) indicated that satisfied employees tend to be committed to an organization and employees who are satisfied and committed are more likely to attend work, stay with an organization, arrive at work on time, perform well and engage in behaviors helpful to the organization.

Committed employees of the organization will perform their responsibilities and duties in a proper way (Viseu et al., 2020). Loan (2020) identified positive relationship between job satisfaction and organizational commitment by the findings of multiple linear regression analysis. The prior studies Sohail et al. (2018) and Hakami et al. (2020) indicated that high job satisfaction enhances normative and affective commitment; also, high/less job satisfaction will have no effect on continuous commitment.

The Conceptual Framework of the Study

Based on overall reviews of related literature and the results from the prior research a conceptual framework of the study can be developed in Figure 1.

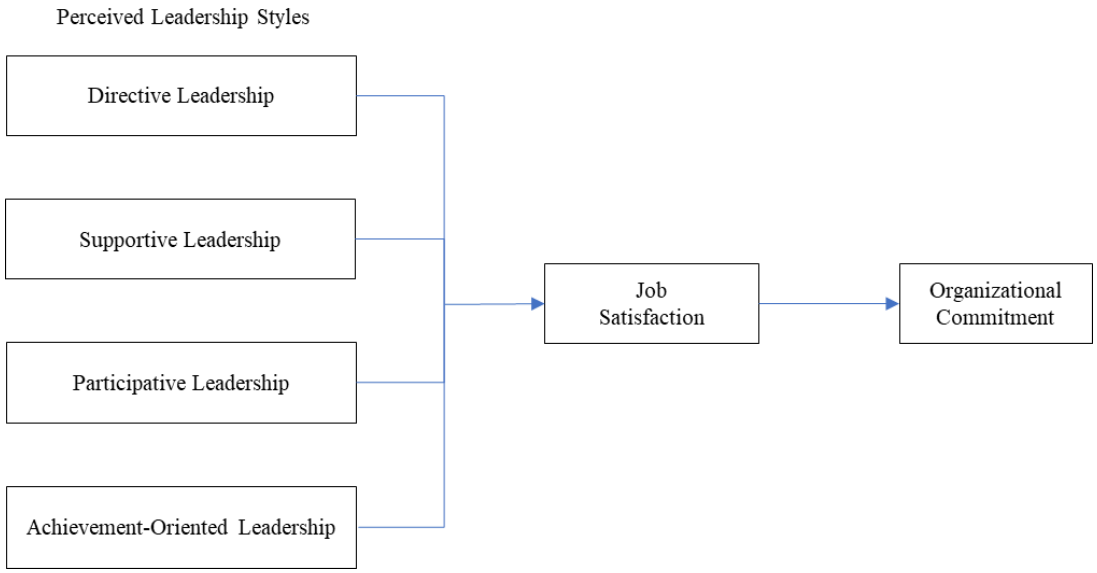

Figure 1: Conceptual Framework of the Study

According to the conceptual framework of the study, this study mainly explores three components namely, leadership styles, job satisfaction and organizational commitment at selected hotels in Naypyitaw. Leadership styles included directive leadership style, supportive leadership style, and participative leadership style and achievement-oriented leadership style are independent variables, whereas job satisfaction and organizational commitment are dependent variables.

Results/ Findings and Discussion

Dominant Leadership Styles at Selected Hotels

Leadership styles are measured by four factors: directive leadership, supportive leadership, participative leadership and achievement-oriented leadership at selected hotels in Naypyitaw. Perception of leadership styles are measured by five-point Likert scale (1= Strongly Disagree (SD), 2= Disagree (D), 3=Neutral (N), 4= Agree (A) and 5= Strongly Agree (SA).

Employees' Perception of Directive Leadership Style

Directive leadership style is measured by 8 statements. The results of employees' perception of directive leadership style are presented in Table 1.

Table 1: Employees' Perception of Directive Leadership Style

Sr. No.	Statement	Respond In	SD	D	N	A	SA
1.	Letting employees know what is expected of them.	Frequency	-	5	15	76	24
		%		4.2	12.5	63.3	20.0
2.	Informing employees about what needs to be done and how it needs to be done.	Frequency	-	1	18	77	24
		%		0.8	15.0	64.2	20.0
3.	Asking employees to follow standard rules and regulations.	Frequency	2	1	15	71	31
		%	1.7	0.8	12.5	59.2	25.8
4.	Explaining the level of performance that is expected of employees.	Frequency	-	3	29	64	24
		%		2.5	24.2	53.3	20.0
5.	Giving vague explanations of what is expected of employees on the job.	Frequency	8	37	25	40	10
		%	6.7	30.8	20.8	33.3	8.3
6.	Explaining schedules the work to be done.	Frequency	-	2	20	72	26
		%		1.7	16.7	60.0	21.7
7.	Explaining decisions and actions to employees.	Frequency	-	2	25	64	29
		%		1.7	20.8	53.3	24.2
8.	Explaining the purpose of the organizations polices to employees.	Frequency	1	1	25	68	25
		%	0.8	0.8	20.8	56.7	20.8
	Overall Mean				3.88		

Source: Survey Data (July, 2022)

According to Table 1, most of employees agree that explaining schedules the work to be done which is 81.7% of employees (including 64.2% and 20%). The second largest group of employees agree that informing employees about what needs to be done and how it needs to be done which is 83.3% of employees (including 63.3% and 20%). The third largest group of employees agree that letting employees know what is expected of them which is 81.7% of employees (including 60% and 21.7%). But the smallest group of employees agree that giving vague explanations of what is expected of employees on the job which is 41.6% of employees (including 33.3% and 8.3%).

Therefore, this means that leaders more explain schedules the work to be done but leaders need to give clear explanations of what is expected of employees on their job.

Employees' Perception of Supportive Leadership Style

Supportive leadership style is measured by 8 statements. The results of employees' perception of supportive leadership style are presented in Table 2.

Table 2: Employees' Perception of Supportive Leadership Style

Sr. No.	Statement	Respond In	SD	D	N	A	SA
1.	Maintaining a friendly working relationship with employees.	Frequency	1	6	14	68	31
		%	0.8	5.0	11.7	56.7	25.8
2.	Doing little things to make it pleasant to be a member of the group.	Frequency	-	4	17	75	24
		%		3.3	14.2	62.5	20.0
3.	Saying things that hurt employees' personal feelings.	Frequency	-	1	18	77	24
		%		0.8	15.0	64.2	20.0
4.	Helping employees overcome problems that stop them from carrying out their tasks.	Frequency	1	3	20	74	22
		%	0.8	2.5	16.7	61.7	18.3
5.	Behaving in a manner that is thoughtful of employees' personal needs.	Frequency	-	2	16	76	26
		%		1.7	13.3	63.3	21.7
6.	Giving encouragement and rewards for the duties and tasks that employees have done work.	Frequency	5	20	20	61	14
		%	4.2	16.7	16.7	50.8	11.7
7.	Treating all group members as equals.	Frequency	-	10	15	75	20
		%		8.3	12.5	62.5	16.7
8.	Showing concern for work group members' being.	Frequency	3	8	25	67	17
		%	2.5	6.7	20.8	55.8	14.2
	Overall Mean				3.93		

Source: Survey Data (July, 2022)

According to Table 2, most of employees agree that behaving in a manner that is thoughtful of employees' personal needs which is 85% of employees (including 63.3% and 21.7%). The second largest group of employees agree that saying things that hurt employees' personal feelings which is 84.2% of employees (including 64.2% and 20%). The third largest groups of employees agree that maintaining a friendly working relationship with employees which is 82.5% of employees (including 56.7% and 25.8%) and doing little things to make it pleasant to be a member of the group which is 82.5% of employees (including 62.5% and 20%). But the smallest group of employees agree that giving encouragement and rewards for the duties and tasks that employees have done work which is 62.5% of employees (including 50.8% and 11.7%).

Therefore, this means that leaders more behave in a manner that is thoughtful of employees' personal needs but leaders need to give encouragement and rewards for the duties and tasks that employees have done work.

Employees' Perception of Participative Leadership Style

Participative leadership style is measured by 8 statements. The results of employees' perception of participative leadership style are presented in Table 3.

Table 3: Employees' Perception of Participative Leadership Style

Sr. No.	Statement	Respond In	SD	D	N	A	SA
1.	Consulting with employees when facing a problem.	Frequency	1	14	20	70	15
		%	0.8	11.7	16.7	58.3	12.5
2.	Listening receptively to employees' ideas and suggestions.	Frequency	2	5	22	70	21
		%	1.7	4.2	18.3	58.3	17.5
3.	Acting without consulting with employees.	Frequency	-	7	22	67	24
		%		5.8	18.3	55.8	20.0
4.	Asking for suggestions from employees concerning how to carry out assignments.	Frequency	-	3	14	77	26
		%		2.5	11.7	64.1	21.7
5.	Before acting, consulting with employees.	Frequency	1	7	19	77	16
		%	0.8	5.8	15.8	64.2	13.3
6.	Delegating duties and tasks among the employees according to the capacity of each employee.	Frequency	-	3	19	71	27
		%		2.5	15.8	59.2	22.5
7.	Giving all employees a chance to voice their opinions.	Frequency	1	7	18	72	22
		%	0.8	5.8	15.0	60.0	18.3
8.	Considering employees' ideas when disagreeing with them.	Frequency	3	6	21	77	13
		%	2.5	5.0	17.5	64.2	10.8
	Overall Mean			3.95			

Source: Survey Data (July, 2020)

According to Table 3, most of employees agree that asking for suggestions from employees concerning how to carry out assignments which is 85.8% of employees (including 64.1% and 21.7%). The second largest group of employees agree that delegating duties and tasks among the employees according to the capacity of each employee which is 81.7% of employees (including 59.2% and 22.5%). The third largest group of employees agree that giving all employees a chance to voice their opinions and considering employees' ideas when disagreeing with them which is 78.3% of employees (including 60% and 18.3%). But the smallest group of employees agree that consulting with employees when facing a problem which is 70.8% of employees (including 58.3% and 12.5%).

Therefore, this means that leaders more ask for suggestions from employees concerning how to carry out assignments but leaders need to consult with employees when facing a problem.

Employees' Perception of Achievement-oriented Leadership Style

Achievement-oriented leadership style is measured by 8 statements. The results of employees' perception of achievement-oriented leadership style are presented in Table 4.

According to Table 4, most of employees agree that letting employees know that expecting them to perform at their highest level which is 81.6% of employees (including 60.8% and 20.8%). The second largest group of employees agree that encouraging continual improvement in employees' performance which is 80.8% of employees (including 58.3% and 22.5%). The third largest group of employees agree that establishing a high standard of excellence for employees which is 74.2% of employees (including 57.5% and 16.7%). But the smallest group of employees agree that showing that having doubts about employees' ability to meet most objectives which is 39.2% of employees (including 29.2% and 10%).

Therefore, this means that leaders more let employees know that expecting them to perform at their highest level but leaders need to show employees' ability to meet most objectives.

Table 4: Employees' Perception of Achievement-oriented Leadership Style

Sr. No.	Statement	Respond In	SD	D	N	A	SA
1.	Letting employees know that expecting them to perform at their highest level.	Frequency	1	2	19	73	25
		%	0.8	1.7	15.8	60.8	20.8
2.	Setting goals for employees' performance that are quite challenging.	Frequency	3	3	31	62	21
		%	2.5	2.5	25.8	51.7	17.5
3.	Encouraging continual improvement in employees' performance.	Frequency	1	7	15	70	27
		%	0.8	5.8	12.5	58.3	22.5
4.	Showing that having doubts about employees' ability to meet most objectives.	Frequency	14	28	31	35	12
		%	11.7	23.3	25.8	29.2	10.0
5.	Setting that challenging goals for employees to attain.	Frequency	3	11	20	71	15
		%	2.5	9.2	16.7	59.2	12.5
6.	Giving feedback for continuous improvement on performance.	Frequency	2	10	22	72	14
		%	1.7	8.3	18.3	60.0	11.7
7.	Setting clear and challenging goals and target for employees.	Frequency	2	15	27	65	11
		%	1.7	12.5	22.5	54.2	9.2
8.	Establishing a high standard of excellence for employees.	Frequency	-	6	25	69	20
		%		5.0	20.8	57.5	16.7
	Overall Mean			3.70			

Source: Survey Data (July, 2022)

Overall Mean Values of Leadership Styles

In this study, the leadership styles of employees were analyzed by using four factors: directive leadership, supportive leadership, participative leadership and achievement-oriented leadership. The comparison of perception of leadership styles were shown in Table 5.

Table 5: Overall Mean Values of Leadership Styles

Sr. No.	Factor	Mean	Standard Deviation
1.	Directive Leadership	3.88	0.52
2.	Supportive Leadership	3.93	0.70
3.	Participative Leadership	3.95	0.80
4.	Achievement-oriented Leadership	3.70	0.64

Source: Survey Data (July, 2022)

According to Table 5, the mean value and standard deviation of each of the factors are described. It is found that the mean score values of directive leadership, supportive leadership, participative leadership and achievement-oriented leadership are 3.88, 3.93, 3.95 and 3.70 respectively. It is found that the mean value of participative leadership style is the largest. The mean value of supportive leadership style is greater than the mean values of directive leadership style and achievement-oriented leadership style. And the mean value of achievement-oriented leadership style is less than the mean values of directive leadership style. The mean value of achievement-oriented leadership style is the smallest. Therefore, it can be concluded that participative leadership style is the dominant leadership style in this study.

The Effect of Leadership Styles on Job Satisfaction

To study the effect of leadership styles on job satisfaction of employees, multiple linear regression is used. This study is shown below.

Table 6: The Effect of Leadership Styles on Job Satisfaction

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.547	0.218		2.513	0.013
DL	0.245**	0.095	0.213	2.582	0.011
SL	0.251***	0.088	0.294	2.868	0.005
PL	0.251***	0.068	0.332	3.673	0.000
AOL	0.137**	0.068	0.145	2.023	0.045
F	: 80.083***				
R^2	: 0.858				
Adjusted R^2	: 0.727				

Source: Survey Data (July, 2022)
** Significant at 5% level
*** Significant at 1% level

According to the results of multiple linear regression analysis, it is found that the estimated effect of leadership styles on job satisfaction model is significant at 1% level as the calculated value of F is 80.083 with p-value of 0.000 < 0.01. The adjusted R^2 value is 0.727 which means that 72.7 % of perceptions of job satisfaction is explained by leadership styles.

According to Table 6, supportive leadership contributes the most job satisfaction at a 0.001 significant level, and the coefficient of supportive leadership is 0.251. In other words, if the employees think that supportive leadership is good, they will satisfy. Participative leadership is the second most significant effect on job satisfaction at a 0.001 significant level, and the coefficient of participative leadership is 0.251. This means that if the leaders have more participative, employees will be more satisfied with leadership styles. Directive leadership is the third most significant effect on job satisfaction at a 0.05 significant level, and the coefficient of directive leadership is 0.245. If directive leadership is appropriate for employees, they tend to be more satisfied with leadership styles. Achieved oriented leadership also significantly affect job satisfaction at a 0.05 significance level, and the coefficient of achieved oriented leadership is 0.137. It reveals that employees will be satisfied with leadership styles if they maintain their achieved oriented leadership. After analyzing the effect of leadership styles on job satisfaction, it can be said that all variables affected job satisfaction.

The Effect of Job Satisfaction on Organizational Commitment

To study the effect of job satisfaction on organizational commitment of employees, simple linear regression is used. This study is shown in Table 7.

Table 7: The Effect of Job Satisfaction on Organizational Commitment

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.073	0.265		4.049	0.000
JS	0.644***	0.066	0.669	9.787	0.000
F	: 95.784***				
R	: 0.669				
R^2	: 0.448				

Source: Survey Data (July, 2022)
*** Significant at 1% level

The R-squared value is (0.448) which means that job satisfaction for 44.8% of the total variance in organizational commitment. According the results of regression analysis, F-value of 95.784 and p-value of (0.000) in this study show that job satisfaction statistically predicts organizational commitment and the data is fit to model. In other words, job satisfaction is a significant predicator of organizational commitment.

According to Table 7, job satisfaction has positive effect on organizational commitment of selected hotels at a (0.01) significant level and the standardized coefficient of job satisfaction (0.669). This implies that boosting job satisfaction will boost organizational commitment.

Conclusion

The participative leadership style is more dominated than directive leadership style, supportive leadership style, and achievement-oriented leadership style. it can be said that the higher the job satisfaction, the better organizational commitment. And then, these four types of leadership styles have significant and positive effect on job satisfaction. Participative leadership style has more effect on employees' job satisfaction than supportive leadership style, directive leadership and achievement-oriented leadership style. It is recommended that the organization should use more participative leadership style because this style makes the employees' job satisfaction. This explained that leaders should more ask for suggestions from employees concerning how to carry out assignments and they should need to consult with employees when facing a problem. Participative leadership styles is one of the style for employees developing where employees to participate in problem-solving and decision-making and accept the responsibility for the organization achieving its goals. By using participative leadership style, many benefits such as job satisfaction, motivation, good ideas, suggestions, opportunity for creation and high development of employees will be received.

The supportive leadership style has significant and positive effect on job satisfaction. To be more effective, leaders should more behave in a manner that is thoughtful of employees' personal needs and they should need to give encouragement and rewards for the duties and tasks that employees have done work. By using the supportive leadership style, there are many benefits such as employees pleasant and approachable more in their working environment, maintain a friendly working relationship with leader, confidence in their working environment, reduce the resistance for change, reduce the absenteeism and resign rate.

The directive leadership style has significant and positive effect on job satisfaction. In order to increase, leaders should more explain schedules the work to be done and they should need to give clear explanations of what is expected of employees on their job. By using directive leadership style, schedules can be explained clearly, good decisions and actions can be made quickly, working information can be inform really and low-interest employees can be motivated by using the specific direction. It continues to good result and good result can be explored.

The achievement-oriented leadership style has significant and positive effect on job satisfaction. To be more effective, leaders should more let employees know that expecting them to perform at their highest level and they should need to show employees' ability to meet most objectives. By using the achievement-oriented leadership style, there are many benefits such as employees perform at their highest level, effort and accomplish challenging goals, create the positive attitude and increase their job performance.

Job satisfaction has significantly positive effect on organizational commitment. Job satisfaction can be explained in a way that it becomes an important predictor of organizational commitment. It is recommended that the selected hotels should do more job satisfaction in order to increase the organizational commitment.

Four different types of leadership are needed for the maintenance and growth of complex organizational systems. Thus, leaders at selected hotels in Naypyitaw should maintain their practices of leadership styles in order to succeed their organization.

Needs for Further Research

Studies in the field should recognize the fact that the leadership style investigated is limited to the four common leadership styles (directive, supportive, participative, and achievement-oriented) and there are other factors for consideration such as autocratic, democratic, laissez-faire, transformational, transactional and others that might potentially relates to the study. Moreover, Additional variables that could have an impact on the study, like employer-employee relationships and organizational culture, were not examined in the study, nor were the qualities of leaders taken into consideration. It is recommended that further studies be done in order to look at the other various variables that may be taken into account in this study because of these reasons.

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Extending Technological Acceptance Model for Adoption of Mobile Wallet: The Role of Perceived Risk and Trust

pyae phyo aung[1]* and Josu Alexwin[2]

[1] Monywa University of Economics, pppyae1988@gmail.com
[2] Health Education and Literacy Project(HELP), dralexwin@gmail.com

* Correspondence: pppyae1988@gmail.com

Abstract

The study focused on adopting mobile wallet by applying TAM with perceived risk and trust. The study explored the factors influencing intention to use mobile wallet in Myanmar. The primary data were collected from 270 users using structured questionnaires with a five-point Likert scale using a convenience sampling method. After removing the questionnaire with missing and incomplete data, 245 responses are used for data analysis to achieve the study's objectives. Data are analyzed by using descriptive and regression analysis. The results show that perceived usefulness, perceived ease of use, and trust significantly impact the intention to use mobile wallet. However, the perceived risk did not significantly impact the intention to use mobile wallet. Therefore, these three factors are crucial to the adoption process of mobile wallet. The study contributed to the significant implications for mobile wallet service providers in understanding the attitude of mobile wallet users.

Keywords: TAM, Mobile wallet, Risk, Trust

Introduction

All industries, regardless of size, emphasis, or type, now have to embrace digitization since it is a ubiquitous phenomenon that will unavoidably change the face of the economy. All industries, be they consumer-focused or industrial, functioning in the traditional or e-commerce realms, will eventually be impacted by the disruptive power of the digital revolution (George & Sunny, 2020). Since mobile phones are now used more often than any other technological device for marketing, selling, producing, and delivering goods and services, the global adoption of mobile phones has revolutionized telecommunications and created lucrative opportunities for both service providers and merchants (Iman, 2018). The digital revolution in the banking sector is primarily due to the low cost of internet access, which has made mobile phones an attractive option for implementing digital payments using wireless technology (More et al., 2023).

The emergence of mobile wallet—which function similarly to conventional leather wallets carried in pockets—is one of the most recent advancements in financial technology. With these wallets, users can load money via debit/credit cards or net banking and then use it to pay individuals and businesses (Bagla & Sancheti, 2018). These days, mobile wallet are incredibly convenient, making it simple for users to purchase necessities, invest in mutual funds, and make ticket reservations (Gautam et al., 2020).

Financial transactions were traditionally dominated by cash and were defined by a laborious, inconvenient, and rigid procedure. However, in the past decade, the use of mobile services has rapidly increased, especially in developing countries like Myanmar (Oo, 2018), but at first, there was a noticeable lack of general acceptability and adoption when it came to the integration and use of payment services based on mobile platforms (Lwin et al., 2019). With sites like Food Panda and rgo47 allowing users to pay with these digital wallets, mobile wallet like KBZ Pay and Wave Money have seen a surge in popularity during the COVID-19 pandemic (Daragmeh et al., 2021).

However, banks have restricted cash withdrawals and imposed weekly withdrawal limitations since 2021 due to excessive account withdrawals. As a result, people who need cash must pay an additional fee for cash transactions from their accounts or mobile wallet (Kyu, 2022). Myanmar has witnessed a surge in online scams, including phishing

text messages aimed at deceiving individuals into divulging their banking details; as a response, banks and money transfer services have cautioned against sharing passwords and clicking on potentially malicious links in text messages. Online scams in Myanmar have reportedly risen since 2021 (Development Media Group, 2023). This problematic situation resulted in the unintended use of mobile wallet in Myanmar. Therefore, the study applied Technology Acceptance Model by expanding the aspect of trust and perceived risk since trust is a crucial factor that can assist in adopting mobile wallet, and perceived risk is a significant barrier to the adoption process of mobile wallet according to previous studies (Dewi et al., 2021; Namahoot & Jantasri, 2023; Widyanto et al., 2022). Therefore, the study's objective was to explore the impact of perceived ease of use, perceived usefulness, trust, and perceived risk on the intention to use mobile wallet in Myanmar.

Objectives of the Study

1. to examine the impact of perceived ease of use and perceived usefulness on intention to use mobile wallet
2. to analyze the impact of trust and perceived risk on intention to use mobile wallet

Literature Review

Research on technology acceptance center on the cognitive process people go through while determining whether or not to embrace and use technology (Venkatesh & Bala, 2008). Many theories and models, primarily from psychology and sociology, study and clarify the aspects influencing consumers' adoption and acceptance of technology, even if they were initially developed to explain technology acceptance in work environments (Eappen, 2019). The Technology Acceptance Model (TAM), first presented by Davis (1986), was based on Fishbein and Ajzen (1977) Theory of Reasoned Action (TRA). In order to create TAM, Davis expanded the conceptualization and included two crucial constructs, perceived usefulness and perceived ease of use, by drawing on TRA, which holds that behavioral intention is affected by attitude, which is impacted by beliefs. Previous research has consistently shown that the Technology Acceptance Model (TAM) is useful for a wide range of technologies (Rondan-Cataluña et al., 2015). Davis and Venkatesh (1996) revised the TAM model by removing the attitude variable, stating that it had minimal influence on system usage behavior. They noticed cases where attitude played a minor role, or where strong behavioral intention arose independently of attitude. They concluded that an intermediate attitude construct was unnecessary. Moreover, since the Technology Acceptance Model (TAM) was first developed to explain computer usage behavior, it may not have enough pertinent variables to explain the intention to use M-wallets fully. According to To and Trinh (2021), many studies have added variables such as perceived risk (Malik & Annuar, 2021; Razif et al., 2020) and Trust (Prasetya & Shuhidan, 2023; Shaw, 2014) in the context of mobile payment services to TAM. Therefore, the study applied TAM by extending with perceived risk and trust for the adoption process of mobile wallet.

When people feel that using a technology or program would improve their ability to do their jobs, they tend to use it more (Eappen, 2019). The term "perceived usefulness" describes how someone feels about utilizing a specific method to perform better on a task (Agrebi & Jallais, 2015). Mobile wallets streamline payments by allowing users to store debit/credit card details and reward coupons, eliminating the need to manually enter card numbers, NRC numbers, or OTP in each transaction (Mukaria & Mishra, 2019). Mobile wallets make quick deposits and withdrawals of funds possible, improving user productivity and work performance (Alam et al., 2021).

People's perceptions of how little work a system requires can illuminate perceived ease of use (Saadé & Bahli, 2005). The degree to which a person feels that using a particular system requires little effort and is characterized by a lack of complexity or difficulty is known as perceived ease of use (Davis, 1989). When someone believes a mobile wallet application is simple to use and requires little effort, they are more likely to utilize it. Mobile wallet complexity and difficulties can cause discontent and disapproval, especially among older and less seasoned users. This difficulty emphasizes the significance of M-wallet services being simple to understand and use, regardless of users' level of technical expertise (Dai & Palvi, 2009).

Consumers remain uneasy about trust despite the technology and infrastructure support requirements for electronic transactions (Agarwal et al., 2009). Creating a successful mobile payment application requires providers to focus extensively on establishing and preserving customer trust, particularly since these applications typically necessitate users to disclose personal or financial information (To & Trinh, 2021). Trust is defined as one party's expectation and willingness to participate in a transaction with another (Carlos Roca et al., 2009). Regarding e-wallet payment technology, trust can be defined as the extent to which users feel that a given technical platform is reliable and authentic (Damghanian et al., 2016).

Customers' emotional reaction to the uncertainty of possible adverse outcomes associated with adopting and using new technology is perceived risk (Bauer, 1967). Uncertainty, or the lack of consumer control over potential uncertainties related to online transactions or payments, lies at the core of perceived risk (Ong & Lin, 2015). Perceived risk indicates that e-wallet transactions may impact customer feelings such as worry, concern, discomfort, uncertainty, and cognitive dissonance (Razif et al., 2020).

Research Hypothesis

Users' evaluation of the benefits and drawbacks of using an electronic wallet forms the basis of the perceived utility rating, a consideration many users make when determining whether to use the service (Hsu & Lin, 2020). The degree of perceived utility has a significant effect on user happiness as well as propensity to use e-wallets. An increased sense of utility for e-wallet applications is associated with more users maintaining their usage, which is impacted by their goals and attitudes (Humbani & Wiese, 2019). The degree to which users find a system easy to use can be used to determine whether or not customers adopt it (Malik & Annuar, 2021). Consumers are more likely to intend to employ a specific technological system when they believe it to be convenient (Venkatesh & Davis, 2000). Risk is among the most critical factors influencing the adoption process in the operational dynamics of the newest mobile wallet technology (Malik & Annuar, 2021). It is crucial to consider perceived risk since it influences decisions more strongly than any potential advantages of using the technology (Lee, 2009). Beyond personal connections, trust encompasses technology interactions as well. Its relationship to user technology adoption and behaviors highlights the critical role that increasing trust in technology is a crucial notion (Kuriyan & Ray, 2009). According to Park et al. (2019), Razif et al. (2020), and Shaw (2014), perceived ease of use, perceived usefulness, perceived risk, and trust were critical for the acceptance condition of mobile wallet users. Therefore, the study proposed:

H1: Perceived ease of use has a significant and positive impact on intention to use.
H2: Perceived usefulness has a significant and positive impact on intention to use.
H3: Perceived risk has a significant and negative impact on intention to use.
H4: Trust has a significant and positive impact on intention to use.

Research Methodology

In order to assess the proposed model in this study, it is essential to have measurement materials that are both valid and reliable. Content validity involves the researchers reviewing questionnaire items from previous studies and adapting them to create items that align with the research requirements. Hence, in this study, content validity was ensured by adopting and adjusting items from previous research studies (Belanche et al., 2012; Davis, 1989; Featherman & Pavlou, 2003; Lee & Turban, 2001; Nguyen & Huynh, 2018; Shaw, 2014; Suh & Han, 2002; Venkatesh et al., 2003; Venkatesh et al., 2012) The items measure the perception level of perceived ease of use, perceived usefulness, perceived risk, trust and intention to use. The study utilized Cronbach's alpha to assess the reliability of the scales. Across all constructs, the Cronbach's alpha values fell between 0.842 and 0.925. According to Hair, Black, Babin, & Anderson (2009), a Cronbach's alpha value above 0.70 is necessary to ensure internal consistency of scales. Hence, all constructs in the research framework demonstrate satisfactory internal consistency.

The KBZ pay, powered by KBZ Bank, has experienced remarkable growth since its launch. As of 2022, monthly transactions reached $3.4 billion, mostly comprising transactions below $5. Within its first four years, the app's customer base grew tenfold, with 280,000 agents and merchants onboarded by December 2022, a significant increase from its initial pilot phase in mid-2018. With over 10 million users, KBZ pay is Myanmar's most popular mobile wallet (Wai, 2023). Therefore, the KBZ pay users are selected as the population of the study but it is unknown population. In this study, respondents were chosen among KBZ Pay users using convenience sampling, primarily because the population was unidentified. The study managed to gather 245 responses, which exceeds the recommendation proposed by Hair Jr et al. (2019). Their suggestion involved multiplying the number of items by a factor between five and ten to determine the necessary number of responses for a study. A respondent is a KBZ pay user who uses it within one month. The respondents were asked through structured questionnaire by using google form and sharing it through social media. After removing the questionnaire with missing and incomplete data, 245 responses are used for data analysis to achieve the study's objectives. Secondary data are gathered from relevant books, journals, local and global news, magazines, and internet websites. Descriptive and regression analyses describe the respondents' perception of mobile wallet and examine the factors that influence their intention to use them.

Results and Discussion

The number of female respondents is higher than the number of male respondents. Most of the respondents are between 20 and 30 years old. Most of the respondents' monthly income is between 200,000 and 400,000 kyats. In order to explore the impact of the perceived usefulness, perceived ease of use, perceived risk, and trust on intention to use, regression analysis was conducted. Table 1 describes the regression analysis result of the study.

Table 1: The Impact of the Perceived Usefulness, Perceived Ease of Use, Perceived Risk and Trust

Independent Variables	Unstandardized coefficients		Standardized coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	0.417	0.321		1.297	.196
Perceived Ease of Use	0.300***	0.084	0.251	3.554	.000
Perceived Usefulness	0.282**	0.093	0.219	3.041	.003
Trust	0.354***	0.049	0.387	7.283	.000
Perceived Risk	-0.034	0.046	-0.035	-0.746	.457
R^2 =0.532					
F=68.337(p-value=0.000)					

Note: ***significant at 0.001, ** significant at 0.01, * significant at 0.05
Source: Survey Data (January,2024)

The R square (R^2) value (0.532) means 53.2% of the total variance in intention to use is accounted for by perceived ease of use, perceived usefulness, trust, and perceived risk. F-value (68.337) and p-value (0.000) indicate that the independent variables statistically predict the dependent variable and that the data fits the model. In other words, each variable significantly predicts the dependent variable.

According to Table 1, trust contributes the most to continuance intention to use at a 0.001 significant level, and the coefficient of trust is 0.354. In other words, if the users think that the service provider is trustworthy, they will use a mobile wallet. Perceived ease of use is the second most effect on intention to use mobile wallet at a 0.001 significant level, and the coefficient of perceived ease of use is 0.300. This means that the more perceived ease of use mobile wallet have, the more users will use them. Perceived usefulness also significantly affects intention to use at a 0.01 significance level, and the coefficient of perceived usefulness is 0.282. It reveals that users will use mobile wallet if they have a highly positive perception of mobile wallet. However, the results showed that the perceived risk does not affect intention to use mobile wallet. Therefore, trust, perceived ease of use, and perceived usefulness can predict intention to use mobile wallet.

As described in the study results, three hypotheses are accepted among four hypotheses, and the study's findings show that it provides theoretical and practicality the ability be a practical theoretical framework for a better understanding of intention to use mobile wallet in Myanmar. Three factors, namely, trust, perceived ease of use, and perceived usefulness, affected the intention to use mobile wallet in Myanmar. Therefore, three hypotheses were accepted, namely, H_1, H_2, and H_4.

Trust had a significant impact on intention to use mobile wallet users. This result was in line with previous studies, including mobile wallet aspect, that indicated that trust was a predictor of intention to use (Prasetya & Shuhidan, 2023; Sharma, 2022). The mobile wallet users took great consideration in reliability and validity of mobile wallet due to the importance of this aspect (Shaw, 2014). Several previous studies also found out that perceived ease of use had a direct impact on intention to use of mobile wallet (Eappen, 2019; Sharma, 2022) and their findings were consistent with the result of the current study. It is critical to have a good perception of users on the ease of use of mobile wallet providers (Malik & Annuar, 2021). Perceived usefulness positively impacted intention to use, and this result was in line with previous studies in mobile wallet (Dewi et al., 2021; To & Trinh, 2021). It is essential to provide the valuable features of mobile wallet to use mobile wallet. However, perceived risk did not significantly impact intention to use mobile wallet and its result was in line with previous results (Malik & Annuar, 2021; Prasetya & Shuhidan, 2023). The absence of a significant impact of perceived risk on the intention to use a mobile wallet in Myanmar may stem from various factors such as a high degree of familiarity with mobile wallet technology, coupled with positive past experiences, leading to reduced perceptions of risk. Moreover, their trust in established providers like KBZ Pay could mitigate concerns regarding security and reliability.

Managerial Implication

The results of this study highlighted how important trust is in determining whether or not people in Myanmar want to utilize mobile wallet. Managers and other players in the mobile wallet space must concentrate on establishing and maintaining user trust. Increasing people's faith in technology can be achieved through safe, transparent procedures and efficient communication techniques. Building trust becomes a crucial managerial factor in promoting mobile wallet uptake and long-term use in the Myanmar market.

The findings also made clear how crucial it is to prioritize the user experience when designing and implementing mobile wallet applications. In order to make sure that users view technology as helpful and simple to use, managers should invest in user-friendly interfaces, efficient workflows, and transparent communication. Improving these elements helps customers embrace the product faster and builds a positive reputation that attracts new users and promotes further adoption in the cutthroat field of mobile wallet.

The study's conclusions support the validity of the Technology Acceptance Model (TAM), a theoretical framework for figuring out why people in Myanmar want to use mobile wallet. The TAM elements of perceived utility, trust, and simplicity of use are all supported by the acceptance of three hypotheses, demonstrating the model's relevance in the particular context of mobile wallet uptake. This advances our theoretical knowledge of how emerging markets absorb technology, especially when it comes to financial innovations like mobile wallet.

The study offers background knowledge on the variables affecting Myanmar's adoption of mobile wallet. With regard to Myanmar's particular socio-cultural and economic environment, this adds certain complexities and issues pertinent to the larger body of work on technology adoption. Scholars can use these discoveries to delve deeper into the dynamics of technology adoption in various international contexts, strengthening the theoretical underpinnings of ideas related to technology acceptance.

Limitations and Needs for Further Studies

This study is about KBZ pay users in Myanmar using a convenience sampling method. The findings may not fully represent the broader population, limiting the generalizability of the study's conclusions to users of other mobile wallet platforms in Myanmar or those who do not use mobile wallet at all. This study only focuses on mobile wallet users, not other Electronic Payment System (EPS) services. In order to understand the intention to use mobile wallet, other geographical areas, or EPS services, further studies are necessary. There are many influencing factors on the intention to use mobile wallet. This study only focuses on perceived ease of use, perceived risk, perceived usefulness, and trust. Therefore, further studies can be conducted by applying other influencing factors.

Conclusions

This study delves into the adoption of mobile wallet technology among users in Myanmar, a country where mobile phone usage is widespread and traditional financial transactions are transforming digitally. Through the application of the Technology Acceptance Model (TAM), expanded to include perceived risk and trust, the study aimed to understand the factors influencing users' intention to use mobile wallets. The results revealed that trust, perceived ease of use, and perceived usefulness significantly impact users' intention to use mobile wallets, while perceived risk did not show a significant effect. This underscores the importance of building trust, ensuring ease of use, and highlighting the usefulness of mobile wallet services to drive adoption and long-term usage.

The findings of this study have several managerial implications for stakeholders in the mobile wallet industry in Myanmar. Establishing and maintaining user trust is crucial in promoting mobile wallet uptake. This necessitates transparent processes, efficient communication, and a focus on security to instill confidence in users. Additionally, prioritizing user experience through user-friendly interfaces and streamlined workflows is essential for fostering positive perceptions of mobile wallet applications and driving adoption in a competitive market. The study also validates the TAM framework in the context of mobile wallet adoption, highlighting its relevance and applicability in understanding technology acceptance in emerging markets like Myanmar.

However, this study has certain limitations that should be addressed in future research. The convenience sampling method and focus on KBZ Pay users limit the generalizability of the findings to other mobile wallet platforms or non-users of mobile wallets in Myanmar. Moreover, the study only examines perceived ease of use, perceived risk, perceived usefulness, and trust as influencing factors, leaving out other potential variables. Future research could

explore the adoption of mobile wallets in different geographical areas, including other electronic payment system (EPS) services, and consider additional factors impacting intention to use. Overall, this study contributes to understanding mobile wallet adoption in Myanmar and lays the groundwork for further research in this area.

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ID 308
Nexes Between Risk Factors and Financial Performance: The Moderating Role of Bank Size

Akhter Owais Siddiqui[1] and Samina Riaz[2]*

[1] MBA Scholar, Bahria University, Karachi
[2] Senior Professor, Bahria University, Karachi

* Corresponce: saminariaz.bukc@bahria.edu.pk

Abstract

The study aims to investigate the effect of credit risk, liquidity risk, interest rate risk and the operational risk on the bank performance. The study will also incorporate the effect of moderating variable of size of bank and effect of control variables age of bank and firm growth on the bank performance. The Study is quantitative in nature and use the longitudinal research design. The data will be collected for the period of 2013 to 2022 from the annual report of 23 commercial banks in Pakistan. The Penal Data regression model will be used to test the research Hypothesis. The study offers valuable insights on the efficacy of risk management techniques in the banking industry of Pakistan.

Keywords: Financial risk, Return on assets, Commercial banks, Credit risk, Liquidity risk, Operational risk

Introduction

Financial institutions are essential for the economic progress of a country. According to Barth (2004), it is crucial to have efficient financial institutions in order to promote economic advancement. Financial institutions strive to produce profits to ensure the sustainability, expansion, and advancement of their activities. The sustainability of the banking sector has been compromised in the last twenty years as a result of government involvement, nonperforming loans (NPLs), and fluctuations in interest rates. To evaluate and control risk, banks must monitor both micro and macroeconomic variables. Lack of sufficient risk management could result in financial catastrophe. The Asian financial sector upheaval (1997–1998) and the international financial crisis (2007–2008) illustrated that a breakdown in a financial institution can lead to a systemic crash. Matz (2008) argued that the global financial crisis of 2008–2009 was triggered by the failure of multiple banks, mostly due to their excessive dependence on short-term wholesale lending and inadequate liquidity management. This crisis serves as a reminder to several banks about the importance of liquidity risk, According to the idea of balanced portfolio, as explained in the asset diversification model by Elton et al. (2009) policy decisions play a role in optimizing the allocation of assets in a diversified portfolio.

According to Boubaker and Nguyen (2014), the business and market situations in emerging countries differ significantly from those in industrialized countries. Developing markets are becoming increasingly significant in global economies for specific traders due to their robust economic growth potential and the emergence of well-established legal and functional infrastructure facilities. These markets are interesting to businesses because they provide promising commercial opportunities. Nevertheless, they do entail a range of hazards, both at the organizational and regional levels. The financial services segment shows a dynamic part in the economies of developing countries, serving as a crucial catalyst for growth and development. The aforementioned factors influence our choice to focus on developing economies. Extensive research has been conducted on wealthy nations, but there has been a limited investigation into developing countries. For our research, we have chosen Pakistan, a developing country in South Asia, for that specific reason. Moreover, Pakistan encounters commercial and governmental instability, which impacts the sentiments of investors and creditors, particularly financial institutions.

The Basel Committee on Banking Supervision has implemented the Basel I, Basel II, and Basel III Agreements to address this issue, recognizing the importance of a comprehensive strategy to managing risk in banks. According

to Abu Rumman A. (2018), risk minimization is a factor that influences the returns of banks. Lehman Brothers Securities, Inc. initiated Chapter 11 bankruptcy proceedings on September 15, 2008 in the United States as a result of the ongoing worldwide economic and financial problems. The global unrest raised worries about the effectiveness of institutions, notably those implemented in Risk Management Strategies (RMSs). According to Abu Rumman A. (2018), the recession is widely attributed to a notable cause, which is the inability to effectively manage risk. Abu Rumman A. (2018) also stated that in response to the volatile nature of the dot-com business, the Sarbanes Oxley Act of 2002 mandated that all stock trading firms allocate significant sums to maintain their control structures.

The financial performance of banks in Pakistan is subject to the influence of various risk factors, which significantly affect their stability, profitability, and resilience in the dynamic economic environment. Despite the acknowledgment of risk management as a pivotal component of banking operations, there critical gap exists in understanding the precise nature and magnitude of the impact of risk factors on the financial performance of banks in Pakistan.

Banking has a broad scope and involves a large potential risk compared to other sector companies due to its involvement in the credit business. As financial service providers, banks play a crucial role in the economy and are closely tied to economic growth. One of the ways to accelerate a country's economic growth in the long term is by channeling bank credit to the public (Al-Husainy & Jadah, 2021). Credit risk clearly has a negative effect on the role of banks as intermediaries for economic growth. The higher the level of credit risk, the greater the likelihood of banks experiencing losses or financial crises, which ultimately impacts the bank's performance (Kingu et al., 2018).

Banks mostly raise funds in the short term, while lending is done in the long term. This mismatch can cause banks to experience liquidity risk (Badawi, 2017). Effective liquidity management is crucial to increase the stability and health of banking companies in meeting their liquid assets and to avoid the risk of bankruptcy (Al-Husainy & Jadah, 2021). Liquidity risk is important because it can affect the performance of a bank, where the bank will act as a dominant financial intermediary (Citra et al., 2021). The higher liquidity risk in a bank can indicate that the amount of funds channeled to third parties, in the context of debtors, in the form of credit is also considered to be greater.

The studies conducted by Gadzo (2019) and Saleh, Abu Afifa (2020) demonstrate that credit risk has a contradictory impact on the financial performance of a financial organization. Munangi and Bongani (2020) demonstrated in their research that the Non-Performing Loans (NPLs) ratio adversely impacts the financial performance of banks in South Africa. According to the studies conducted by Onsongo et al. (2020) and Saleh and Abu Afifa (2020), it has been determined that liquidity risk has a notable and contradictory impact on financial performance.

Liquidity risk greatly hampers the efficiency of banks. Liquidity risk has a negative and substantial impact on financial performance. Uses the loan-to-deposit (LTD) ratio as a measure to evaluate liquidity risk and concludes that the LTD ratio has a negative and substantial impact on the financial efficiency of institutions. Bourke (1989) and Kosmidou (2008) assert that the level of liquid assets held by banks has a positive impact on their financial performance.

Interest rate risk is another critical risk faced by banks. Interest rate risk refers to the potential for changes in interest rates to adversely affect a bank's financial position. Fluctuations in interest rates can impact a bank's profitability, asset valuation, and overall financial stability. Mishkin (1995) highlights that interest rate risk management is essential for banks to mitigate potential adverse effects on their financial performance.

According to Jorion (2005), Operational risk, in contrast to liquidity and credit risks, is inherent to banks, presents challenges in evaluation, and has the potential to endanger the survival of the company. Banking operations have become increasingly intricate, requiring specialized expertise and advanced technology. As a result, operational risk has emerged as one of the most challenging hazards for banks to effectively handle. In summary Liquidity risk has a negative and substantial impact on financial performance (Smith, 2002). A higher LTD ratio negatively affects the financial efficiency of institutions (Bourke, 1989; Kosmidou, 2008). Interest rate risk management is crucial for banks to mitigate adverse effects on financial performance (Mishkin, 1995). Operational risk presents challenges in evaluation and can endanger the survival of banks (Jorion, 2005).

Despite the significance of technology risk in the current banking landscape, its omission from the study may be justified based on several factors. Firstly, the study's primary focus may be on traditional risks such as credit risk, liquidity risk, interest rate risk, and operational risk, which have been extensively studied and documented in the literature (Bourke, 1989; Kosmidou, 2008; Mishkin, 1995; Smith, 2002). Secondly, the study may have limitations in terms of scope, resources, or expertise to adequately address the complexities of technology-related risks. Thirdly, comprehensive data on technology-related risks may not be readily available or accessible for analysis due to

confidentiality concerns. Furthermore, technology risk may be considered as an underlying factor that amplifies or interacts with other risks such as operational risk or credit risk (Jorion, 2005). Therefore, the study may indirectly capture the impact of technology risk through its influence on other risk factors.

This study aims to investigate the effect of credit risk, liquidity risk, interest rate risk and the operational risk on the bank performance. The study will also incorporate the effect of moderating variable of size of bank and effect of control variables age of bank and bank growth on the bank performance. The study's findings can be utilized by regulators and policymakers to enhance and customize regulatory frameworks. Gaining insight into the influence of various risk factors aids in the development of policies that achieve a harmonious equilibrium between promoting financial innovation and upholding stability. Banks can utilize the findings from the study to enhance their strategic decision-making processes. Banks can enhance their overall financial performance by proactively identifying and evaluating individual risk factors, enabling them to implement steps that mitigate risks and optimize their operations. Investors and stakeholders depend on the financial performance of banks as a crucial measure of their stability and trustworthiness. An exhaustive examination of risk factors offers vital insights for investors to make well-informed decisions, so bolstering confidence in the banking sector.

Literature reivew

The issue of uncertainty in financial institutions has been extensively examined by numerous scholars in previous years, and a universally accepted definition has not been established. The extent of this concept according to Gallati, (2003); Fayyaz, (2006); Rahman, Abdullah and Ahmad, (2012) is delineated in diverse manners by different authors. Risk in financial institutions refers to the vulnerability to the uncertainty of a consequence, which may deviate from the expected or desired results. Risk in financial institutions, as defined by Ghosh (2012), refers to the potential loss of value that may arise from unfavorable events such as economic downturns, significant changes in fiscal and trade policies, unforeseen fluctuations in interest rates or foreign exchange rates, or declining stock values. Risk in financial institutions is defined by Bessis (2002) and Schroeck (2002) as the adverse impact on returns resulting from various sources of uncertainty. Moreover, both have implemented the limitation that banking risks are contingent upon real-world conditions, predominantly comprised of a combination of factors in the external milieu.

It is argued that although the return on assets (ROA) is considerably lower for economic mediators, the majority of banking institutions employ substantial financial leverage to greatly increase their return on equity (ROE). (ROA) refers to the ratio of net cash flow after taxes to total assets. The Return on Assets (ROA) measures the efficiency of management in converting assets into profits, indicating the level of effectiveness and competitiveness of a bank's management. Moreover, a greater ratio indicates that financial institutions are more efficient. It is an excellent method for evaluating and contrasting the efficiency of several banks or the broader industrial banking system.

Colquitt (2007) stated that credit risk represents one of the most crucial and prominent types of banking risk. According to Hussain and Al-Ajmi (2012), banking organizations are primarily exposed to credit, liquidity, and operating risks, which are considered the most critical risks. As stated by Koch and MacDonald (2000), financial institutions face credit risk due to the fact that a significant portion of their assets rely on loans and have a high level of liquidity. As per the principle of asymmetric information, obtaining precise data from potential borrowers requires effective scrutiny. However, distinguishing between a reliable borrower and an unreliable one can be difficult, leading to issues of adverse selection and ethical risks.

Effective credit risk management necessitates financial organizations to have a suitable credit risk framework that encompasses steady credit issuance and adequate credit administration, encompassing both credit risk monitoring and controls. Financial institutions employ several mechanisms, including credit restriction, covenants, collateral, loan syndication, and loans, to manage and control credit losses.

Liquidity risk, as defined by Saunders and Cornett (2008), refers to a sudden surge in depositor withdrawals that could compel financial institutions to rapidly sell up their assets. According to the State Bank of Pakistan (2003), this risk refers to the potential financial loss that occurs when a financial organization fails to meet its obligations. Liquidity risk arises due to various factors, such as a sudden surge in depositors' demand for funds, inadequate business reserves, or market volatility. Insufficient liquidity, as defined by Crouhy, Galai, and Mark (2006), can result in unexpected financial deficits that need to be addressed at high costs, hence diminishing profitability. According to them, if a bank lacks enough liquidity, it will experience liquidity insolvency, even if it is not bankrupt in terms of capital. As asserted by Fayyaz (2006), financial institutions face liquidity risk when they are unable to meet their expected and contingent cash needs, as well as borrow more capital when necessary. Liquidity risk, such as the one mentioned by Tahir (2006), leads to interest rate risk due to the uncertainty around possible funding and investment

rates. The global recession of 2008–2009 was triggered by the failure of numerous financial institutions, mostly due to their excessive dependence on short-term wholesale funding and inadequate management of liquidity.

According to Jorion (2005) Operational risk, in contrast to liquidity and credit risks, is predominantly inherent inside financial institutions, poses challenges in evaluation, and has the potential to endanger the institution's continued existence. Laker (2007) states that banking activities are becoming increasingly intricate, as financial institutions rely more heavily on specialized experience and innovation. This reliance on expertise and innovation has resulted in operational risk, which is considered one of the most challenging risks for financial institutions to handle. Incorrectly formulating and adopting regulations can significantly reduce income by implementing unproductive processes, resulting in operational gaps in the bank. Li (2005) states that operational risk affects financial performance. Banks typically employ many ways to effectively handle operational risk, one of which is the basic indicator method (BIA).

As the lending rates increase, the market value of a financial institution's assets, loans, or securities decreases, leading to an increase in this risk. The phenomenon of a financial institution's profitability declining due to swings in interest rates, as outlined by Bessis (2002), is referred to as the interest rate risk. Interest rate risk arises from a discrepancy between the assets and liabilities of a financial institution, as stated by several scholars.

The relationship between various risks and bank performance has been a focal point in financial research. While the definitions and implications of risks differ across studies, understanding their interplay with bank performance offers valuable insights into the financial stability and profitability of institutions.

Risk in financial institutions, whether defined as vulnerability to adverse events (Ghosh, 2012; Bessis, 2002) or potential financial losses (Saunders and Cornett, 2008; State Bank of Pakistan, 2003), has direct implications for bank performance indicators like Return on Assets (ROA) and Return on Equity (ROE). A higher level of risk often necessitates more stringent risk management practices, which, if not effectively implemented, can negatively impact bank performance. For instance, credit risk, operational risk, and liquidity risk are not isolated; they often interact in complex ways that can exacerbate their effects on bank performance.

The role of bank size as a moderating variable in this relationship is particularly intriguing. Larger banks may possess advantages in terms of resources and diversification, potentially allowing them to better manage various risks. However, size can also introduce challenges like inertia or bureaucratic inefficiencies (Barron et al., 1994). Gupta et al. (2013) suggest that developmental factors can significantly influence a company's performance, implying that the stage of development or growth trajectory of a bank might also impact how it manages and responds to risks. Therefore, considering bank size as a moderating variable can offer a nuanced understanding of how different banks navigate the complex landscape of risks and their impact on performance.

Bank size serves as a critical moderating variable in understanding the relationship between risks and bank performance. Larger banks often benefit from economies of scale, diverse revenue streams, and greater access to capital markets, which can provide them with a competitive edge in managing risks (Berger, 2003; DeYoung & Rice, 2004). Their size allows them to invest in advanced risk management systems, employ specialized risk management teams, and diversify their portfolios across different asset classes and geographies (Berger & DeYoung, 1997).

However, the size of a bank can also introduce complexities and challenges. Large banks may face issues related to organizational inertia, where decision-making processes become slower and less responsive to changes in the external environment (Barron et al., 1994; Hannan & Freeman, 1984). Bureaucratic structures and layers of management can sometimes hinder agility and innovation, affecting the bank's ability to adapt to new risks or market conditions swiftly (Petersen & Rajan, 2002).

Moreover, the regulatory landscape often treats larger banks differently due to their systemic importance, imposing stricter capital, liquidity, and risk management requirements (Tarullo, 2014; Kashyap et al., 2010). Compliance with these regulations can be more resource-intensive for larger banks, impacting their operational efficiency and profitability (Anginer & Warburton, 2010).

Considering these arguments, the choice of bank size as a moderating variable is pivotal. It allows for an exploration of how the benefits and challenges associated with size influence the effectiveness of risk management practices and, consequently, bank performance. By examining how larger and smaller banks navigate the complex landscape of risks differently, researchers can gain insights into the optimal size for risk management effectiveness, the trade-offs involved in scaling up, and the implications of regulatory frameworks on bank performance across different sizes (Cetorelli & Goldberg, 2011; Demirgüç-Kunt et al., 2013). In summary, bank size as a moderating variable offers a nuanced lens to examine the relationship between risks and bank performance. It captures the diverse strategies, challenges, and opportunities faced by banks of varying sizes, enriching our understanding of the complex dynamics that shape the financial stability and profitability of financial institutions.

Control variables such as bank age and growth further complicate the relationship. Established banks might have accumulated experience and established risk management practices that allow them to mitigate risks more effectively over time (Coad et al., 2013). Conversely, younger or growing banks might be more agile but could also be more vulnerable to risks due to their evolving nature (Loderer and Waelchli, 2010; Serrasqueiro, 2009).

The critical relationship between these variables suggests that the effectiveness of risk management practices and their impact on bank performance is not uniform across institutions. Factors like bank size, age, and growth trajectory can significantly influence this relationship, highlighting the need for a more nuanced and contextual understanding of risk management in financial institutions. Future research could benefit from exploring these relationships further, considering additional moderating and mediating variables to capture the complexity and heterogeneity within the banking sector.

Hypothesis Development

H1: There is a significant impact of Credit Risk on the financial performance of banks.
H2: There is a significant impact of Liquidity Risk on the financial performance of banks.
H3: There is a significant impact of Interest Rate risk on the financial performance of banks.
H4: There is a significant impact of Operational Risk on the financial performance of banks.
H5: Size of bank significantly moderates between credit risk and financial performance of bank.
H6: Size of bank significantly moderates between liquidity risk and financial performance of bank.
H7: Size of bank significantly moderates between interest rate risk and financial performance of bank.
H8: Size of bank significantly moderates between operational risk and financial performance of bank.

Conceptual Framework

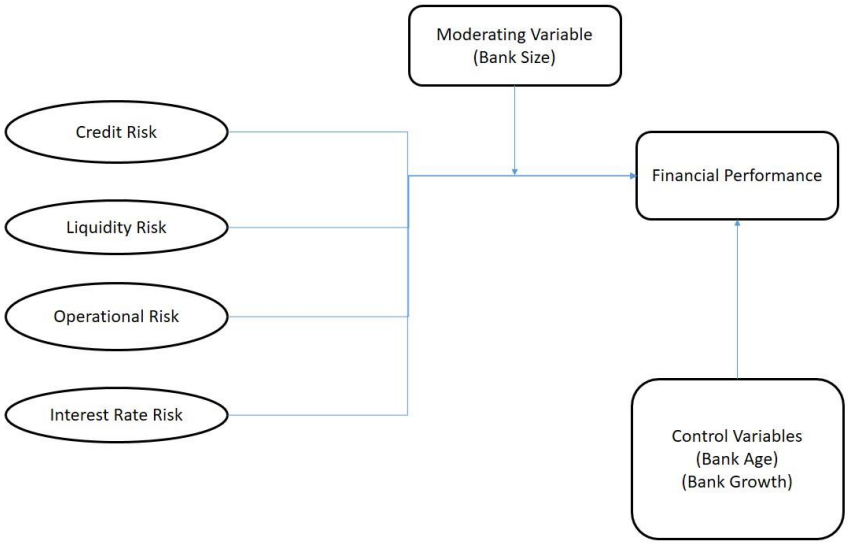

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Figure 1: Conceptual Framework

Research Methodology

Research approach is deductive and research design is Causal research. The target population consists of the commercial banks of Pakistan. For this study, annual data from 23 commercial banks was gathered for a period of ten years, from 2013 to 2022, in order to have a deeper knowledge of the variables. Data availability is crucial factor influencing sample selection. Banks for which comprehensive financial data is readily available for the study period are more likely to be included to ensure the integrity and completeness of the analysis (Raza & Ali, 2016). Secondary

data was gathered from different available commercial bank information in Pakistan from 2013 to 2022, with yearly evaluations to meet the study's objectives. Annual reports from commercial banks, the SBP's official website, and the SBP's annual financial statement assessment were among the items examined. We have focused on the 23 commercial banks of Pakistan that are as follows:

1. Bank al Habib
2. United Bank Limited
3. MCB Bank
4. Habib Bank Limited
5. Allied Bank
6. Bank Alfalah
7. Askari Bank
8. Soneri Bank
9. JS Bank
10. Standard Chartered Bank
11. Habib Metropolitan Bank Limited
12. Faysal Bank Limited
13. Silk Bank Limited
14. Samba Bank Limited
15. Summit bank
16. Meezan Bank
17. Dubai Islamic Bank
18. Bank Islami
19. Al Baraka Bank
20. Bank of Punjab
21. Bank of Khyber
22. National Bank of Pakistan
23. Sindh Bank

Panel data Regression, as described by Zulfikar (2018), is a statistical method that combines cross-sectional data and time series data. It involves measuring the same unit of cross-sectional data at several points in time. In essence, panel data refers to data collected from a certain group of individuals who are monitored over a defined period of time. Given T time periods (t = 1,2, T) and N people (i = 1,2, N), the total number of observation units in panel data is N x T. If the total unit of time is equal for each participant, then the data is referred to as a balanced panel. The term "unbalanced panel" refers to a situation where the quantity of time units varies for each individual. Other data kinds, specifically time-series data and cross-section, are also present. In the context of time series analysis, a single observation unit is observed throughout a specific time period, and one or more variables are recorded for each observation. Data cross-section refers to the simultaneous observation of multiple units of analysis at a specific moment in time.

Employing panel regression analysis in studying the impact of risk factors on the financial performance of banks offers several advantages. Panel data combines both cross-sectional and time-series dimensions, allowing for efficient estimation by capturing individual and time-series variations (Baltagi, 2013). However, it's essential to consider potential unobserved time-invariant heterogeneity across entities like banks.

Fixed effects, or entity-specific intercepts, should be included to control for these unobserved heterogeneities that remain constant over time (Wooldridge, 2010). Including fixed effects helps control for time-invariant differences across banks, such as management quality or business strategies, ensuring that estimated coefficients are not biased due to omitted variables (Baltagi, 2013).

This control improves the model fit by accounting for individual characteristics of banks that remain constant over time, leading to more reliable estimates of the relationships between risk factors and financial performance (Wooldridge, 2010). Moreover, fixed effects can help mitigate endogeneity issues arising from omitted variables correlated with the explanatory variables, improving the validity of causal interpretations (Angrist & Pischke, 2009).

Fixed effects also allow for a comparative analysis of changes within banks over time, making them suitable for assessing the impact of policy changes, regulatory reforms, or market conditions affecting all banks similarly (Baltagi, 2013). Additionally, fixed effects estimators are consistent and efficient under the assumption that unobserved individual effects are correlated with the explanatory variables, making them particularly suitable for panel data (Wooldridge, 2010).

Given the hypotheses provided, the model specification for the panel regression analysis can be tailored to examine the impact of various risk factors on the financial performance of banks, as well as the moderating role of bank size. The model can be expressed as:

$$ROAit=\alpha i+\beta 0+\beta 1CreditRiskit+\beta 2LiquidityRiskit+\beta 3InterestRateRiskit+\beta 4OperationalRiskit+\beta 5(Sizeit \times CreditRiskit)+\beta 6(Sizeit\times LiquidityRiskit)+\beta 7(Sizeit\times InterestRateRiskit)+\beta 8(Sizeit\times OperationalRiskit)+\beta 9 Ownershipit+\beta 10Yeart+\epsilon it$$

Table 1: Measurement of Variables

Variable	Measurement
ROA	Net Income / Total Assets
ROE	Net Income / Total Equity
Liquidity Risk (Current Ratio)	Current assets / Current liabilities
Credit Risk	Non-performing loans/gross advances
Operational (Risk Basic indicator approach (BIA))	The sum of yearly gross income, if positive, over the past three years (3α) is Determined by the Basel Committee on Banking Supervision (BCBS) at 15%. This sum is divided by the number of preceding years in which gross income is positive to calculate the percentage change in capital charge under the BIA.
Interest Rate Risk	Real Prime Rate
Bank Size	Log of total assets
Age of Bank	Age Since Incorporation.
Bank Growth	Percentage change in Sales (gross advances)

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ID 310
Unlocking Organizational Resilience in Turbulent Times: The Role of Intellectual Capital Dimensions and Dynamic Capability

Samreen Tunio[1]*

[1] Department of management studies, Bahria University Karachi Campus

* Correspondence: samreentunio2@gmail.com

Abstract

Purpose: The purpose of this research is to examine the role of "intellectual capital" (IC) dimensions (human, organizational, and social capital), in shaping organizational resilience in the IT sector with dynamic capability (DC) as a mediator.

Method: This study used a quantitative approach and survey methodology to acquire data. A sample comprises 518 managers from different IT sectors in Karachi Pakistan. The study uses validated scales to evaluate intellectual capital dimensions, dynamic capability, and organizational resilience. The data analysis was done through SPSS 25 and structural equation modeling using PLS-SEM.

Findings: The finding shows that dynamic capability mediates the relationship between IC dimensions and organizational resilience. Interestingly, this study also finds that organizational and social capital does not directly influence organizational resilience while human capital had a profound positive influence.

Practical implications: Organizations should focus on expanding their intellectual capital and dynamic capabilities to increase their resilience in a rapidly changing business environment. The top managers should devise strategies that develop organizational resilience by using human and organizational capital particularly.

Originality/value: This study contributes to the literature on IC by examining the role of dynamic capability in the relationship between IC components and organizational resilience. This research also helps practitioners recognize the importance of dynamic capability in fostering resilience.

Keywords: IC, Human capital, Organizational capital, Social capital, Dynamic capability, OrganizationalrResilience, Pakistan

Introduction

Businesses today face multiple hurdles and challenges that have the potential to hinder their prosperity toward success. Factors such as economic uncertainty, increased competition, disruptive technology, global financial crises, and evolving customer needs are just a few complex elements that can impact an organization's ability to achieve success. (Turienzo, Cabanelas, Lampón, 2023). Furthermore, the COVID-19 outbreak and conflicts between countries like Russia and Ukraine have presented historically significant challenges for many organizations (Grinberga-Zalite et al., 2021). In addition, to these external constraints, businesses are also confronting internal challenges such as managing human resources, keeping and retaining employees, developing and updating with new technologies, establishing flexible organizational structures, and maintaining a strong organizational culture, etc. To overcome all these challenges effectively and emerge stronger in the complex and dynamic environment of today businesses need to be resilient, dynamic, and agile (Nayal et al., 2022).

Resilience is defined as the capacity of businesses to rapidly adapt to changing circumstances and bounce back from disasters (Ross et al., (2023). It enables businesses to not only flourish but also thrive in the face of adversity, positioning them for sustained success in the long term (Miceli et al., 2021). This requires developing an environment that is open to change, accepts innovations, and encourages risk-taking. Organizational resilience relies on dynamic capability, enabling adaptation to market changes (Wu et al., 2023). Studies emphasize its significance showing that firms with the ability to sense and seize opportunities are better equipped to generate resilience. Learning, innovative,

and digital technologies aid in bouncing back from troubles (Prayag et al., 2023). In addition to dynamic capability, intellectual capital is also essential for fostering organizational resilience (Cheng et al., 2023). In recent years intellectual capital (IC) has gained significant attention in the business world. It is knowledge assets that may be used to create value. Alvino et al. (2020) IC is a firm's intangible assets, which include its employees' knowledge, ability, skill, information, experience, and relations which are essential to its success.

Although there are various ways to define and categories IC, the majority of scholars have agreed on the three main dimensions of IC, which are "human, organizational, and social capital" (Chatterjee et al., 2022). IC enables the potential of businesses associated with the knowledge industry such as information technology (IT) to achieve success and help them boost their growth in an economy (Jayabalan et al., 2022). This sector has rapidly expanded becoming vital in global economies in recent years, with an increasing number of businesses getting involved in it (Secundo et al., 2020). Nations worldwide shifting their economies away from manufacturing towards a knowledge-based economy. According to Citrasari et al. (2022), Significant achievement in IT requires the procurement and effective management of unique, rare, and inimitable intangible assets.

Within the context of Pakistan's economy, the IT sector plays a very crucial role (Rasool et al., 2022). IT sector is well known for its ability to promote innovation, job creation, and economic growth. It also acts as a catalyst for advancement across a range of industries. Nevertheless, this sector has various obstacles that prevent it from reaching its full potential, even in spite of its substantial contributions (Dahmani et al., 2022).

Pakistan's IT industry faces several obstacles that hinder its growth trajectory, including insufficient infrastructure, a shortage of skilled labor, complex regulations, and challenges related to intellectual capital assets (Rehman, 2023). All these factors are severely affected sustainable growth and organizational resilience of this sector.

Therefore, to overcome all these challenges and strengthen the resilience of this sector, comprehensive strategies are required. The identification of key approaches towards alleviating these problems includes the proposed variables of government support, infrastructure development, talent upgrading efforts, strengthening of intellectual property rights, and greater access to funding (Abdin et al., 2024). Stakeholders may effectively traverse the chaotic landscape and promote an atmosphere that is favorable for growth and innovation within the IT sector by aligning their strategy with these suggested elements (Arshad et al., 2023).

The current study contributes to the existing literature in several meaningful ways. First, it provides a comprehensive understanding of the relationship between various components of IC and organizational resilience. Second, by highlighting the importance of intellectual capital, particularly in the IT sector of Pakistan, the study offers practical insights into enhancing organizational resilience and competitiveness. Last, the research addresses the gap in understanding by examining how different aspects of IC relate to the mediating role of dynamic capability in fostering organizational resilience, thereby enriching the available literature on IC, dynamic capability, and organizational resilience.

Objectives of the study

The primary objective of the current study was to examine the relationship among IC dimensions (human, organizational, and social capital) and dynamic capability in building organizational resilience within the framework of resource-based view (RBV) theory. By addressing this primary overarching objective this study strives to bridge a theoretical gap and provide insights into the role of intangible resources in enhancing organizational resilience.

Literature review

1. Intellectual capital

The concept of intellectual capital (IC) was introduced by the economist John K Galbraith (1969) and is referred to as the intangible assets of a business that enhance its overall value and competitive advantage (Obeidat et al., 2021). Intellectual capital consists of intangible resources, comprised of human knowledge, skill, corporate culture, management abilities, firms' relationships with various stakeholders, and intellectual property like patents, copyrights, and trademarks are some examples of intangible assets.(Sudewa & Amberd, 2023). According to Lee & Wang (2023) IC is a key factor in the success and long-term viability of an organization. The majority of researchers such as Serenko and Bontis, 2017; Sveiby, 1997; Bontis, 2001; Chen, 2008) concur that human capital (employee knowledge, skills, and abilities), organizational capital (organizational procedures, systems, and intellectual property), and social capital (external relationships and networks) are highlighted as being important components of intellectual capital. All three dimensions are connected in some way and can be thought of conceptually as follows (Dzinkowski, 2000; Zhou and Fink, 2003).

1.1 Human capital

The concept of HC is based on early work by Gary S. Becker (1964), which became the fundamental idea of one of the most extensively studied human and social behaviors (Gruzina et al., 2021). According to Efendi (2020), HC is the knowledge and skills that workers acquire through education and practical exposure. The term HC refers to a worker's collective knowledge, abilities, and experience that are essential for creating economic value and productivity (WIDARNI & BAWONO, 2021). Diaz-Fernandez et al. (2017), defined that in addition to information, skills, and abilities, HC also includes psychological characteristics like attitude, intellect, and creativity. Building upon this, by incorporating the findings of Mubarik et al. (2020), HC may be described as the sum of all employee's ability, knowledge, skills, to handle multiple tasks, dedication, engagement, attitude, experience, intelligence, and creativity. These attributes are crucial in creating economic value and driving productivity within the organization. It is considered an intangible asset that can be enhanced through investments in education, training, and other forms of personal development (Lubacha, 2023). Dorneanu et al. (2022) discovered that individuals make investments in themselves for a variety of monetary and non-monetary reasons that are focused on the future. He added that some individuals might prefer work with little economic value but better opportunities for growth and development. Furthermore, Numerous researchers have discovered that human capital maintains implicit as well as explicit knowledge and can generate useful knowledge for a company (Mubarik et al., 2018). This further highlights that HC adds value to the business by measuring employee competency and ingenuity, which enables individuals to recognize market possibilities, develop the latest information, and address issues (Boon et al., 2018). As a result, HC comprises the diverse range of competencies and capabilities that an organization's workforce possesses, which in turn are essential in achieving its objectives and goals. Consequently, any organization's success is largely dependent on its human resources (Roumpi et al. 2020).

1.2 Organizational capital

Organizational capital (OC), sometimes also known as structural capital, is described as the assets and resources of an organization that contributes to its overall intellectual capital (Laallam et al., 2022). OC encompasses knowledge assets that are created and preserved by an organization, often stored in various forms such as databases and manuals. This kind of capital includes a range of elements, including work practices, organizational traditions, technology processes, knowledge, systems, etc. (Quintero-Quintero et al., 2021). Further, Ahmed et al. (2019) defined OC as nonhuman knowledge that is incorporated into organizational procedures, systems, and processes. Additionally, Baima et al. (2021), state that OC consists of the knowledge and intangible assets that an organization generates through its operational processes and retains ownership of, even when its members leave. Examples of such assets include work procedures, systems, and intellectual property. OC includes implicit resources, and technological skills, that are significantly related to the advancement of the organization's technical system (Ali et al., 2023). Quintero-Quintero et al. (2021), OC comprises all sources of organizational knowledge, such as databases, process manuals, culture, and management styles, all these intangible assets contribute to the renewal and development of the organization.

1.3 Social capital

Social capital (SC), also referred to as relational capital. Initially, SC was introduced in community studies as a concept that highlights the significance of well-established personal networks. These networks are crucial for building trust, promoting cooperation, and facilitating collective action within the communities that they belong to (Miković et al., 2020). According to Esther and Chinenye (2023), SC may be defined as ingrained interdependent information that characterizes the kind and level of interactions between its members. SC is primarily used to facilitate information collection and sharing inside a company. Additionally, it makes it possible to communicate with other businesses and groups (Al-Omoush et al., 2020). SC is referred to the effective utilization of intangible assets and resources that originate and are accessible through “social networks” within intra- and inter-organizational contexts via the web of relationships, as described by (Burton & Vu, 2021). The network of links that an organization has with its members is referred to as SC. It is the relationship that develops between the company and its stakeholders, and it is essential to generating value for the company (Affes & Affes, 2023). SC is an important resource for organizations, providing them with the social networks and relationships necessary for success (Li & Barbieri, 2020).

2. Dynamic capability

The concept of DC was initially introduced by Teece et al. (1997), who described it in a several ways that were similar but not identical. DC refer to firm’s competency to develop, reorganize and combine both internal and external

expertise in order to respond to rapidly evolving circumstance (Teece et al., 2000). This is a considered a systematic and reliable approach whereby the organization constantly develop and modifies its business practices in an effort to increase their performance for achieving success (Bocken & Geradts, 2020). Akpan et al. (2022), defined DC appear to demonstrate a company's ability to create novel forms of competitive advantages by renewing its procedure, capabilities, and resources to achieve harmony with the ever-changing business climate. Additionally, Kalu and Akhigbe (2022), described DC as an organization's actions, methods, and practices that increase its ability to compete, which allows it to maintain an influential position in its field.

3. Organizational resilience

The idea of resilience first emerged in the field of "psychology" and gained significant attention in the 1990s. Apart from psychology, it has a long history in many other fields like ecology, engineering, and organizational science. Resilience has gained widespread recognition across various fields, including the natural and social sciences, due to its practical applications. However, its meaning and interpretation can vary depending on the particular discipline in which it is studied (X. Jia et al., 2020; Linnenluecke, 2017). The concept of resilience can take on different meanings in various disciplines. For instance, in engineering, resilience may pertain to the capacity of structures to endure substantial environmental disturbances (X. Jia et al., 2020). whereas, in psychology, it may refer to an person's ability to deal with, adapt, and bounce back from tragedy (Alsheikh Al & Alqudah, 2023). The term resilience describes how well an ecological system can withstand transient disruptions from the outside world and then recover to its equilibrium state (Cheng et al., 2023). It is a system's ability to accept change while continuing to develop in its initial state despite shocks and shifting environments (Linnenluecke, 2017). Additionally, X. Jia et al. (2020) state, that resilience is associated with a firm's competency to thrive in the face of an unanticipated change in businesses. Resilience is the progressive capacity of an organization to forecast and adjust to the changes in the business environment (Stachowiak & Pawłyszyn, 2021). Vakilzadeh and Haase (2020) defined resilience as the capacity of a firm to effectively manage unforeseen risks and recover quickly from disasters. This involves not only coping with challenges as they arise but also learning from these experiences to better prepare for future risks and improve overall performance.

4. Human capital and organizational resilience

The Resource-Based View (RBV) theory supports the hypothesized relationship between human capital and organizational resilience by emphasizing the strategic significance of unique and valuable resources within an organization. RBV emphasizes that firms can get a more competitive advantage when they have resources that are both valuable and unique. Human capital, which includes the skills, knowledge, and resilience of employees, is inherently unique to each organization, and this uniqueness allows organizations to respond effectively to challenges and threats, thereby increasing their resilience (Douglas, 2021a). Successful organizations possess skilled human resources that allow them to tackle challenges and adapt to unforeseen situations, ultimately helping them achieve their goals (Negri et al., 2021). Employees with a greater range of resilient qualities are more capable of coping with pressure and threats. Human capital is crucial for fostering organizational resilience as it enables businesses to evolve and respond more effectively to challenges (Núñez-Ríos et al., 2022). Employees with talent, education, skills and abilities can determine potential threats and unfavorable circumstances and seek potential solutions for recovery. Cheng et al. (2023), emphasizes the importance of resilient mindset for recovering from traumatic situations. These capabilities are essential for every organization that wishes to flourish in this rapidly changing world (ELGHOZAIL & EL IDRISSI, 2023). According to Mubarik et al. (2020), firm's competitive edge is driven by its dynamic assets, particularly from its HC, which has unique, priceless, scarce, and non-replaceable attributes. Furthermore, Do et al. (2022) suggest that firm's resilience capabilities are mostly based on the skills and competencies possessed by its employees. Competent and knowledgeable workers are more likely to be able to handle challenging situations, particularly in turbulent work environments. According to He et al. (2022), development of organizational resilience depends on HC management strategies that develop individuals capabilities and then translate them to the organizational level. Businesses need to put more emphasis on the abilities and prospects of their human resources and implement plans that provide employees with opportunities and rewards for growth and adaptation to new ways of operating, rather than solely focusing on their job responsibilities, skills, or qualifications (Douglas, 2021). Organizations that emphasize constructing and developing organizational resilience are more likely to achieve success (F. Mitsakis, 2019). In accordance to this discussion, the following hypothesis is proposed;

H1: *Human capital is related to organizational resilience*.

5. Organizational capital and organizational resilience

OC encompasses the resources and assets possessed by a business, such as its systems, technologies, infrastructure, culture, and reputation, that enable it to operate and compete effectively (Barbieri et al., 2021). Organizational resilience on the other side is the capacity of an organization to adapt to and recover from unexpected events, such as natural disasters or recessions in the economy (L. Jia, 2023). For a company to continue to expand and be successful, both organizational capital and resilience are necessary (Cohn et al., 2022). An organization with strong OC including strong systems, procedures, partners, and technology all contribute to the development of organizational resilience (Ju, 2023). Organizations with diverse and strong OC can navigate to alternative networks unaffected by the disaster, increasing their capacity for responsive resilience (He et al., 2022). Hence, businesses with robust OC are more readily able to respond to crises and bounce back quickly from disasters (Cohn et al., 2022b). Additionally, Mubarik et al. (2021a) defined, organizations tend to be more resilient to disruptions when their practices, patterns, infrastructure, and databases are created well. We suggest the following hypothesis based on this understanding;

H2: *Organizational capital is related to organizational resilience.*

6. Social capital and organizational resilience

SC significantly contributes to the development of organizational resilience (Partelow, 2021) by serving as an intermediary for information, giving access to resources, improving the effectiveness of knowledge dispersion, and reducing redundancy (X. Jia et al., 2020). This in turn gives individuals access to a wider range of timely and valuable information, which can improve a company's ability to navigate unforeseen challenges (Chowdhury et al., 2019). This increases a company's capacity to manage unforeseen difficulties and disasters (Aslam, 2022). Effective collaborative networks of communication are essential for fostering organizational resilience because they offer valuable resources and assistance in difficult situations (Monteil et al., 2020). These networks of communications help an organization develop its effective relationship with outer outside world (Delilah Roque et al., 2020; Gil-Rivas & Kilmer, 2016). According to Delilah Roque et al (2020a), the social capital components are more crucial for effective organizational restoration following a disaster than other characteristics (such as financial circumstances) and outside factors such as the degree of destruction. Based on this understanding, it is proposed;

H3: *Social capital is related to organizational resilience.*

7. Human capital and dynamic capability

HC and dynamic capabilities are interconnected concepts within strategic management. The association between HC and dynamic capabilities has been thoroughly investigated, and researchers such as Tsou & Chen (2020a) have emphasized the significance of HC in facilitating the development of DC. According to, Nama & Kanungo (2023) HC refers to the expertise, education, and skill that people have within an organization that may be leveraged to add value. Whereas DC is defined as a firm's strength to respond and adjust to changing business circumstances in an effective way to get benefits (Mongkol 2021). According to Ali et al. (2020) company's ability to learn something new, combine, and reorganize is highly associated with having informed, experienced, and competent employees. Nhon (2020) suggests Competent workers are skilled at recognizing changes and selecting the best resource allocation and pathfinding strategies, enabling them to predict outcomes. The knowledge and experience of an individual are dynamic contributors to acquiring and utilizing information, by (Tsou and Chen 2020a). Further, Farzaneh et al. (2020), argued that employee competence promotes resource regeneration, learning, and reconfiguration. Additionally, Research by Eikelenboom & de Jong (2019), suggests that a corporate capacity to attract and retain competent individuals who can conceptualize and implement new processes is critical for the growth of dynamic capability. This suggests that the role of HC is essential for a company to develop its dynamic capabilities. Tsou & Chen (2020) found that firms with innovative employees are more likely to develop innovative capabilities. Witschel et al. (2019), discovered that businesses with higher levels of technological and digital skills among their employees are better able to develop DC capabilities. Thus, it is proposed;

H4: *Human capital is related to dynamic capability.*

8. Organizational capital and dynamic capability

OC refers to the knowledge gathered by a company and integrated into its operations through organizational activities, methods, systems, and practices (Yu et al., 2023). It encompasses an organization's culture, systems, technology, and procedures, allowing businesses to effectively conduct their operations Cohn et al. (2022b). Researchers like Schroeder, Bates, Junttila, (2002), and Ali (2021), have discovered that OC offers significant benefits to businesses, which they can develop through repetitive processes. However, there are instances when businesses are confronted with new unpredictable challenges, then they need to think in new creative and different ways to face and solve these challenges effectively. They cannot survive to utilize the same old methods. This is where they need dynamic capability. Dynamic capability (DC) represents an organization's ability to quickly adapt and respond to new situations in response to changing circumstances and market conditions. Park & Xiao (2020), defined that DC enables businesses to transform their existing organizational skills into new systems or procedures that enable them to produce unique products or services. While organizational capital provides a wide range of tools, dynamic capability is the capacity that decides when and how to use these tools effectively. Numerous studies have revealed that OC and dynamic capabilities both are crucial to a company's success, particularly in this era of rapid digital transformation (Marco-Lajara et al., 2023). Based on this understanding, the hypothesis proposed is;

H5: *Organizational capital is related to dynamic capability.*

9. Social capital and dynamic capability

SC is an asset that is jointly developed in an exchange relationship and that neither firm can produce on its own. It can only be produced through shared relation-specific assets (Alvino et al., 2020). SC encourages worker sharing of information and promotes the acquisition of knowledge, internalization, and expression (Khan et al., 2020). Strong relationships between individuals or groups are crucial because they create a sense of unity and cooperation to achieve common objectives. Nevertheless, this can also lead to a negative aspect known as group thinking, described as the dark side of SC. Knowing the possible drawbacks or difficulties that may result from "SC" (these are the concerns discussed before), and "DC" (which probably refers to Dynamic Capabilities), can help firms in resolving and comprehending these problems using their current internal resources. Ozanne et al., (2022a), argue that a company's ability to perform well against its competitors not only depends on its relationship with their outside partners but also its capacity for change and adaptation. This is particularly crucial in a dynamic and rapidly changing environment where an organization must come up with a novel solution to address the drawbacks of SC (Appiah & Obey, 2023). Therefore, the key to having SC is using your organization's resources and routines to improve performance and create value together with your partners (Thanh Nhon et al., 2020a). In simpler terms, DC acts as a bridge that connects all these relationships and is shaped by them. In other words, DC is also created by working with other organizations that bring more resources, knowledge, and unique strengths (Ozanne et al., 2022a). SC is regarded as being crucial for the growth of DC (Appiah & Obey, 2023). According to Hongyun et al. (2019a), SC provides a crucial type of knowledge about a company's relationships that a company has developed through interpersonal interactions and networks of relationships. When an organization possesses strong social networks, it can gain awareness of new possibilities, and threats, acquire novel and unique knowledge and skills, and develop and improve procedures that enhance its ability to capitalize on opportunities (Ai & Peng, 2021). Therefore, connections within networks contribute to the routines and procedures that are essential for releasing, obtaining, and integrating resources. Thus, study proposes;

H6: *Social capital is related to dynamic capability*

10. Dynamic capability and organizational resilience

In an unpredictable and dynamic environment businesses require dynamic capabilities (DC) to thrive and expand. DC arose as a conceptual extension of the resource-based view (Costa & Pereira, 2019), which explains how successful companies can respond to rapidly changing business circumstances by shifting, adapting, redeploying, and even creating their own unique sets of resources. According to Prayag et al. (2023a), developing resilience during adverse situations requires a combination of routine actions as well as adaptable and creative strategic reconfiguration. A recent study conducted by Prayag et al. (2023b), they links the concept of DC to organizational resilience, state that organizations that accept change and adapt to the existing situations/circumstances are more capable to bouncing back from troubles and disasters. Additionally, Wided (2022) states that organizational resilience can be used to gain knowledge of DC following traumatic situations. DC can be viewed as the competent perspectives or strategic paths

that guide firms in responding to crises or disasters. Organizations can increase their resilient capabilities by incorporating DC into their operations, including the capacity to identify and forecast disasters (Jiang et al., 2021a). This proactive strategy demonstrates their willingness for change, an essential component of organizational resilience, achieved by replicating and mixing DC (Ciasullo et al., 2022). Based on above understanding, following hypothesis is proposed;

H7: *Dynamic capability is related to organizational resilience.*

11. Mediating effect of dynamic capability on human capital and organizational resilience

HC refers to the employee expertise and abilities that have the potential to provide value, which is a crucial resource for novelty and dynamic development. It enables an organization to build a robust workforce that can easily adapt and thrive even in adverse and unpredictable conditions (Ngoc Su et al., 2021). Nhon et al. (2020) noted that a person's abilities and expertise serve as dynamic contributors for information gathering and usage, found to be strongly connected with assimilation and reconfiguration capabilities. A study conducted by Oladele et al. (2022), suggests that organizations must invest in their workforce by providing them training and necessary skills that are required to build their resilient capabilities. Having a competent workforce with the necessary training and expertise can enhance an organization's resilience over prolonged periods, providing them with a distinct competitive advantage. Building upon this, another study by ELGHOZAIL & EL IDRISSI (2023), suggests that HC plays a significant role in increasing OR. DC refers to a company's ability to adapt, construct, and modify its internal and external competencies to navigate evolving circumstances (Teece et al., 1997). Chari et al. (2022b) DC significantly boost organizational resilience by enabling companies to proactively identify new obstacles and seize new opportunities. As a result, it ensures an organization's long-term viability and competitive advantage by enabling constant evolution, innovation, and resource reconfiguration to adapt to dynamic markets. Following this understanding, the hypothesis is proposed;

H8:*. Dynamic capability mediates between human capital and organizational resilience.*

12. Mediating effect of dynamic capability on OC and OR

Previous research postulated that organizations that are dynamic in nature, capable of integrating, building, and reconfiguring resources in response to changing environments, possess the capacity to be resilient and bounce back from turbulent circumstances (Ozanne et al., 2022b). The knowledge and expertise that a company has recorded and kept in its systems, databases, procedures, manuals, routines, and patents are referred to as organizational capital. When there is a lot of this institutionalized information, it facilitates easier resource acquisition, faster learning, and improved communication across network partners. Organizational capital is a crucial component in enabling effective business strategies known as DC. since it is essential for integrating, enhancing, and exploiting information effectively (Prena & Kustina, 2020). It indicates an organization's adaptability to change and capacity for the invention may substantially affect its capacity to withstand and recover from shocks. Organizations need to develop well-stabilized structures, processes, infrastructure and systems to achieve organizational resilience (Kwon & Adler, 2014). Organizational capital enables organizations to develop organizational resilience. Therefore, based on the above understanding it is proposed;

H9: *Dynamic capability mediates between organizational capital and organizational resilience.*

13. Mediating effect of dynamic capability on SC and OR

The current study takes into consideration DC as a mediating variable considering the previous research that has been done on this topic. Organizations with a greater degree of social capital (SC) and infrastructure exhibit a greater degree of resilience to disasters (Matthews et al., 2020). Ozanne et al. (2022b) described, SC is considered as an essential tool for enhancing organizational resilience. To strengthen organizational resilience businesses must enhance their SC. Further, Panday et al. (2021) noted SC is considered an essential element of businesses for understanding how networks and connections might promote resilience in natural disasters, practices, and policy-making. Dynamic capability acting as an intermediary between social capital and OR. As it supports critical procedures and processes for obtaining and integrating resources, social capital is essential for the growth of dynamic capabilities (Thanh Nhon et al., 2020a). Wang and colleagues (2021), suggested that firms can develop DC by enhancing their social capital. According to Thanh Nhon et al. (2020), a high amount of SC improves firms' capacity for learning, integrating new

ideas, and reconfiguring their structure—thereby promoting the growth of DCs. Thus, based on the above understanding the following hypothesis is proposed;

H10: *Dynamic Capability Mediates Between Social Capital and Organization Resilience.*

14. Conceptual framework and hypothesis development

The following proposed conceptual framework is based on the RBV theory, which aims to provide theoretical underpinnings for understanding the connection between intellectual capital dimensions, and organizational resilience. According, to the RBV, a firm's intangible assets are essential components in determining its performance and competitive advantage (Radjenović & Krstić, 2017). Further, Cheng et al. (2023a), defined IC dimensions are viewed as significant intangible resources that can enhance an organization's performance and resiliency. In the proposed model, there are three independent variables i.e., human, organizational, and social capital. There is one mediating variable i.e., dynamic capability, and one dependent variable i.e., organizational resilience. The model is conceptualized to explore the relationship between IC dimensions i.e. (human, organizational, and social capital) with organizational resilience. Additionally, the research aims to explore DC as mediator between IC dimensions and OR.

Figure 1 depicts the relationships among the variables in the proposed model:

Hypothetical Component 1**:** The components of IC (human, organizational and social capital) related to organizational resilience. (H1, H2, H3)

Hypothetical Component 2**:** The components of IC (human, organizational and social capital) related to dynamic capability. (H4, H5, H6)

Hypothetical Component 3**:** Dynamic capability mediates the relationship between the components of IC (human, organizational and social capital) and organizational resilience. (H8, H9, H10)

Hypothetical Component 4**:** Dynamic capability is related to organizational resilience. (H7)

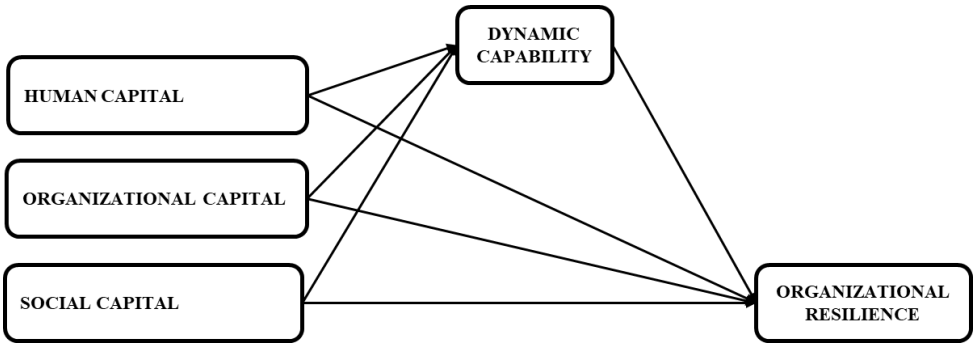

Figure 1: Conceptual Framework

Resource - Based View (RBV) Theory

RBV theory, pioneered by Penrose (Penrose, 1959). And developed further by Wernerfelt (1984) and Rumelt (1984), asserts that an organization's intangible resources, including human, organizational, and social capital, influence its competitive advantage(Yuen et al., 2019). Marr & Moustaghfir (2005) underscore the uniqueness of organizations due to their intellectual capital. IC is difficult to imitate, enhances employee value and provides a competitive edge (penrose,2007). Wernerfelt (1984), suggest a balance between utilizing existing resources and the creating new ones, emphasizing the importance of knowledge which Roos & Roos (1997), assert as the main element for gaining competitive edge. Integration with RBV theory aids in understanding how intangible assets affect organizational resilience and dynamic capability (Barney et al., 2001). It highlights resource selection, combination, and management for organizational success, enabling the discovery of distinctive skills and long-term competitive advantage (Roos & Roos, 1997). Collaborating with RBV theory improves resource allocation tactics and strategic decision-making for long-term performance and prosperity.

Design and methodology

This research adopts the deductive approach, attempting to explain causal relationships among the variables chosen. This led to the development of a number of hypotheses for which quantitative data were obtained to test the mediating role of the dynamic capability between the components of intellectual capital and organizational resilience. This study used a survey strategy, which allows for the economical collection of quantitative data from a large population that can then be statistically analyzed (Saunders et al., 2009). Below, this study explains the population, sample size, sampling technique, instruments of measurement and data collection.

1. Research Population

A research population is a predetermined set of participants, events, and subjects, that a researcher wishes to study in a research project. The current study's target demographic or research population is employees from the Karachi IT sector. The researcher intended to gather information from employees who are working in managerial positions within the IT sector. This demographic was selected without favoritism or prejudice in order to generalize the findings.

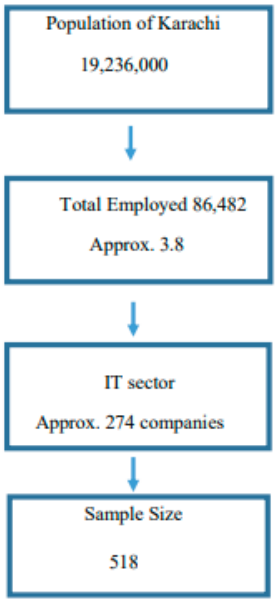

Figure 2: Research Population

The figure is showing the population of Karachi according to the statistics given by Macrotrends in the year 2023. The total employment rate is approximately 3,8. The service industry i.e. IT consists of approximately 274 companies and the sample size of the research would be 518 employees.

2. Sampling Technique & Sample Size

In this study, convenience sampling is used, selecting participants based on their easy accessibility. This might occur due to geography, accessibility at a certain time period, or participation in the research. Following the purpose of the current research, there is a set criterion for the respondents that are eligible for participation. Individuals who are part of the IT sector of Karachi. They are working in the industry for I year. They are employed in managerial positions in their organization and are proficient in the English language. The population sample size is calculated through the use 10-times A. The 10-times rule' approach is frequently used to compute the minimal sample size in partial least squares structural equation modeling (PLS-SEM). It is based on the idea that the sample size should be greater than ten times the total number of model components (Goodhue et al., 2012; Kock & Hadaya, 2018); Peng and Lai, 2012).

3. Measurement and sampling

All items of the study were measured on a seven-point Likert scale. These items were adapted from previous studies. The scale for dynamic capability was taken from Matthijs et al., 2016; it was assessed with eighteen items and it measures the transformation and exploitation of new knowledge to produce new ideas and products. The construct of the components of IC: human, organizational, and social capital, consists of five items each, drawn from (Sharabati et al. (2010). Additionally, organizational resilience consists of nine items taken from Deniz Kantur et al. (2012). The population for this study comprised managerial employees from the IT sector of Karachi Pakistan. The population sample size is calculated through the use 10-times rule approach, commonly used to compute the minimal sample size in partial least squares structural equation modeling (PLS-SEM). This approach is based on the principle that the sample size should be greater than ten times the total number of model components (Goodhue et al., 2012; Kock & Hadaya, 2018); Peng and Lai, 2012). The questionnaire was delivered to 650 managers, and 518 returned completed documents.

4. Analytical technique

This study employed with partial least squares-structural equation modeling (PLS-SEM). SEM is a multivariate technique, widely used to study structural relationships. It enables several variables to be analyzed in an integrated model at once (Hair et al., 2016). PLS-SEM provides useful insight into the conceptualization of constructs and theories that can be tested with empirical data. It also can reveal causal modeling complexities. Moreover, as Akter et al. (2017) note, it ensures the estimation of a model using a small sample with many latent variables, another important reason to use it in this study. PLS was preferred over

Table 1: Demographic Distribution of The Respondents (n=518)

Demographic Variables	frequency	%
Gender		
Male	412	79.50%
Female	106	20.50%
Age		
21-30	388	74.9%
31-40	108	20.80%
41-50	14	2.70%
51 & above	8	1.50%
Qualification		
Up to Intermediate	5	1.0%
Graduation	286	56.20%
Masters	219	42.30%
Doctoral	8	1.50%
Job-level		
Top Management	8	1.50%
Middle	102	19.70%
First Line Management	408	78.80%
Years of experience		
up to one year	65	12.50%
1_5	200	38.60%
6_10	135	26.10%
11_15	67	12.90%
16_20	29	56.0%
21_25	20	3.90%
26_30	2	0.40%

other techniques due to the small sample and non-parametric nature of the data. PLS-SEM can be estimated from a relatively low sample size. Likewise, this approach is effective for analyzing data that are not normally distributed (Hair et al., 2016).

Data analysis and results

1. Validity and reliability

The results of the validity and reliability checks are exhibited below in Table 2. To assess the internal consistency, the values for composite reliability (CR) and Cronbach's α were checked. The results in Table 2 show that the constructs have internal consistency: the values for CR and Cronbach's α are greater than 0.70. Likewise, indicator reliability was checked by analyzing factor-loading values. According to Hair et al. (2016), factor loading should be greater than 0.5 to ascertain indicator reliability. This shows that all indicators meet their loading goals in their respective constructs.

Furthermore, the convergent validity was confirmed of the constructs by checking the values for average variance extracted (AVE). The AVE values for all constructs were greater than the recommended threshold level of 0.50, indicating that all constructs were convergently valid. The Fornell–Larcker criteria were used to ascertain discriminant validity, as shown in Table 3. According to those criteria, the square root of the AVE should be greater than the inter-construct correlations. In this case, the square root values of the AVE were greater than the inter-constructs correlation, confirming discriminant validity.

The estimated model is exhibited in Figure 2. The IC construct has three major components: human, social, and organizational capital. Each dimension has five items, for a total of 15. The construct of the dynamic capability has 18 items and the construct of organizational resilience has 9 items.

Table 2: Confirmatory Factor Analysis with Reliability and Validity Statistics

Construct	Items	Loading	AVE	CR	α
Human capital	H1	0.851	0.704	0.922	0.895
	H2	0.858			
	H3	0.872			
	H4	0.768			
	H5	0.844			
Organizational capital	OC1	0.760	0.599	0.882	0.833
	OC2	0.804			
	OC3	0.737			
	OC4	0.767			
	OC5	0.799			
Social capital	SC1	0.802	0.683	0.915	0.884
	SC2	0.850			
	SC3	0.856			
	SC4	0.827			
	SC5	0.796			
Dynamic capability	DC1	0.711	0.550	0.936	0.927
	DC2	0.670			
	DC3	0.702			
	DC4	0.584			
	DC5	0.699			
	DC6	0.778			
	DC7	0.741			
	DC8	0.593			
	DC9	0.704			
	DC10	0.727			
	DC11	0.638			
	DC12	0.663			
	DC13	0.676			
	DC14	0.666			
	DC15	0.638			
	DC16	0.646			
	DC17	0.623			
	DC18	0.580			
Organizational resilience	OR1	0.707	0.540	0.914	0.893

Construct	Items	Loading	AVE	CR	α
	OR2	0.735			
	OR3	0.808			
	OR4	0.734			
	OR5	0.733			
	OR6	0.705			
	OR7	0.700			
	OR8	0.740			
	OR9	0.750			

Table 3: Fornell–Larcker Criteria

Variables	Dynamic Capability	Human Capital	Organizational Capital	Organizational Resilience	Social Capital
Dynamic Capability	-				
Human Capital	0.773	-			
Organizational Capital	0.878	0.788	-		
Organizational Resilience	0.836	0.702	0.679	-	
Social Capital	0.827	0.705	0.887	0.664	-

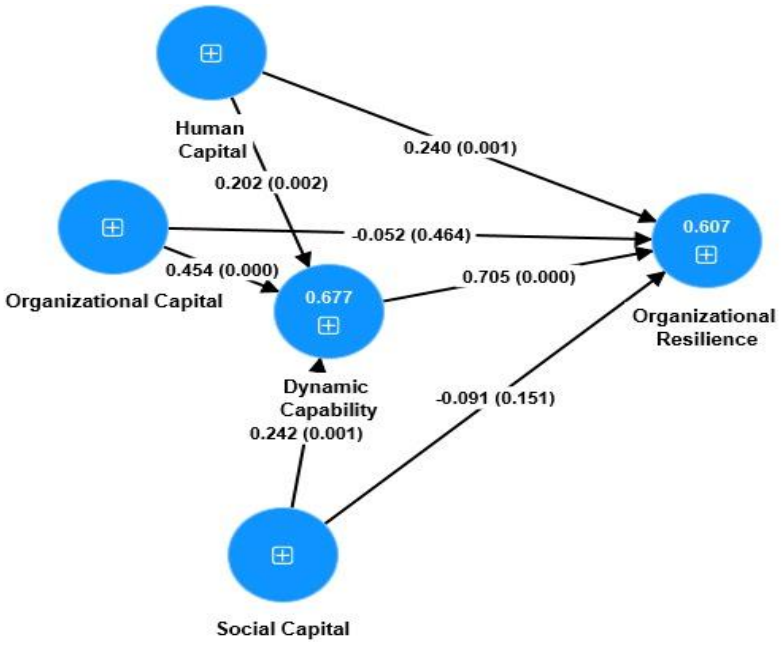

Figure 3: Estimated Model

Hypothesis testing

The results of the hypothesis testing are shown in Table 4 and 5. They displayed that human capital (β= 0.240, p= 0.001) had a positive and significant influence on organizational resilience. However, interestingly the effect of organizational capital (β= −0.052, p=0.464) and social capital (β= -0.091, p=0.151) was non-significant effect. The results also showed a positive and significant impact of dynamic capability (β= 0.705, p=0.000) on organizational resilience. Dynamic capability (β= 0.142, p <. 004) had a significant effect on organizational resilience. The results indicate that dynamic capability positively mediates between human (β= 0.142, p < 0.001), organizational (β= 0.320, p < 0.001), and social capital (β= 0.171, p < 0.001) in relation to organizational resilience.

Table 4: Path Coefficients

Hypothesis	Std.β	Std. Error	Standard deviation	T-test	Hypothesis
Dynamic Capability -> Organizational resilience	0.705	0.706	0.073	9.649	Supported
Human Capital -> Dynamic Capability	0.202	0.205	0.065	3.086	Supported
Human Capital -> Organizational resilience	0.240	0.236	0.074	3.229	Supported
Organizational Capital -> Dynamic Capability	0.454	0.455	0.050	9.128	Supported
Organizational Capital -> Organizational resilience	-0.052	-0.049	0.071	0.732	Not supported
Social Capital -> Dynamic Capability	0.242	0.237	0.070	3.467	Supported

Table 5: Mediating role of Dynamic Capability

Hypothesis	Std.β	Std. Error	Standard deviation	T-test	Hypothesis
Organizational Capital -> Dynamic Capability -> Organizational resilience	0.320	0.322	0.053	6.076	supported
Social Capital -> Dynamic Capability -> Organizational resilience	0.171	0.167	0.051	3.343	supported
Human Capital -> Dynamic Capability -> Organizational resilience	0.142	0.145	0.050	2.857	supported

The role of dynamic capability appears to play a significant mediating role in the relationship of human, organizational, and social capital to organizational resilience. The findings on human capital and organizational resilience broadly align with Minbaeva et al. (2014), Soo et al. (2017), and Mubarik et al. (2018). However, an unexpected, a non-significant and negative effect on organizational resilience was found for organizational and social capital, contradicting conventional wisdom. This research justifies the result by noting that organizational and social capital alone may be counterproductive.

Discussion

The present study was conducted to examine the association between IC dimensions with organizational resilience. Moreover, the study also explored the mediating role of DC in these relationships. The innovative skills, qualifications, and expertise of the company's employees are referred to as its human capital. When a company invests in its workforce by offering training opportunities and fostering a culture of continuous learning it not only empowers its employees but also develops a resilient capability to tackle challenges and promote innovation, especially during uncertain times. Based on the Resource-Based View framework, the study validates a favorable association between organizational resilience and human capital. Employee skill investments improve a company's capacity to respond to change and are consistent with earlier studies by He et al. (2022b), F. V. Mitsakis. (2020), F. V. Mitsakis (2020), and Shela et al., (2021). The second hypothesis (H2) proposes that organizational capital is related to organizational resilience. The current study outcome does not support this hypothesized relationship (H2) between OC and OR which disagrees with the earlier study findings by Al-Omoush et al., 2022; Cohn et al., 2022; Daou et al., 2019; He et al., 2022a; Ju, 2023). However, the results of our study go against conventional wisdom as organizational capital adversely impacts organizational resilience.

The sample of the present study is taken from employees working in the IT sector of Pakistan particularly Karachi. This sector possesses a unique combination of cultural, geographical, and sector-specific traits that can set it apart from the environments examined in earlier studies. These regional and cultural aspects can have a big impact on how OC is developed, used, and perceived inside businesses, which has an effect on how it interacts with OR. The third research hypothesis (H3) suggests that social capital has an influence on organizational resilience. The findings of the present research do not support this hypothesized (H3) relationship between SC and OR which is inconsistent with the past studies' findings by Fandiño et al. (2019a); X. Jia et al., (2020b); and Ju, (2023), these studies suggest that SC is a significant and accurate indicator of recovery after a tragedy.

SC serves as a bridge for resource and information access, providing timely, accurate information and helpful counsel on relationship, which increases resilience and improves a company's capacity to handle unforeseen crises. This unfavorable outcome might be due to insufficiency of social capital within IT sectors. Several different interpretations can be taken into consideration to comprehend this contradiction. The dimensions of social capital may vary from culture to culture, so there is a possibility that the particular economic and social culture of our country

might have an influence on the studied phenomena. However, despite the lack of a causal relationship between social capital and organizational resilience in this study, social capital may still be very important for promoting teamwork, communication, and satisfaction among staff. Further research is required in the future to fully comprehend the intricate correlation between social relationships and how well businesses handle challenges. Future research attempts could look into diverse forms of social networks, examine diverse work environments, or examine the potential impact of additional variables on this correlation. H4 posits that HC significantly impacts dynamic capability. The present study findings support this hypothesis (H4), which is in agreement with past research by Thanh Nhon et al. (2020a), which postulates that businesses with competent workforce tend to develop higher dynamic capabilities. These businesses exhibit a greater capacity to grasp opportunities, adjust to changing circumstances in the market, and utilize their resources effectively (Tsou & Chen, 2020c). H5 intends to examine the association between organizational capital and dynamic capability. The study outcome supports this relationship presented and verified the outcomes of the literature that organizational capital indeed improves dynamic capability. For a business to succeed in a market that is changing so quickly, flexibility and adaptabilities are essential. Firms with stronger intangible assets, such as organizational capital would exhibit a greater degree of dynamic capabilities. A study carried out by Thanh Nhon et al. (2020a), suggests that businesses with strong organizational cultures, effective information management systems, and flexible internal procedures, systems, and databases are more responsive to market changes. H6 asserts that social capital has an impact on dynamic capability. The findings support (H6), and demonstrate a significant association between SC and DC. Previous research supports this notion that social capital increases an organization's access to a variety of resources through partnerships with outside suppliers, consumers, and partners, fostering innovation and enabling quick responses to market changes (Thanh Nhon et al., 2020c). In general, building social capital improves a firm's capacity for dynamic change. H7 posits that dynamic capability is significantly associated with organizational resilience. Findings of the current research corroborate with earlier studies conducted by Akpan et al. (2022b), and Kaur & Mehta, (2017), suggesting businesses that can identify and seize opportunities, learn from failures, and effectively reallocate their resources are more likely to experience sustained success and resilience in the face of difficulty. Hence, businesses should concentrate on enhancing their dynamic skills as that will help them to become more resilient and capable of managing obstacles.

H8 proposes that dynamic capability act as a mediator in the connection between human capital and organizational resilience. Findings support (H8) which are in line with the earlier studies conducted by Tsou & Chen (2020b), discovered that businesses with skilled workforce who possess higher levels of competencies are more effective at establishing dynamic capacities. Similarly dynamic capabilities are likely to exhibit higher levels of resilience (Wided, 2022). H9 posits that dynamic capability mediates between the association of organizational capital and organizational resilience. The results supports (H9) which are in accordance with earlier research conducted by Ozanne et al., (2022a), and Prayag et al., 2023a), states that organizations that are dynamic in nature are more likely to have a tendency to recover from disasters, and organizational capital greatly contribute in enhancing overall organizational resilience (Mubarik et al., 2021). H10 suggests that DC mediates between social capital and organizational resilience. Findings supports (H10) which is consistent with previous research conducted by Waing et al. (2021a), and Ozanne et al., (2022), suggest that social capital enhances the growth of DC within an organization these dynamic capabilities, in turn, increase the firm’s capacity to handle disruptions, and recover effectively from difficulties, thus enhancing overall organizational resilience.

Conclusion

The objective of this study was to examine the role of dynamic capability in the relationship between IC and organizational resilience. The study hypotheses were examined using data from 518 managerial-level employees in the IT sector in Karachi Pakistan. PLS-SEM was employed to estimate the hypothesized relationships. The study found that within the IC dimensions’ human capital had a significant influence on organizational resilience. However, the relationship between social capital, organizational capital with organizational resilience was not significantly supported, in contrast to the earlier findings in the literature on intellectual capital and organizational resilience. This study also highlighted the role of dynamic capability as a mediator in the relationship between human, organizational, and social capital, with organizational resilience. The findings of the study showed that dynamic capability significantly and positively mediates the relationships of human, organizational, and social capital to organizational resilience. By examining intellectual capital dimensions with organizational resilience and conducting mediation analysis on dynamic capability, this study attempts to bridge the gap in order to develop better understanding of IC dimensions and their intricacies. The overall results of our study align with existing literature, although social capital

and organizational capital does not influence organizational resilience. These results hold important implications for both theoretical research and real-world life situations aiding companies in their efforts to enhance resilience and adapt to a perpetually changing environment.

Practical Implications

Disasters are becoming more common worldwide, with an increase in frequency and effects. In the present times, Pakistan is facing severe consequences and challenges, making organizational resilience a critical necessity. It is vitally important for firms within the country to adopt conservative measures of organizational resilience within their operations to ensure long-term survival and success. The present study offers thorough insights into the relationship between IC dimensions, organizational resilience, and dynamic capabilities within the IT sector of Pakistan. The study's findings have implications for companies aiming to increase their resilience. First, according to the study, social capital enhances organizational resilience through dynamic capability rather than having a direct impact on it.

Furthermore, Significant positive correlations among HC, dynamic capability, and organizational resilience emphasize the importance of making investments in them for their growth. All of these elements are essential to a firm's capacity to adjust, bounce back from, and adapt to difficulties and interruptions. The study also emphasizes the mediating role of dynamic capability, and it suggests that organizations should focus on enhancing and developing this capacity because it is essential for translating the effects of HC, OC, and SC into increased organizational resilience. Continuous learning, information sharing, innovation, and agility are some strategies that can help organizations effectively build and use their dynamic capacities. The study also highlights the significance of evaluating and monitoring the validity and reliability of measurement devices. To achieve accurate and insightful assessments of the investigated constructs, organizations should ensure that their measurement models exhibit satisfactory levels of reliability and validity. Overall, the outcome of this study offers vital insight to the IT sector in Pakistan by shading light on how to enhance organizational resilience through the development of dynamic capabilities, establishing social connections, and fostering human capital.

Theoretical implications

This research contributes to the resilience literature by examining IC components and dynamic capability mediation. By adopting the theoretical foundation of RBV theory, this research contributes to the increasing amount of literature on resilience by analyzing the effects of human, organizational, and social capital within the context of the IT sector in Pakistan. The study also adds to the existing literature on intellectual capital by studying HC, OC and SC as independent variables within the proposed framework by investigating their simultaneous impact on a firm’s resilience to provide a deeper understanding of the constructs. Moreover, the study highlights the existing literature by mentioning that organizational capital and social capital does not directly influence organizational resilience in the IT sector in Karachi, which is a novel theoretical insight that is inconsistent with earlier studies. Further, the current study also adds knowledge to the available literature on resilience by exploring the function of dynamic capability in association with HC, OC, and SC in shaping organizational resilience.

Limitations and future research directions

The study's cross-sectional, survey-based design restricts its depth; for a more thorough understanding, future studies may combine qualitative and longitudinal methodologies. Generalizability will be improved by extending outside Karachi's IT sector to other sectors and places. For greater insights into organizational resilience, larger sample sizes and investigation of other aspects such as organizational culture and leadership are advised. In IT industry role of IC is higher as compared to other industries. Prioritizing IC and dynamic capability is crucial for adapting to rapid changes and ensuring long-term success. Managers should focus on fostering a culture of continuous learning investing in employee skills, and development, and staying updated on emerging trends and technologies. Additionally, strong risk management strategies and attention to employee wellbeing enhance organizational resilience and adaptability.

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The Marketing Factors that Influence Consumer Behavior in the Municipality of Narathiwat, Narathiwat Province

Safura Masae[1], Atikah Baka[2], Sitinadia Cheteh[3], Sarannee U-senyang[4]* and Roihan Saaree[5]*

[1] Princess of Naradhiwas University, Management Sciences; Safura Masae; Safura25444@gmail.com
[2] Princess of Naradhiwas University, Management Sciences; Atikah Baka; Kah.atikah2545@gmail.com
[3] Princess of Naradhiwas University, Management Sciences; sitinadia8592@gmail.com
[4] Princess of Naradhiwas University, Management Sciences; sarannee.u@pnu.ac.th
[5] Princess of Naradhiwas University, Management Sciences; royce.saaree@gmail.com

* Correspondence: sarannee.u@pnu.ac.th, royce.saaree@gmail.com

Abstract

The research aims to achieve three objectives: 1) Study the marketing factors influencing coffee consumers in the municipality of Narathiwat, Narathiwat Province. 2) Examine the level of coffee consumer behavior in the municipality of Narathiwat, Narathiwat Province. 3) Investigate marketing factors that impact the behavior of coffee consumers in the municipality of Narathiwat, Narathiwat Province. The study sample consisted of 385 coffee consumers in the municipality of Narathiwat, Narathiwat Province. The research utilized questionnaires as the data collection instrument, and statistical analysis included mean, standard deviation, and simple linear regression analysis. The findings revealed that overall market factor preferences were highest, with the highest average values found in the service process, physical environment, marketing promotion, personnel, price, and product aspects, in that order. Only the distribution channel aspect had a high average value in a single dimension. Regarding consumer behavior, all observed behaviors had the highest average values. The market factors significantly influenced coffee consumer behavior in the municipality of Narathiwat, Narathiwat Province, with a statistical significance level of 0.05. The 7P marketing mix explained 39.90% of the variability in coffee consumer behavior

Keywords: The marketing factors, Consumer behavior, Narathiwat

Introduction

Coffee is one of the popular beverages in Thai society, evident from its status as a staple drink in households and offices, as well as the abundance of coffee shops available today. Particularly, the younger generation favors it as a social gathering place. Over the past 5-6 years, the out-of-home coffee market or coffee shop business has notably expanded, driven by the growth of independent entrepreneurs, chain café businesses, and convenience stores. This expansion aligns with the increasing trend of Thai people spending more time outside their homes, seeking quick and convenient solutions.

Coffee shops have effectively met these demands and cultivated a culture of fresh coffee among Thai consumers (Thai Food Industry Development Foundation, 2021). Fresh coffee businesses are gaining significant popularity among consumers, prompting entrepreneurs to continuously seek marketing channels to stimulate demand and attract consumer interest, which influences their decision to utilize these services (Apiram Kamsoth and Satit Adito, 2016).

Currently, coffee shops are among the businesses that have garnered interest from entrepreneurs, ranging from small-scale to large-scale enterprises. This is evident from data reported by the Kasikorn Research Center, revealing that the coffee business in Thailand had a value of up to 21, 220 million baht in 2020, representing an expansion of over 10% compared to the previous year. Moreover, the consumption of coffee in the country has continuously increased by an average of 5-6% annually from 2015 to 2020. This includes both roasted coffee beans and green coffee beans imported from abroad, which saw an increase of 93% from 2012 to 2020. These figures reflect the consistent rise in coffee consumption among Thais (Suwimon Chaipanpong, 2020). Simultaneously, there has been a significant

emergence of new medium and small-sized coffee shop entrepreneurs. They face market competition not only within the coffee industry but also with other beverage categories that could serve as substitutes. Furthermore, changes in societal behavior due to increased purchasing options have compelled medium and small-sized coffee shop owners to adapt quickly to ensure their survival (Sasithorn Prommala, 2018).

This growing trend has attracted entrepreneurs of various scales, from small businesses to large enterprises. However, increased competition within the coffee market poses challenges, especially for new entrepreneurs entering the industry (Jantima Janthieat, 2022). They must contend not only with each other but also with alternative beverage options. Understanding societal changes and consumer behavior is crucial for coffee shop owners to adapt and thrive in this competitive landscape. Factors such as taste, coffee quality, reasonable prices, service, location, and shop design are essential considerations for coffee shop owners to remain successful (Pakkawadee Mudsarn and Aa-Hlem, 2017).

This study highlights the importance of examining market factors and consumer behavior in the context of the Narathiwat municipality, Narathiwat Province. Such insights can assist coffee business owners in continuous marketing efforts to meet consumer demands, enhancing their competitiveness effectively.

The research objectives are as follows:

1. To examine the level of market factor preferences among coffee consumers in the municipality of Narathiwat, Narathiwat Province. This involves understanding the extent of consumer demand for various marketing factors related to coffee.

2. To study the behavior of coffee consumers in the municipality of Narathiwat, Narathiwat Province. This includes investigating coffee consumers' habits, preferences, and choices in the specified area.

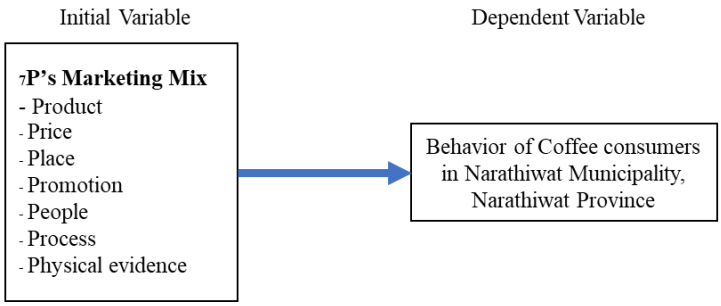
3. To explore the market factors that influence the behavior of coffee consumers in the municipality of Narathiwat, Narathiwat Province. This objective aims to identify and analyze the factors in the marketing environment that impact the coffee consumption behavior of consumers in the specified region.

The research method

1. The population consists of coffee consumers in Narathiwat Municipality, Narathiwat Province. The exact number of the population is unknown. The sampling method used is a convenient random sampling approach. The sample size is determined using Cochran formula, resulting in a sample size of 385 individuals.

2. The research tool is a questionnaire, and efforts have been made to enhance its quality.

Research Framework



Picture 1: Research Framework

From literature review, it can be observed that the 7 components of marketing, consisting of product, price, distribution channels, promotion, personnel, service processes, and physical characteristics, serve as the independent variables influencing consumer behavior towards coffee.

Literature review

Market Factors according to Kotler: Kotler defines market factors as variables controllable by businesses to meet the needs or desires of target market customers. Each component of market factors impacts one another and must align for successful marketing operations. These components are integral tools for marketing strategies and are employed to tailor approaches to target audiences. 1) Product is defined as anything offered to satisfy market needs

or desires. Encompasses tangible goods. 2) Price is defined as the rate of exchange between products in the market, using money as a medium. Significance: A crucial factor in marketing management, requires strategies aligned with market conditions. 3) Place (Distribution) is a direct channel: Direct distribution from producer to consumer without intermediaries. Indirect Channel: Distribution involves intermediaries or agents. Consideration: Focus on cost-effectiveness and time efficiency. 4) Promotion is defined as marketing communication tools to inform, motivate, and influence markets. Components: Advertising, personal selling, sales promotion, public relations, and direct marketing. 5) Employees providing services. Importance: Positive image, knowledge, cleanliness, courtesy, and effective communication are crucial for service personnel. 6) Process is defined as steps involved in service delivery, from initiation to completion. Management: Effective process management and appropriate service duration. 7) Physical Evidence is an element customers can experience. For example, Attractive décor, suitable lighting, cleanliness, and tangible features influence customer perception (Wasinee Nawaritthawin, 2013; Chadaphat Phattharaphanichanakit, Lasda Yawila and Rattana Sitthi-uam, 2020).

A study that explores how consumer groups behave in their lives, including decision-making processes regarding purchasing and using products and services. The effective analytical framework is the 6Ws 1H principle, considering various aspects of the market. The following are key considerations: 1) Who; is the target market? Identifying the actual target market helps understand the characteristics of the real audience for a product or service. 2) What; does the market buy? Analyzing consumer behavior reveals the genuine needs that customers have for a product or service. 3) Why; does the market buy? Understanding the real reasons behind consumer purchasing decisions provides insights for motivating the target audience. 4) Whom; participates in the buying? Recognizing the various individuals involved in the purchasing decision helps understand the influencers and decision-makers. 5) When; does the market buy? Consumer behavior varies based on the opportunities they encounter. Analyzing when they are more likely to make purchases aids in effective marketing planning. 6) Where; does the market buy? Identifying preferred or convenient purchase locations helps tailor distribution channels to different consumer groups. 7) How; does the market buy? Understanding the steps involved in the consumer & purchasing process, from problem awareness to decision-making, provides valuable insights. This refers to the actions of individuals related to the selection and use of products or services to meet their needs (Chattayaphorn Samaichok, 2013, cited in Krathana Cheuancheun, 2016).

Consumer Behavior Model is a theoretical model that studies the motivations leading to purchasing decisions. The model, known as the S-R Theory, involves stimulus, black box, and responses: 1) Stimulus: Inside and outside stimuli trigger buying motivations. Marketing stimuli, controllable by marketers, include product design, pricing, distribution channels, and promotional activities. 2) Buyer Black Box: Buyer characteristics, influenced by cultural, social, personal, and psychological factors, determine how stimuli are processed. The decision process includes problem recognition, information search, alternative evaluation, purchase decisions, and post-purchase behavior. 3) Buyer Response: Buyer decisions involve product, dealer, brand, timing, and amount choices. Analyzing consumer behavior helps create marketing strategies that align with consumer satisfaction (Pholkarn Plairatwanitkul, 2020).

Methodology

The population consists of coffee consumers in Narathiwat Municipality, Narathiwat Province. The exact number of the population is unknown. The sampling method used is a convenient random sampling approach. The sample size is determined using Cochran formula, resulting in a sample size of 385 individuals. The research tool is a questionnaire, and efforts have been made to enhance its quality:

1) Content Validity Analysis: The content validity of the questionnaire was assessed by three experts. The content validity index fell within the range of 0.6 to 1, indicating acceptable alignment.

2) Reliability Analysis: The reliability of the questionnaire was evaluated using Cronbach coefficient alpha. In a try-out with a sample of 30 non-participants, the questionnaire demonstrated a reliability coefficient of 0.97. Then, statistical analysis involves both descriptive and inferential statistics: 1) Descriptive Statistics as Mean and Standard Deviation (S.D.) are used to analyze the level of market component factors and the behavior of coffee consumers in Narathiwat Municipality. 2) Inferential Statistics as Inferential statistics, specifically Regression Analysis, will be employed to analyze market component factors influencing the behavior of coffee consumers in Narathiwat Municipality. The research process involves sampling, data collection through a questionnaire, and statistical analysis. The comprehensive analysis aims to provide insights into the market factors affecting coffee consumer behavior in Narathiwat Municipality

Results and Discussion

The research aimed to investigate market component factors influencing the behavior of coffee consumers in Narathiwat Municipality. The findings are presented below:

1. Level of Demand for Market Component Factors among coffee consumers in Narathiwat Municipality, Narathiwat Province.

From Table 1, it is found that the overall demand for marketing mix factors is at the highest level ($\bar{X}$ = 4.34, SD = 0.39). When broken down into individual aspects, the aspect with the highest average score is the service delivery aspect.

($\bar{X}$ = 4.42, SD = 0.48), followed by the physical environment aspect ($\bar{X}$ = 4.41, SD = 0.48), marketing promotion aspect ($\bar{X}$ = 4.37, SD = 0.58), personnel aspect ($\bar{X}$ = 4.35, SD = 0.50), price aspect ($\bar{X}$ = 4.32, SD = 0.54), and product aspect ($\bar{X}$ = 4.28, SD = 0.51), respectively. Interestingly, the distribution channel aspect has a relatively high average score in only one aspect ($\bar{X}$ = 4.20, SD = 0.53).

Table 1: Level of Demand for Market Component Factors among coffee consumers in Narathiwat Municipality, Narathiwat Province.

Demand for Factors in Marketing Mix	$\bar{X}$	SD	Level
1. Product	4.28	0.51	Highest
2. Price	4.32	0.54	Highest
3. Place	4.20	0.53	Hight
4. Promotion	4.37	0.58	Highest
5. People	4.35	0.50	Highest
6. Process	4.42	0.48	Highest
7. Physical Evidence	4.41	0.48	Highest
Total	**4.34**	**0.39**	**Highest**

2. The level of consumer behavior regarding coffee consumption in the municipal area of Narathiwat Province, Narathiwat.

From Table 2, it is evident that consumer behaviors regarding coffee consumption have the highest average scores for each behavior. These behaviors can be ranked as follows: Choosing coffee shops based on convenience of location and accessibility ($\bar{X}$ = 4.41, SD = 0.62). Selecting coffee shops based on the taste and quality of coffee ($\bar{X}$ = 4.38, SD = 0.66). Returning to use the service and consuming coffee in the selected coffee shop again ($\bar{X}$ = 4.37, SD = 0.70). Becoming a regular customer of a coffee shop, regardless of which shop it is ($\bar{X}$ = 4.36, SD = 0.70). Choosing coffee shops based on affordability ($\bar{X}$ = 4.35, SD = 0.63)

Table 2: The level of consumer behavior regarding coffee consumption in the municipal area of Narathiwat Province, Narathiwat.

The level of consumer behavior	$\bar{X}$	SD	Level
1. Choosing coffee shops based on affordability	4.35	0.63	Highest
2. Choosing coffee shops based on convenience of location and accessibility	4.41	0.62	Highest
3. Selecting coffee shops based on the taste and quality of coffee	4.38	0.66	Highest
4. Becoming a regular customer of a coffee shop, regardless of which shop	4.36	0.70	Highest
5. Returning to use the service and consuming coffee in the selected coffee shop again	4.37	0.70	Highest
Total	**4.37**	**0.46**	**Highest**

3. The marketing mix factors influencing consumer behavior regarding coffee consumption in the municipal area of Narathiwat Province, Narathiwat

From Table 3, it is found that the marketing mix factors significantly influence consumer behavior regarding coffee consumption in the municipal area of Narathiwat Province, Narathiwat, at a statistical significance level of 0.05. The marketing mix factors, represented by the 7Ps, explain 39.90% of the variability in consumer behavior (R^2 = 0.399). This result aligns with the research hypothesis.

Table 3: Simple Linear Regression Analysis of the Marketing Mix Factors Influencing Consumer Behavior Regarding Coffee Consumption in the Municipal Area of Narathiwat Province, Narathiwat.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	1.113	.201		5.537	0.000*
Marketing Mix (7P's)	.751	.046	.632	16.266	0.000*
$R = 0.632$, $R^2 = 0.399$, Adjusted R Square = 0.398, F = 264.583, Sig. = .000					

* Statistical significance at the 0.05 level.

This study examined market component factors that influence the behavior of coffee consumers in Narathiwat Municipality. The research revealed three key findings aligned with the research objectives: Firstly; Demand level for Market Component Factors are the overall demand level for market component factors among coffee consumers in Narathiwat Municipality was found to be the highest ($\bar{X}$ = 4.34, SD = 0.39). This aligns with the research conducted by Numpun Thimilakun and Kanittha Ritkom (2013), which studied market component factors affecting decision-making for cosmetics purchases through Shopee in Bangkok. Their findings indicated that the overall demand level for market component factors was also at the highest level. When examining specific dimensions, the highest mean values were found in the service process ($\bar{X}$ = 4.42, SD = 0.48), physical environment ($\bar{X}$ = 4.41, SD = 0.48), marketing promotion ($\bar{X}$ = 4.37, SD = 0.58), staff ($\bar{X}$ = 4.35, SD = 0.50), price ($\bar{X}$ = 4.32, SD = 0.54), and product ($\bar{X}$ = 4.28, SD = 0.51).

This corresponds with the research by Kuntapong Kumnonchai and Atip Janthasuriya (2022), which explored consumer behavior and market component factors influencing the selection of facial products among working women in Bangkok. Secondly; Consumer Behavior Level, the study found that the level of consumer behavior among coffee consumers in Narathiwat Municipality was the highest for all observed behaviors. The behaviors, ranked by mean values, were choosing a coffee shop based on convenience and accessibility ($\bar{X}$ = 4.41, SD = 0.62), returning to use the service and consume coffee at the selected shop ($\bar{X}$ = 4.37, SD = 0.70), becoming a repeat customer of any coffee shop ($\bar{X}$ = 4.36, SD = 0.70), and selecting a coffee shop based on value for money ($\bar{X}$ = 4.35, SD = 0.63). This is consistent with the research by Kittipong Sudpradit, Picharat Ruengphorn, and Waraporn Wongchan (2021), which investigated market component factors influencing consumer behavior in selecting food delivery applications in Phutthamonthon District, Nakhon Pathom. The study found that consumers place the highest importance on the convenience of purchasing, choosing a coffee shop based on the taste of the coffee, and the quality of the coffee ($\bar{X}$ = 4.38, SD = 0.66). Lastly; Market Component Factors Influencing Consumer Behavior, the research demonstrated that market component factors significantly influence the behavior of coffee consumers in Narathiwat Municipality at a significance level of 0.05. This aligns with the study by Numpun Thimilakun and Kanittha Ritkom (2013), which investigated market component factors affecting decision-making for cosmetics purchases through Shopee in Bangkok. Their findings indicated that market component factors significantly influence purchasing decisions at a significance level of 0.05.

Conclusion

The behavior of coffee consumers in the municipal area of Narathiwat Province, as found in this research, indicates that consumers have a high to very high level of demand across all 7 marketing mix factors. Therefore, coffee shop business owners should implement marketing mix strategies in each factor to best meet consumer demands and gain a competitive edge. Additionally, consumer behavior suggests a preference for coffee that offers value, good taste, and high quality, as well as convenient and easily accessible locations. This encourages repeat patronage and customer loyalty. Business owners can foster customer loyalty by utilizing research data to formulate strategies for operating coffee shops or businesses related to the coffee context effectively in the future.

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The Influence of 7P'S Marketing Mix on Decision to Order Food Via Delivery Application of Princess Narathiwas University' Staffs

Yusra Waemudor[1], Ruhaya Hayeeasae[2], Sumalee Grodgangunt[3] and Rungsiri Padungrat[3]*

[1] Student of Digital Marketing Major, Management Science Faculty, Princess Narathiwas University; Yusra14717@gmail.com
[2] Student of Digital Marketing Major, Management Science Faculty, Princess Narathiwas University; r.ruhaya13@gmail.com
[3] Assistant Professor Dr. of Digital Marketing Major, Management Science Faculty, Princess Narathiwas University; sumalee.grodgangunt@gmail.com
[3] Padungrat, R., Dr. of Digital Marketing Major, Management Science Faculty, Princess Narathiwas University; padungrat2002@yahoo.com

* Correspondence: padungrat2002@yahoo.com

Abstract

The purpose of this study is to examine consumers select online food ordering applications and how the 7Ps of marketing mix affect consumers' decisions to utilize those applications to purchase online food from Princess Narathiwas University' employees. A representative sample of 286 individuals was drawn from Princess Narathiwas University's staff. The research tool was a questionnaire, and statistics tools such as descriptive statistics, and stepwise multiple regression analysis were employed to analyze the data. The majority of consumers—87.40 percent—placed LINE MAN online food orders, per the data. Of those surveyed, 39.20 percent consumed Thai food. 53.10 percent of the results were for the time ordered between 11.01 until 15.00 p.m. At a rate of 68.50%, they normally place 1–3 food orders per month. Of those surveyed, 45.10 percent said they would most likely use the application to order food in the future. Additionally, a statistically significant influence of the marketing mix may be seen in the choice of online food ordering application. The study gave corporate stakeholders insights into the field because it suggested that restaurants in Narathiwas consider both the application's simplicity of use and the quality of its food menus and products when selecting a food application.

Keywords: The Marketing mix, Applications, Online food-ordering

Introduction

These days, economic is more competitive and technology is becoming more and more integrated into daily life. It has an impact on the environment, causing consumers and business owners to adjust in different ways. The lifestyles of today's consumers are no longer consumerist but rather success driven. They frequently multitask, speeding up daily life and appreciating the value of time, not squandering it on pointless activities or wasting resources in exchange for convenience. Nevertheless, there are methods to benefit from technology. It consists of systems that have been created with consistency. Nowadays, it is common for consumers to conduct a variety of online activities, including financial transactions and online shopping. This changing situation, entrepreneurs have developed an online business platform that can respond to the needs of consumers with changing lifestyles. By applying technology to connect information to the best possible benefits through the internet. Regards to restaurant business, they may be exposed to risks stemming from both internal and external sources, including growing competition, customer bargaining power, and restaurant business systems and food transportation procedures (Boonthanapiratch, 2017)

The economic hardship brought on by the Covid-19 pandemic had a variable impact on restaurant sales across all categories. It can be divided into three categories: 1) restaurants that are severely impacted, like "Full-Service Restaurants", who prioritize increasing sales through in-store dining. Such circumstances primarily affect retail centers

and tourist locations, as they are not only harm by the drop in visitor numbers but also by the difficulty faced by domestic consumers in avoiding dining out. 2) A moderately affected restaurant group, such as a "Limited-service restaurant", as well as a restaurant that distributes income from the food delivery channel. It will be impacted by sales even in the first half of the year; however, the way that sales are distributed through food delivery has resulted in a risk-dispersion of revenue and a partial reduction in the impact of sales. 3) A limited group of restaurants that are more likely to be impacted than above two groups, such as restaurants with a high percentage of income from food delivery channels or a street food restaurant that can be bought home (Take away).

Based on the results of the KASIKORN Research Center (2019), food delivery trends in the year 2019 are valued at 33,000–35,000 million baht, or growth at 41 percent, representing 8 percent of Thailand's restaurant business value, which is expected to expand steadily. Fast food delivery has grown significantly and is now recognized as a successful industry in Thailand, where a significant portion of the population orders foods to be delivered to their homes, offices, or places of business rather than having to drive through congested areas. This has caused a lot of business owners to get involved in the food delivery industry. Each of these owners has a service marketing mix that includes the product, price, place, promotion, people, physical evidence, and process aspects of the service as the main drivers of the business (MARKETINGOOPS, 2019). Additionally, it is estimated that the food delivery sector will grow by 1.7 to 5.0 percent in 2023, translating into a valuation of 7.7 to 8.0 trillion dollars (KASIKORN Research Center, 2023). In summary, restaurants that receive a portion of their revenue from the food delivery channel and low-cost eateries can mitigate some of the top sales effects by spreading out their sales channel through delivery to accommodation. (Bank National, 2020; KASIKORN Research Center, 2023).

Research Objective

The Objective of study are mainly into two parts:

1) To study consumer behavior in choosing the online food ordering application of the Princess Narathiwas University staffs and

2) To study the 7P's marketing mix that influenced the decision to use an application to order food online from the Princess Narathiwas University staffs.

As a result, the study's implications encompass the following three aspects: First, is able to identify customer behavior while using online food ordering application; Second, be able to recognize the marketing mix that impact the while using online food ordering application and third, the findings of the research can be used to create marketing strategies, organizational strategies, and online food ordering applications for operators of food businesses in the present. The study's conclusions assisted company owners in developing plans for establishing, developing, and enhancing services that would meet client demands and be appropriate for the evolving circumstances. As a result, business owners may be able to create an online marketing strategy that can adapt to the demands of customers who lead increasingly dynamic lives.

Literature review

In today's fast-paced corporate scene, successful marketing has become essential. Mastering the service marketing mix (7P'S Marketing Mix) and comprehending the underlying customer decision and consumer behaviors concepts are essential to developing a successful marketing strategy.

7P'S Marketing Mix

In the case of Saerirat, Luksitanon, and Saerirat (2009), the managed marketing variables that the company provides in order to satisfy the demands of the target market are considered the marketing component. The elements that comprise it include the product, price, place, promotion, people, physical evidence, and process. A well-planned service marketing mix influences consumer decision-making, which attracts clients for the company as follows.

Customer Decision Making

Kotler (2003) states that when an organization has to purchase and oversee another organization, it must go through a decision-making process. It identifies, evaluates, and selects a brand. Select a supplier from the list of those who are available. Although each company will have a unique purchasing procedure, the buyer can identify a group of companies that have similar purchasing procedures, which can aid in defining marketing strategies that suitable to consumer behaviors.

Consumer Behavior

According to Kultonbuth (2015), consumer behavior is the purchasing habits of the final customer who purchases items for their own use. This consumer type has a wide range of attributes that affect their decision to purchase, such as job's affiliation, education, career, gender, age, and monthly income.

Businesses use a variety of marketing methods, customer decision-making, and consumer behaviors in relation to the needs of their customers. These are essential components of marketing strategy since they help companies create goods and services.

Methodology

The survey method is used in this study for data collection. Princess Narathiwas University is a sizable establishment with a diverse and wide-ranging workforce in Narathiwas, the researchers were curious to find out more about the marketing aspects that affected the choice to utilize an online food ordering platform on campus. The staff of Princess Narathiwas University served as the sample group for this study, and Yamane's (1973) formula was used to determine an appropriate sample size of 286 from 1,125 total staffs for responses to online food ordering applications. Samples were chosen by multi-stage sampling. First, the researcher used a simple random sampling method to obtain samples. Eight faculty members at Princess Narathiwas University were selected. Second, convenience sampling was chosen for selecting samples in each faculty. The sample enters the faculty area by accident at the time the research is being conducted (Churchill, 1992). Besides, self-completion survey has taken place. The respondents are the current customers of the food delivery application who have experience purchasing or ordering food from the application. Consequently, the study's respondents are members of the working group who have either ordered or made purchases of food through the application.

The four components make up the purposefully structured questionnaire that serves as the research tool. The Janthong (2020)'s questionnaire was adapted in this study. A consumer personality question appears in the first part. It includes a list of inquiries about things like job's affiliation, education, career, gender, age, and monthly income. A multiple-choice question about how consumer behavior affects the choosing of an application to place an online food order appears in the second section. The marketing mix that impacts the decision to employ the application to place an online food order are covered in Section three of the questionnaire. There are seven categories within it. A five-point rating scale is used in the question type. An open-ended question in the final section seeks suggestions for the study from the respondents. Statistics tools such as mean, standard deviations, percentages, and stepwise multiple regression analysis were employed to analyze the data.

Results and Discussion

The following findings from the study on consumer behaviors that affected consumers' decisions to use an online food ordering application should be addressed as follows:

Consumer Behavior/Demographic

Gender: The majority of respondents were women, with 72.70 percent or 208 of respondent and male at 27.30 percent;

Age: Most of the respondents were between 31 and 40 years of age, of 145 respondents, or 50.70%. 27.3% of the respondents were between 41 and 50 years old. Of the responses, 51 people, or 17.8%, were under 30 years old. Twelve of the respondents are older than 51;

Income level: The majority of respondents, or approximately 39.90%, had an average monthly income between 20,001 and 30,000 baht, with 76 people earning more than 30,000 baht, an approximate of 26.60%. 56 people with an estimated income of 5,000–10,000 baht made up 19.60 percent of the total, and 40 people with an estimated minimum income of 10,001–20,000 baht made up 14 percent;

Regarding educational level, it was discovered that 132 respondents, or approximately 46.20 percent, had undergraduate degrees, while 114 respondents, or 39.90 percent, had master's degrees. 36 respondents, or 12.60 percent, held an upper master's degree, while four held an under-bachelor's degree, or an estimated 1.30 percent;

Occupation: It was found that the majority of respondents had a career of 191 university employee, an estimated 66.80 percent, with 57 temporary employees, an estimated 19.90 percent, 30 government officers, 10.50 percent, and a minimum of eight regular employees, 2.80 percent; and

Job Affiliate: according to the study the majority of respondents were 85, or 29.70 percent, who were working as officers of the president and 35 engineers, or 12.20 percent. 32 science and technology, or 11.20 percent. 29 respondents, or 10.10 percent, were nurses; 24 respondents, or 8.40 percent, were from the arts; and also, 24 respondents, or 8.40 percent, were from institutes of Islamic and Arabic studies. Medicine made up 8.00 percent of the 23 responders. 14 respondents, or 4.90 percent, were in management science, while 20 respondents, or 7.0 percent, were in agriculture.

Customer Decision Making

Food online delivery application choosing: it was found that 250 respondents, or 87.40 percent, chose to utilize the LINE MAN service when choosing to get food online; 28 respondents, or 9.80 percent, used 7/11 Delivery; 6 respondents, or 2.10 percent, used FoodPanda; and 2 respondents, or 0.70 percent, used GrabFood;

Menus chosen: a majority of the participants placed orders for 112 Thai dishes (39.2%) and 75 fast food items (26.2%). Twenty-one respondents, or 24.80%, placed drink orders. Six respondents placed a 2.10 percent order for Japanese food, while 22 respondents (7.70 percent) selected desserts;

The ordering interval showed that most respondents placed their orders between 11:01 and 15:00 p.m. 152 respondents, or 53.10 percent, in all. From 7 to 11 p.m., 98 individuals, or 34.30%, took part. 10.50 percent, or 30 orders, were placed between 15.01 and 19.00 p.m., while 6 respondents or 2.1% were placed after 19.01 p.m;

The frequency of online food ordering from the previous month: most survey respondents said they had placed one to three food orders, accounting for 211 out of the sample, or 73.80% of the total. 45 who felt they had done so 4-6 times, or 15.70 percent of the time. 9 times up, 18 respondents who felt they had done so 6.30 percent of the time, and 12 respondents felt they had done so at least 7-9 times, or 4.20 percent of the time;

Regards to a maximum online food expenditure: it was shown that the majority of 196 respondents purchased meals at a maximum expenditure of 100–300 baht. 68.50 was the estimated percentage. Ordering less than 100 baht, 74 of them, or 25.90 percent. Ordering between 300 and 600 baht, 11 people is 3.9 percent, and ordering at 600 baht for 5 people is 1.70 percent;

The least expensive meal ordering: the majority of respondents (189, or 66.10 percent) placed orders for less than 100 baht. 93 samples, or 32.50 percent, placed orders for 100–300 bah. Four respondents, or 1.4 percent, placed orders for 300–600 and 600 baht, respectively; and

The majority of poll participants—129 out of them or 45.10 percent of them —definitely intended to use food delivery services online in the future. When 109 persons, or 38.10 percent, had the option to use the service, they would most likely do so. Of the 47 persons, or 16.40 percent, I'm still unsure. It is unlikely that they will utilize it for one person, or 0.30 percent.

The 7P's marketing mix

The decision to select an online food ordering application is influenced by marketing mix considerations. Stepwise multiple regression analysis is used in multiple regression analysis to predict a sequential variable based on two or more independent variables.

Table 1: Pearson Correlation among Independent Variable Correlation Matrix

7P's marketing mix	Product	Price	Place	Promotion	People	Physical Evidence	Process
Product	-	.66**	.52**	.55**	.30**	.55**	.31**
Price		-	.50**	.49**	.34**	.51**	.27**
Place			-	.46**	.25**	.64**	.34**
Promotion				-	.30**	.52**	.29**
People					-	.31**	.30**
Physical						-	.32**
Process							-

Significant at *ρ<.05 **ρ<.01

Source: Author's

According to a preliminary agreement that is significant in the regression analysis, Table 1 indicates that there is no multicollinearity issue when looking at the relationships between the seven independent factors. As a result, table 2 presents the stepwise reading of the regression analysis results. Stepwise regression analysis identified seven

significant predictors through the staff of Princess Narathiwas University's decision regarding which online food ordering application to use: product, price, place, promotion, people, physical evidence, and process. Hence, stepwise regression analysis was used to evaluate the hypotheses 1a to 1g. Table 2 shows all of the relationships are presented in Table 2.

Table 2 showed that the 7P's marketing mix constructs: product, price, place, promotion, people, physical evidence, and process had a statistically significant effect on the staff of Princess Narathiwas University's decision regarding which online food ordering application to use. In terms of impact or importance ranging from high to low, the 7P's marketing mix of the marketing mix anticipated that, at 55.83 percent, staffs of Princess Narathiwas University will choose a different application when placing food online order: Product (X_1) =.41; Process (X_7) =.40; Place (X_3) =.19; People (X_5) =.15; Price (X_2) =.09; Physical Evidence (X_6) = 0.16 and Promotion (X_4) = 0.12.

Table 2: Stepwise Regression Analysis

The 7P's marketing mix	R	R^2	Adjusted R^2	R^2 change	b	Std Error	β	t	sig
Constant					.61	.21		2.92	.00**
Product (X_1)	.666	.521	.551	.308	.31	.04	.41	8.04	.00**
Price (X_2)	.678	.509	.493	.346	.37	.05	.09	1.71	.02*
Place (X_3)	.509	.786	.467	.257	.10	.04	.19	3.88	.00**
Promotion (X_4)	.493	.467	.546	.303	.17	.02	.12	.45	.04*
People (X_5)	.346	.257	.303	.534	.10	.05	.15	2.63	.00**
Physical Evidence (X_6)	.519	.640	.529	.314	.15	.03	.16	1.27	.00**
Process (X_7)	.279	.340	.290	.195	.14	.04	.40	1.92	.00**
F=55.83- sig= .000									

Significant at *ρ<.05 **ρ<.01
Source: Author's

The following is a prediction equation of the marketing mix through staffs of Princess Narathiwas University use online food application:

$$\hat{Y}_{tot} = .61 + .31(X_1) ** + .37(X_2) ** + .10(X_3) ** + .17(X_4) ** + .10(X_5) ** + .15(X_6) ** + .14(X_7) **$$

The staffs of Princess Narathiwas University should standardize their marketing mix through online food application model as follows:

$$Z = .41(X_1) **+.09(X_2) **+.19(X_3) **+.12(X_4) ** +.15(X_5) ** +.16(X_6) ** +.40(X_7) **$$

Hypotheses Testing

The findings of the hypothesis tests examining the relationship between the 7P's marketing mix and the Princess Narathiwas University staff's choice to use an online food ordering application are presented in this section. The outcome of the first hypothesis is presented. Seven factors may be identified from the hypothesis1a to 1g.

H1: The 7P's marketing mix constructs has an influence to the decision of online food ordering application
H1a: Product is positively related to the decision of online food ordering application;
H1b: Price is positively related to the decision of online food ordering application;
H1c: Place is positively related to the decision of online food ordering application;
H1d: Promotion is positively related to the decision of online food ordering application;
H1e: People is positively related to the decision of online food ordering application;
H1f: Physical Evidence is positively related to the decision of online food ordering application; and
H1g: Process is positively related to the decision of online food ordering application.

The results showed that hypotheses 1a to 1g were supported. In conclusion, the Princess Narathiwas University staff's decision to adopt an online food ordering application was influenced by the 7P's marketing mix concept.

Conclusion

Consumer Behavior

An estimated 87.40 percent of respondents placed online food orders through 250 LINE MAN application. 112 persons, or 39.20 percent, placed Thai food orders. Time of order: 11.01–15.00 p.m. 53.10 percent, or 152 persons. Among the 211 respondents, 73.80% ordered food using the application 1-3 times within a month's period. 68.50 percent is the anticipated cost of ordering a lunch for a maximum of 100 to 300 baht per person, or 196 respondents. For 189 respondents, the average cost of ordering a food is less than 100 baht, or around 66.10 percent. 129 employees of Princess Narathiwas University—or 45.10 percent—will undoubtedly utilize the application to place food orders in the future. The study results show a corresponding to a study conducted by Singkaew (2022) who examined the factors that influence consumer online ordering decisions in the Bangkok area. The sample group primarily used the Grab Food app, according to the study. The percentage was 32%, while 41.75 percent of users reported utilizing the service two to three times per week. Lunch was the most popular time to use it. The cost per time was on average between 201 and 500 baht, with an average rate of 56%. The average cost was 201–500 baht per time, the percentage was 46.75 percent. Fast food orders were 39 percent. Eating with friends was 37.5 percent. And the reason for using the online service was most convenient, fast, and not waiting for a meal, which was 29.25 percent. Likewise, LINE MAN application seems to be a focal food order application for a restaurant in Narathiwas for sales expansion. For restaurants in Narathiwas looking to growth their sales, the LINE MAN application appears to be the main application for food orders. The optimum time to order food is between 11.01 to 15.00 p.m., and it's also the best time to take advantage of happy hour specials and prepare menu items for less than 100 bath.

The 7P's marketing mix

The Princess Narathiwas University staff's decision to use an online food ordering application is influenced by a number of statistically relevant marketing factors, such as, prices, place, promotions, people, physical/physical evidence, and process factors. The Princess Narathiwas University of personnel is predicted to switch to a different set of applications in order to place online food orders by 55.83 percent of them based on all seven market mix variables. By ordering the influence or importance from high to low, the product (X_1) =.41 process (X_7) =.40 distribution channel (X_3) =.19 individual (X_5) =.15 price (X_2) =.09 physical (X_6) =.05 marketing promotion (X_4) =.02. In accordance with a study Grodgangunt, Satabordee, Thonintharach, and Padungrat, (2023) on the marketing construct that influence consumer online purchasing decisions in Narathiwas Province after the COVID-19 pandemics, the research finds that all four marketing factors can predict the fluctuation of consumer purchasing choices in the province of Supanburi at 75.30 percent by sorting the influence or importance factors from great to low in the following order: product =.39 price =.24 distribution channel =.19 and marketing promotion =. 17.

As such, the study shows that product quality was the most impactful variable, followed by process. Interestingly, while promotion was significant, its overall impact on satisfaction was relatively small. Thus, while choosing a food application, restaurants in Narathiwas may want to think about the product's and food menus' quality as well as the ease of use of the application. Therefore, to attract attention for online meal ordering, menu pictures should be the main focus. Still, one of the most important and noticeable aspects is the menus' flavor. Therefore, advertising a new menu could be a useful strategy for increasing sales for online food restaurant. The study findings indicate that scholars and corporate stakeholders possess novel and specialized insights into the field.

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Corporate Social Responsibility and Customer Loyalty: The Role of Customer Trust

Daw Yu Mon Aung[1]* and Thin Thin Aye[2]

[1] Monywa University of Economics; yumon817@gmail.com
[2] Monywa University of Economics; thinthinaye3969@gmail.com

* Correspondence: yumon817@gmail.com

Abstract

This study is corporate social responsibility and customer loyalty: the role of customer trust in AYA Bank. The objectives of this study are to identify the corporate social responsibility of AYA Bank, to explain the effect of corporate social responsibility on customer trust in AYA Bank, and to analyze the effect of customer trust on customer loyalty of AYA Bank. The required data are collected from 183 online master students at the Monywa University of Economics who are using the AYA Bank's services by using stratified random sampling method with proportional allocation. Data are analyzed by using Cronbach's Alpha test, descriptive, one-way ANOVA, and regression analysis According to the respondents' perception results, there is preference positive perception towards CSR dimensions of AYA Bank. The results of the multiple regression analysis indicate the only factors that significantly affect customer trust in AYA Bank are legal responsibility and philanthropic responsibility. It can be concluded that philanthropic responsibility had the most effect on customer trust. Moreover, customer trust significantly effects on the customer loyalty of AYA Bank.

Keywords: Corporate social responsibility, Customer trust and customer loyalty

Introduction

Nowadays, competition is increasingly intense in many markets and decreases the prospects for differentiation based on technology and product/service quality. For this reason, an increasing number of organizations are being engaged to meet the expectations of interested parties and groups to create a contribution to society beyond the economic benefits through corporate social responsibility CSR policies to achieve long-term success (Bondy & Starkey, 2014). CSR refers to the assortment of actions that businesses embrace, integrate, and carry out to support sustainable business practices that will safeguard future generations (Mayorova, 2021). According to Caroll (1991), CSR comprises four dimensions, economic, legal, ethical and philanthropic responsibility. Economic responsibility highlights how an organization may expand and make money by helping the community and society (Kitzmueller & Shimshack, 2012).

An entity practiced legal responsibility was able to strike a balance in maintaining better organizational practices for the greater good of the society (Hiller, 2013). Ethical responsibility deals with ensuring there is fair behavior towards all stakeholders, enforcement of guidelines for behavior, pursuit of morally correct decisions and adherence to standards (Powell, 2011). Philanthropic responsibility involves the ethical obligation of individuals, organizations, and governments to engage in charitable activities and contribute resources for the betterment of society, addressing societal needs beyond immediate business interests (Carroll & Shabana, 2010). Customer trust is a conviction, confidence, or expectation regarding an exchange partner's trustworthiness that results from the partner's knowledge, dependability, or sincerity, according to Choi and La (2013). Zhao et al. (2014) argued that customer loyalty gives way for repeat response or loyal activities in concerned with mindset and actions to be represented as tangible and functional constructs recommending to others, and overall customer satisfaction.

As a result of the financial sector liberalization in Myanmar, there are increasing numbers of local and international financial associations. The consequences of the increasing competition among private and public banks

can cause threats to the survival in the market. Adopting and promoting corporate social responsibility (CSR) is one way to enhance public confidence in the financial industry (Domergue, 2012). Accordingly, AYA bank in Myanmar is practicing CSR that contributes the well-beings of society to achieve and maintain customer trust and loyalty and to acquire long-term competitive advantage. Therefore, this study is conducted to know whether the AYA bank's CSR is enough to increase customer trust and loyalty for achieving, keeping and maintaining the customers within such a complex and competitive market of today.

The Objectives of the Study

Three objectives are defined for this study. These are as follows:

1. To identify corporate social responsibility of AYA Bank
2. To explain the effect of corporate social responsibility on customer trust in AYA Bank
3. To analyze the effect of customer trust on customer loyalty of AYA Bank

Research Hypothesis

A consumer's positive attitude towards the firm providing the CSR will shape consumer trust. For instance, having a favorable opinion of CSR initiatives makes individuals develop trust for the organization with the belief that it is trustworthy (Albus & Ro, 2017). Customer trust governs customer loyalty, because the higher the customer trust is, the higher is the customer loyalty (Jarvinen, 2014). In addition, trust has been discovered to be a significant factor in creating lasting relationship with loyal customers (Palacios-Florencio et al., 2018). Therefore, this study proposed:

H1: Economic responsibility has a significant and positive impact on customer trust in AYA Bank.
H2: Legal responsibility has a significant and positive impact on customer trust in AYA Bank.
H3: Ethical responsibility has a significant and positive impact on customer trust in AYA Bank.
H4: Philanthropic responsibility has a significant and positive impact on customer trust in AYA Bank.
H5: Customer trust has a significant and positive impact on customer loyalty of AYA Bank.

Methodology

Although both the internal and external CSR are executed by AYA Bank, only the external CSR of AYA bank is focused in this research. The theoretical foundation of this research is anchored on Carroll (1991) pyramid of corporate social responsibility. Primary data are collected from 183 online master students at the Monywa University of Economics who are using the AYA Bank's services by using stratified random sampling with proportional allocation. Structured questionnaires with google form are used to collect both qualitative and quantitative primary data from respondents. Questionnaire is structured with five-point Likert scale. Secondary data are obtained from the earlier study publications, internet websites, journals, books and documents. The obtained data are analyzed using the Statistical Package for the Social Science (SPSS) by means of Cronbach's Alpha test, descriptive analysis, one-way ANOVA analysis and multiple regression analysis.

Results/ Findings and Discussion

To explore the objective one, frequency tables of corporate social responsibility dimensions considered in this study are mentioned and discussed.

1. Respondents' Perception of Economic Responsibility

Economic responsibility is measured by using following ten statements. The results are shown in Table 1. According to Table 1, the overall mean value and standard deviation of respondents' perception towards economic responsibility are 3.55 and 0.713. This indicates that respondents perceive AYA Bank upholds its strong competitive position, raises value for investors, offers goods and services at fair rates, and looks out for the interests of its stakeholders. The results also show that 71.6% of respondents mostly agreed with practicing responsible, prudent lending and risk management and trying to achieve long term success. On the other hand, 41.5% of respondents are least agreed with providing training programmes for university students. Therefore, the bank needs to plan about the providing training programmes for university students in order to create more job opportunities.

Table 1: Respondents' Perception towards Economic Responsibility

Sr. No.	Statements	Agreement Level		Rank
		Frequency	%	
1	Operating with the aim of providing both financial profit and social benefit	119	65.0	4
2	Providing job opportunities to reduce the unemployment rate and poverty	104	56.8	7
3	Assisting to improve the economic wellbeing of all stakeholders	117	64.0	5
4	Trying to achieve long-term success	131	71.6	1
5	Providing training programs for university students	76	41.5	10
6	Providing funds for small and medium projects to support the local and national economy	102	55.7	8
7	Having a system of fair and transparent financial services	96	52.5	9
8	Handling customer complaints fairly	124	67.8	3
9	Providing full and accurate information about its products to its customers	116	63.4	6
10	Practicing responsible, prudent lending, risk management	131	71.6	1
Mean		3.55		
Standard Deviation		0.713		

Source: Survey Data, 2023

2. Respondents' Perception of Legal Responsibility

The frequency and percentage of customers' perception toward legal responsibility are expressed in Table 2.

Table 2: Respondents' Perception towards Legal Responsibility

Sr. No.	Statements	Agreement Level		Rank
		Frequency	%	
1	Performing in consistent with government regulations and law	172	94.0	1
2	Adhering to local and international laws	166	90.7	6
3	Reviewing internal operations to ensure conformity to changes in regulatory environment	165	90.2	8
4	Avoiding unfair competition	171	93.5	2
5	Cooperating with its competitors in socially responsible projects	166	90.7	6
6	Adhering laws and regulations required to protect the damages and harms of human	169	92.3	4
7	Fulfilling legal obligations to societal stakeholders	171	93.5	2
8	Paying in tax and licenses payment on a timely manner	168	91.8	5
9	Avoiding in combating money laundering, corruption, and terrorism	160	87.4	9
Mean		3.85		
Standard Deviation		0.765		

Source: Survey Data, 2023

According to Table 2, the overall mean value and standard deviation of respondents' perception of legal responsibility are 3.85 and 0.765. This means that respondents perceive the AYA Bank obeying with all the state laws, federal and local regulations as well as operating within the legal framework of the society. The results also indicate that the largest percentage group of customers' perception towards legal responsibility (94%) is found on the statement of performing consistent with government regulations and laws. However, 87.4% of respondents are least agreed with in combating money laundering, corruption and terrorism. The bank should monitor the source of combating money laundering, corruption and terrorism and take action on this.

3. Respondents' Perception of Ethical Responsibility

Table 3 shows the results of respondents' perception of ethical responsibility. According to Table 3, the overall mean value and standard deviation of respondents' perception of ethical responsibility are 3.83 and 0.746. This means that respondents perceive that AYA Bank is an organization having fair treatment of all stakeholders and including an ethics in its business strategy, social responsibility, practices, policies, objectives and into a daily decision making. Table 3 also shows that 94.5% of customers are mostly agreed on the statement of respecting the custom,

tradition and ethics of the society and working in consistent with moral values of society and without differentiating among clients on the basis of gender, race or political affiliation. On the other hand, 88% of customers are least agreed with respecting the natural environment and interesting in its protection. Therefore, the bank should be more conducted environmental protection activities.

Table 3: Respondents' Perception towards Ethical Responsibility

Sr. No.	Statements	Agreement Level		Rank
		Frequency	%	
1	Respecting the customs, traditions and ethics of the society	173	94.5	1
2	Treating all customers are treated fairly	168	91.8	6
3	Providing good and services that meet quality standards	164	89.6	7
4	Ethically promotes and makes advertising campaigns for offered programs.	169	92.3	5
5	Developing a charters and code of conducts to improve ethical behavior	169	92.4	4
6	Respecting the natural environment and interesting in its protection	161	88.0	8
7	Competing with the rivals in an ethical framework	170	92.9	3
8	Working in consistent with the moral values of society and without differentiating among clients on the basis of gender, race or political affiliation	173	94.5	1
Mean			3.83	
Standard Deviation			0.746	

Source: Survey Data, 2023

4. Respondents' Perception of Philanthropic Responsibility

Respondents' perception of philanthropic responsibility is measured by nine statements. Table 4 presents the results of the measurement. According to Table 4, the overall mean value and standard deviation of respondents' perception of philanthropic responsibility are 3.58 and 0.966. This means that respondents perceive the AYA Bank having the willful contribution of resources to the benefit of society by making the local community a healthier place to live. The results also show that the majority of respondents, or 87.4%, agreed with actively sponsoring and taking part in a variety of social and cultural events. Subsequently, the least number of respondents (79.2%) agreed to take part in local philanthropic activities. As a result, the bank ought to get more involved in the community's charity endeavors.

Table 4: Respondents' Perception towards Philanthropic Responsibility

Sr. No.	Statements	Agreement Level		Rank
		Frequency	%	
1	Participating voluntarily in charitable activities in the local community	145	79.2	8
2	Participating voluntarily in projects improving the quality of community life	155	84.7	5
3	Having own charitable organization	150	82.0	6
4	Contributing in enhancing infrastructure to support the local community	157	85.8	3
5	Allocating part of the profits to support charitable organization	159	86.9	2
6	Supporting the protection of national heritage, art & culture, Promotion & development of traditional arts and handicrafts	148	80.9	7
7	Participating in the activities of public or private educational institutions.	156	85.2	4
8	Participating and sponsoring various social and cultural events actively	160	87.4	1
Mean			3.58	
Standard Deviation			0.966	

Source: Survey Data, 2023

5. An Analysis of Respondents' Perception of Corporate Social Responsibility

According to the results, the overall mean of the corporate social responsibility dimensions of AYA bank is expressed in Table 5.

Table 5: Overall Mean Value of Corporate Social Responsibility of AYA Bank (One-Way ANOVA TEST)

Particular	Mean	Standard Deviation
Economic responsibility	3.55	0.7128
Legal responsibility	3.85	0.7652
Ethical responsibility	3.83	0.7463
Philanthropic responsibility	3.58	0.9660
F-value : 7.003		
P-value : 0.000		

Source: Survey Data, 2023

As the calculated F-value is 7.003 with a p-value of 0.000<0.01, there is a statistically significant difference among the perception value of CSR dimensions at a 1% level, as determined by the one-way ANOVA test. It is also found that the mean values of CSR dimensions are different and can be compared to others. According to the results, legal responsibility has the highest mean value than the mean values of economic responsibility, ethical responsibility, and philanthropic responsibility. The high mean value is ethical responsibility. The low mean value is philanthropic responsibility and the lowest mean value is economic responsibility. It can be concluded that legal responsibility is the strongest CSR of AYA Bank and followed by ethical responsibility. The weakest responsibility of AYA Bank is economic responsibility followed by philanthropic responsibility.

6. Respondents' Perception of Customer trust

Table 6 describes the frequency and percentage of respondents' perception toward customer trust. According to Table 6, the overall mean value and standard deviation of respondents' perception of trust are 3.78 and 0.806. It can be concluded that respondents believe to use the AYA Bank's products and services because of its transaction security and caring customers, providing consistent quality services According to Table 6, the majority of respondents, 92.9%, agree with being confident on the financial status and having trustworthy policies and practices of AYA bank. On the other hand, 86.9% of the respondents are least agreed that AYA bank has frontline employees willing to help customers and they responds to customers in constructive and caring manner. Therefore, AYA bank should train its frontline employees to help customers politely.

Table 6: Respondents' Perception towards Customer Trust

Sr. No.	Statements	Agreement Level		Rank
		Frequency	%	
1	Having trustworthy policies and practices	170	92.9	1
2	Having frontline employees willing to help customers	159	86.9	9
3	Securing all of financial transactions	168	91.8	4
4	Being confident on the financial status	170	92.9	1
5	Responding to customers in constructive and caring manner	159	86.9	9
6	Providing consistent quality service.	162	88.6	6
7	Finding customer needs and providing accordingly with it	165	90.2	5
8	Competing in handling customer concerns	162	88.6	6
9	Facilitating the transactions with efficient innovations	169	92.3	3
10	Making any financial transaction to be preferred	167	91.2	8
Mean		3.78		
Standard Deviation		0.806		

Source: Survey Data, 2023

7. Customer Loyalty

Table 7 presents the frequency and percentage of respondents' perception towards customer loyalty. Table 7 shows that the overall mean value and standard deviation of respondents' perception of customer loyalty are 3.519 and 0.9982. It can be concluded that the customers delight and repurchase the products and services of AYA Bank while these customers recommend to others to use the AYA Bank's products and services with positive word of mouth. According to Table 7, most respondents agree that AYA bank has policies and practices that make customers trust, representing 87.5% of the total respondents. However, 78.7% of the respondents are the least agreed to use AYA Bank's services than other banks' services. Therefore, AYA bank should create customer retention programmes to keep the customers in the long run.

Table 7: Respondents' Perception towards Customer Loyalty

Sr. No.	Statements	Agreement Level		Rank
		Frequency	%	
1	Being the first choice to use products and services	147	80.3	9
2	Encouraging Friends and relatives to use the services offered by AYA Bank.	144	78.7	10
3	Willing to use repeatedly AYA Bank's services.	150	82.0	7
4	Giving positive word of mouth witnesses to others about AYA Bank confidently.	149	81.4	8
5	Rewarding loyal customers through business architecture	153	83.6	3
6	Having policies and practices that make customer trust the bank	160	87.5	1
7	Paying consistent service for all the customers.	156	85.2	2
8	Having highly skilled employees in financial advisory at AYA Bank	152	83.0	6
9	Being easy service accessibility at AYA Bank branches	154	84.1	3
10	Fitting AYA Bank's products and services to the business needs	153	83.6	5
11	Having intention to use AYA Bank's services than other banks' services	144	78.7	11
Mean		3.519		
Standard Deviation		0.9982		

Source: Survey Data, 2023

8. Analysis of Corporate Social Responsibility, Customer Trust and Customer Loyalty

This study is analyzed the effect of corporate social responsibility on customer loyalty through customer trust of AYA Bank.

9. Analysis of the Effect of Corporate Social Responsibility on Customer Trust of AYA Bank

The second objective of this study is to analyze the effect of corporate social responsibility on customer trust. To measure objective, multiple linear regression model is employed. In analyzing the effect of the effect of corporate social responsibility on customer trust, the results are described in Table 8.

According to the Table 8, adjusted R squared value is the percentage or the value that indicated how the independent variables can explain the dependent variable. The adjusted R-squared value of the current study is 0.639. Therefore, 63.9% variation of customer trust can be explained by corporate social responsibility dimensions. The results also show that legal responsibility and philanthropic responsibility are significant at 1% level. However, the results describe that economic responsibility and ethical responsibility are not significant at 1% level.

Based on the regression analysis, the effect of economic responsibility on customer trust is not significant (B = 0.098, P>0.01). This means that economic responsibility has insignificant effect on customer trust. Therefore, this organization is necessary to enhance in economic responsibility for obtaining more customer trust. The effect of legal responsibility on customer trust is found to be positively significant (B = 0.222, p<0.01). This implies that a greater level of legal responsibility will increase the trust that customers have in this Bank.

The effect of ethical responsibility on customer trust is not significant (B = 0.143, p>0.01). This means that increasing in ethical responsibility is needed to get more customer trust in this organization. However, the effect of philanthropic responsibility is the most significant standardized coefficient (B = 0.484, p<0.01). This implies that customers' trust will be much enhanced if AYA Bank boosts its philanthropic responsibility. Therefore, winning the

trust of customers requires philanthropic duty. Philanthropic responsibility is the most important effecting dimension on customer trust among these important CSR dimensions.

Table 8: The Effect of Corporate Social Responsibility on Customer Trust

Independent Variables	Unstandardized coefficients		Standardized coefficients	t	Sig
	B	Std.Error	Beta		
Constant	0.453	0.216		2.097	0.037
Economic Responsibility	0.111	0.063	0.098	1.763	0.080
Legal Responsibility	0.233***	0.079	0.222	2.952	0.004
Ethical Responsibility	0.154	0.085	0.143	1.819	0.071
Philanthropic Responsibility	0.404***	0.051	0.484	7.936	0.000
Adjusted R-squared	: 0.639				
F (p-value)	: 81.462 (P<0.001)				

Source: Survey Data, 2023
Dependent Variable: Customer Trust
***Significant at 1% level

10. Analysis of the Effect of Customer Trust on Customer Loyalty

The third objective of this study is to analyze the effect of customer trust on customer loyalty of AYA Bank. To investigate the objective, simple linear regression model is applied. In analyzing the effect of customer trust on customer loyalty of AYA Bank, customer trust is independent variable and customer loyalty is dependent variable. The results are expressed in Table 9.

Table 9: The Effect of Customer Trust on Customer Loyalty

Independent Variables	Unstandardized coefficients		Standardized coefficients	t	Sig
	B	Std.Error	Beta		
Constant	0.216	0.252		0.859	0.392
Customer Trust	0.874***	0.065	0.706	13.397	0.000
R-squared	: 0.498				
F(p-value)	: 179.478 (P<0.001)				

Source: Survey Data, 2023
Dependent variable: Customer loyalty
***Significant at 1% level

The R-squared value is (0.498) which means that customer trust accounts for 49.8% of the total variance in customer loyalty. According the results of regression analysis, F-value of 179.478 and p-value of (0.000) in this study show that customer trust statistically predicts the customer loyalty and the data is fit to model. In other words, customer trust is a significant predicator of the customer loyalty.

According to Table 9, customer trust has positive effect on customer loyalty of AYA Bank at a 0.01 significant level and the standardized coefficient of 0.706 for customer trust. This implies that boosting customer trust in AYA Bank's offerings will boost customer loyalty of AYA Bank.

Conclusion

Based on these findings of analysis, some suggestions and recommendations are presented in order to improve the level of CSR and customer loyalty of AYA Bank. Although AYA Bank conducts corporate social responsibilities such economic, legal, ethical and philanthropic responsibility according to the findings of the study, customers are not aware its economic and ethical responsibility. Therefore, AYA Bank should pay attention to increase the effort in economic responsibility and ethical responsibility. The following factors are also needed to consider for improving the trust and loyalty of customers.

Based on the finding of economic responsibility, AYA Bank needs to increase the efforts in improving the level of economic responsibility. Although AYA Bank provides the training programs for university students as well as the loans for small and medium businesses, customers less know them surely. Therefore, AYA Bank should place

the training programs for university students in the branches of various regions for creating more job opportunities to help in reducing the unemployment rate and poverty of the country. In addition, AYA Bank should hold the meetings with small and medium business founders to notice its financial products and services. AYA Bank should also create a system of fair and transparent financial services to get customer trust.

Results of legal responsibility indicate that AYA Bank should continue to maintain its legal responsibility by avoiding in combating money laundering, corruption and terrorism. AYA Bank should also monitor the source of these cases and severely take actions on this. In addition, AYA Bank should also maintain the level of legal responsibility by routinely reviewing its internal operations to ensure conformity to changes in regulatory environment. These activities will be beneficial to the customers as well as to the AYA Bank. In addition, customers will be more trust and loyal to the AYA Bank.

According to the findings on ethical responsibility, AYA Bank should respect the natural environment and should actively participate in environmental protection activities anywhere and anytime. Although AYA Bank participates in environmental protection activities, it is around the regions of headquarter in Yangon. Therefore, there are small numbers of customers that certainly notice its environmental activities. In addition, AYA Bank should ensure that good and services offered meet quality standards. From these activities, AYA Bank's ethical responsibility activities can be improved and this makes the customers increasing trust and more loyal to the AYA Bank.

In the analysis of the philanthropic responsibility of AYA Bank, it is strongly recommended that AYA Bank's philanthropic activities are most popular among customers. It could be recommended to AYA Bank to participate more in voluntary and charitable activities within the local community existing the AYA Bank's branches. Moreover, AYA Bank should also support the protection of national heritage, art and culture, promotion and development of traditional arts and handicrafts. From these activities, AYA Bank will be more respectful philanthropic responsibility among its customers.

Based on the findings of customer trust, Although AYA Bank has the many training programs about the required skills for operating procedures, there is few trainings program for customer services. Therefore, AYA Bank should train the frontline employees willing to help customers and respond to customers in constructive and caring manner. Regarding with customer loyalty, AYA Bank should create loyalty programs not only for the key customers but also for the customers using the AYA Bank's services whenever they need to make financial transactions.

According to the analysis of the effect of CSR on customer trust, legal responsibility and philanthropic responsibility have a significantly effect on customer trust and customer trust leads to customer loyalty. For this reason, AYA Bank should continue to maintain its legal responsibility by reviewing internal operations to ensure conformity with changes in regulatory environment. Moreover, AYA Bank should also maintain its philanthropic responsibility by participating voluntarily in charitable activities for the development of local community.

This study also finds that economic responsibility and ethical responsibility do not significantly effect on customer trust. Therefore, AYA Bank should maintain about the customers' perception towards economic responsibility by creating more job opportunities and providing fair and transparent services. Furthermore, AYA Bank should need to increase in the effort of ethical responsibility by involving in environmental protection activities in other regions as well as in around the headquarter regions. In conclusion, customers receive credit and confidence through CSR activities. Moreover, these CSR dimensions can provide the customers' expectations to become delight and preference perception.

In studying the effect of customer trust on customer loyalty towards AYA Bank, customer trust has a significant effect on customer loyalty because AYA Bank has policies, practices and good financial status that make customer trust it and pays the consistent services for all customers. However, AYA Bank should make the customers more trust and loyal by employing frontline employees willing to help customers and responding to customers in constructive and caring manner. In addition to developing loyalty programs for its most important customers, AYA Bank needs to extend its loyalty programs to anybody who uses them for financial activities. This indicates that consumers are more dependable and devoted to utilizing AYA Bank's services. Customers are also willing to encourage friends and relatives to use the services offered by AYA Bank and will be the first choice whenever they need to make financial transaction.

Needs for Further Research

This study is only conducted at the Monywa University of Economics due to time constraints. Therefore, the target population is restricted. Based on 183 online Monywa University of Economics students, stratified random sampling was used with proportional allocation to determine the study's sample size. Currently, several banks engage

in corporate social responsibility (CSR), and the perceptions of bank customers vary depending on factors such as gender, age, income level, lifestyle, and education. This study only focuses on service users of AYA Bank; it is not conducted on service users of other banks. More research is required to comprehend the users' loyalty toward other banks that engage in CSR. In addition, CSR of other service sectors should be explored as a further study in order to compare and contrast with one another.

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ID 145
The Marketing Mix Affecting Narathiwas Province Purchase Decisions

Wannajwa Uma[1], Habibah Binpohwae[2], Sumalee Grodgangunt[3] and Rungsiri Padungrat[3]*

[1] Student of Digital Marketing Major, Management Science Faculty, Princess Narathiwas University: wannajwa2411@gmail.com
[2] Student of Digital Marketing Major, Management Science Faculty, Princess Narathiwas University: bbhabibah@gmail.com
[3] Assistant Professor Dr., of Digital Marketing Major, Management Science Faculty, Princess Narathiwas University: sumalee.grodgangunt@gmail.com
[3] Padungrat, R., Dr. of Digital Marketing Major, Management Science Faculty, Princess Narathiwas University: padungrat2002@yahoo.com

* Correspondence: padungrat2002@yahoo.com

Abstract

The purpose of this study is to investigate the marketing mix factors that affect consumers in Narathiwas province's decisions to make online purchases. Using the sample and particular characteristics that affect customers' decisions to make online purchases in Narathiwas province, a comparable marketing mix was found. There is a sample of 400 respondents included. The study's instruments are a questionnaire and statistical analysis. Taking statistical analysis into consideration, here are some examples: t-test, MANOVA, descriptive statistics, and Fisher's Least Significant Difference (LSD) methods. The results showed that the marketing mix has an impact on consumers' decisions to shop online in Narathiwas province. When customers shop online in the province of Narathiwas, they are impacted by the marketing mix, which consists of the place with the highest average value and the personal service segment with the lowest value. In general, residents in the province of Narathiwas have very high levels of online product decision-making proficiency. In the domain of online product decision-making, need recognition is at its highest average, and post-purchase behavior is at its lowest point.

Keywords: The marketing mix, Purchase decision making, Online product

Introduction

Nowadays, economy is in the age of globalization. It has experienced tremendous growth, giving rise to highly competitive trade markets, international economic connections, exports, investment services, and expertise. Consumers gain from the growth of contemporary technologies. Imports are now less expensive due to the rapid adoption of new technology, creating new business prospects and forcing entrepreneurs to compete on a global scale. Information technology allows for easy and quick connection without any restrictions, serving as a vehicle for exchange, communication, and so-called business without boundaries (Paumetwarithorn, 2015). A growing number of Thais use digital technology today for business, education, government, tourism, agriculture, gaming, and other purposes. They also use digital technology for Facebook, tablets, smartphones, and other mobile devices. The use of digital technology to facilitate efficient and fast corporate operations has been pushed. Since using mobile social networking or mobile communications devices has become part of the everyday life of modern people, there have been sales promotions using online social networks, such as Facebook, Instagram, and Twitter. These platforms are thought to be among the channels that have helped advertising entrepreneurs to spread news, promotions, and commercials in a comfortable manner (Ratnanatrirong, 2015).

Due to its ease of integration with modern lifestyles, online commerce is becoming increasingly popular. It gives customers access to a variety of consumer items and services, including clothing, food, rice, and electronics.

Simply clicking orders and making payments via an app or website makes it simple. Thus, e-commerce or electronic commerce is very important to daily living. It can quickly go to the intended audience and cost saving. Additionally, internet commerce can produce economic benefits from its original forms, like Facebook or Line to automatically communicate with customers. This lessens the need for manpower, accesses a worldwide customer base, moves quickly, allows customers to shop whenever they want, from anywhere without having to physically visit the store. Therefore, another option that can help the business turn a profit is electronic commerce (Podsompong, 2021).

The value of the electronic commerce sector has increased by 81%, reaching 294,000 million baht in 2022, from 163,300 million baht in 2021. Since then, the general public has established up to 50% of stores on three e-marketplace platforms, namely Application Shopee, Application Lazada, and JD Central. Additionally, various brands have launched up to 46% of official stores on Application Shopee and Application Lazada. According to an online buying behavior survey conducted by the Office of Electronic Transaction Development (2022), 67% of respondents said they shop online, with application Shopee is at number one, 91 per cent. 72 percent of applications are on Lazada. Consequently, the researchers were interested in examining the marketing mix element that affected people's online purchasing decisions in the province of Narathiwas in order to help an entrepreneur in electronic commerce or anyone wishing to launch an electronic commercial enterprise in developing marketing strategies appropriate for their target market. Therefore, the objective of the study are as follows:

1. To investigate the components of the marketing mix affecting Narathiwas province consumers' online purchase decisions;
2. To investigate the decisions made by people of Narathiwas when they shop online; and
3. To compare, the market mix, broken down by specific individual characteristics, that affects Narathiwas province consumers' online purchase decisions.

The research implications of the study are to assist business owners in their investigation of the unique characteristics of consumers influencing online buying behavior in Narathiwas. This type of study can produce results that increase retail sales. Give business owners knowledge about the aspects of consumer behavior and the marketing mix research that influence people's decisions to shop online in Narathiwas. The related literature is reviewed in the following section.

Literature review

Consumer behavior

Given the quick changes in modern customer behavior, it is imperative to comprehend the interpretation of consumer data. Any company looking to expand must modify its marketing tactics, which include tracking customer behavior. According to Kulthonbuth (2015), consumer behavior refers to the purchasing habits of final consumers when they make purchases for themselves. Gender, age, education, career and monthly income might impact variations in consumer purchases. These variations can then effect on online marketing strategy or marketing mix process.

Online marketing mix

Online-model businesses are growing in popularity because they are simple to use and can accommodate a variety of lifestyles. It provides access to consumer goods and internet marketing tools, both of which are required for making online purchases. These days, an online marketing component consists of the 6 P's. Online marketing mix comprises of product, price, place, promotion, service, and privacy (Kotler & Keller, 2012; Wongnitchaakul, 2017; Wiwatcharoenwong, 2010). Thus, one of the tools that affects consumer decision-making when making a purchase is the online marketing mix.

Online purchase decision making

As part of the decision-making process, consumers who need to purchase and manage something will recognize, evaluate, and select a brand, claims Kotler (2003). Choose a supplier from the list of options; customers can utilize this data to create a marketing strategy by finding a cluster of companies that have comparable purchasing policies.

Methodology

The data collection approach employed in this study is the survey method. The sample group for this study consists of 400 respondents from the province of Narathiwas. 400 samples were obtained with the formula of Yamane (1973). Convenience sampling was used to select samples of major events at a university that are notable to outsiders. Non-probability sampling, often known as accidental sampling, is what convenience sampling is. As a result, online shoppers were stopped there. The self-completion method is the online shopper-intercept. The research tool creation is a purposefully structured questionnaire, divided into three sections, part one of which is a question about personal data. It consists of a number of questions about gender, age, career, education, and monthly income. Section 2 is a marketing mix questions that affects online purchasing decisions of the public. It has a five-point rating scale and is organized into six categories. In Section 3, there is a five-point rating scale for an online purchasing decision making question. Section 4 asks respondents to provide suggestions for the study and is an open-ended inquiry. In data analysis, descriptive statistics such as mean, standard deviation, frequency, and percentage are employed. Together with the following tests, which were conducted using t-test and MANOVA and Fisher's Least Significant Difference: LSD methods to help identify which specific group pairs have statistically different means.

Results and Discussion

The following has been explored as a result of the study on the marketing mix component that affected online purchase decisions in Narathiwas Province:

Descriptive Statistics

Table 1 illustrates that the place has the highest average ($\bar{x}$ = 4.29, S.D. = 0.75), followed by the product ($\bar{x}$ = 4.24, S.D. = 0.33), and the service has the lowest average ($\bar{x}$ = 4.13, S.D. = 0.56). There was a significant amount of important regarding the marketing mix component that affected Narathiwas province residents' decisions to make online purchases ($\bar{x}$ = 4.21, S.D. = 0.31).

Table 1: The marketing mix that influences online purchase decision making in Narathiwas province

Marketing Mix	$\bar{x}$	S.D.	Level of important
1. Product	4.24	0.33	High
2. Price	4.20	0.37	High
3. Place	4.29	0.75	High
4. Promotion	4.22	0.36	High
5. Service	4.13	0.56	High
6. Privacy	4.19	0.64	High
	4.21	**0.31**	High

Source: Author's

Table 2 shows that the result of the marketing mix that influences online purchases decision making in Narathiwas province has a relatively high ($\bar{x}$= 4.21, S.D. = 0.34). According to the statistics, the need recognition perception has the highest average ($\bar{x}$= 4.30, S.D. = 0.62), followed by the alternative evaluation ($\bar{x}$= 4.22, S.D. = 0.41) and the post-purchase behavior ($\bar{x}$= 4.13, S.D. = 0.40) with the lowest average.

Table 2: The online purchase decision making in Narathiwas Province

Online purchasing decisions	$\bar{x}$	S.D.	Level of important
1. Need Recognition	4.30	0.62	High
2. Information Search	4.20	0.56	High
3. Evaluation of Alternative	4.22	0.41	High
4. Purchase Decision	4.21	0.40	High
5. Post-Purchase Behavior	4.13	0.40	High
	4.21	**0.34**	High

Source: Author's

T-test and Multivariate Analysis of Variance Statistics

In ANOVA, the F test is used to assess statistical significance. This allows the comparison of many means at once since the error is calculated for the full set of comparisons instead of each individual two-way comparison (as would happen with a t test). When more than one dependent variable and more than one independent variable are used, the factorial MANOVA is logical extensions of the one-way ANOVA (Kang & Jin, 2016). Given that MANOVA is also thought to be a robust approach (Weinfurt, 1995), the study's data analysis was extended from a one-way ANOVA to a factorial MANOVA. The following are the hypotheses applied in a factorial MANOVA.

H1: Product, price, place, promotion, service and privacy do not differ across gender difference;
H2: Product, price, place, promotion, service and privacy do not differ across age levels:
H3: Product, price, place, promotion, service and privacy do not differ across education levels:
H4: Product, price, place, promotion, service and privacy do not differ across career types: and
H5: Product, price, place, promotion, service and privacy do not differ across monthly income levels.

Table 3: T-test and MANOVA of the online marketing mix components with individual characteristics

Online Marketing Mix	Gender		Age		Education		Career		Monthly Income	
	t	Sig	F	Sig	F	Sig	F	Sig	F	Sig
1. Product	.67	.50	1.61	.18	1.97	.09	1.00	.42	.84	.51
2. Price	.36	.71	1.09	.35	.27	.89	1.30	.25	1.92	.09
3. Place	.30	.75	.37	.77	.42	.79	1.02	.40	1.50	.18
4. Promotion	.26	.33	.47	.69	1.16	.32	2.12	.05	.69	.62
5. Service	.51	.60	.36	.78	.71	.58	1.70	.11	.20	.96
6. Privacy	.88	.37	1.41	.23	1.59	.17	.85	.52	1.91	.09
	.55	.57	.66	.57	1.78	.13	.90	.49	1.76	.11

Source: Author's

A comparison of the online marketing mix components with individual characteristics, it was found that, as table 3 shows, gender, age, education, career, and monthly income do not differ. The results show, the means of online marketing mix are equal of each individual characteristic. Thereby, there is no evidence to support hypotheses 1 to 5. According to Fisher's Least Significant Difference, which states that LSD methods to assist in identifying which particular group pairs have statistically different means and also that there is no significant difference between the means of the online marketing mix and each individual characteristic, it is not necessary for LSD to conduct additional research to determine whether specific pairs of groups are truly distinct from one another.

Conclusion

The following are the findings of the study on the marketing mix that affected people in the province of Narathiwas' decisions to make online purchases:

People in the province of Narathiwas have extremely high overall opinions on the marketing mix element that affects their decisions to make online purchases. The components with the highest average are the distribution channel, product, and personal service, which have the lowest values.

When it comes to online purchases, the province of Narathiwas makes a lot of decisions. The recognition of needs has the greatest average, the evaluation of alternatives has the second greatest, and post-purchase behavior is the least valuable.

A comparison of the marketing mix components that influence online purchasing decisions of people in Narathiwas province. It was discovered that sex, age, education level, employment, and monthly income were the individual characteristics that classified the data. The marketing mix that affects people's decisions to purchase online or by demographic did not change overall or for any particular individual characteristic's element. As a result, online companies in Narathiwas would use a standardized business mechanism, disregarding the variations in individual features, to establish their business strategy. The study's findings are robust since they allow for the concurrent analysis of many dependent and independent variables from Factorial MANOVA, allowing for the assessment of the main and interaction effects for 400 respondents (Kang & Jin, 2016).

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ID 304
Green Attitude and Green Purchase Intention towards Environmentally Friendly Products of City Marts in Yangon

Shoon Lae Wai[1]*, Josu Alexwin[2] and Ye Wint Aung[3]

[1] Monywa University of Economics, shoonlaewaicom@gmail.com
[2] Health Education and Literacy Project(HELP), dralexwin@gmail.com
[3] Monywa University of Economics, yewintaung2157@gmail.com

* Correspondence: shoonlaewaicom@gmail.com

Abstract

This study intends to analyze the green attitude and green purchase intention towards environmentally friendly products of City Marts in Yangon. The objectives of the study are to identify the environmentally friendly products, to determine the effect of demographic, cognitive, and social factors on green attitude towards environmentally friendly products and to explore the effect of green attitude on purchase intentions of customers of City Marts in Yangon. In this study, primary data are collected from 233 customers who visit the 25 City Mart Outlets in Yangon. The data are analysed by descriptive, Cronbach's alpha test, multiple regression analysis and one-way ANOVA. As the results of this study, the demographic factors _ age, education, occupation_ have the significant influence on the green attitude towards environmentally friendly products of City Marts except gender and income level. The cognitive Factors _ green perceived quality and perceived behavioural control _ have the positive direct effect on green attitude and green perceived risk have no significant effect on green attitude towards environmentally friendly products of City Marts in Yangon. The social factors _ subjective norms and collectivism_ have a significant effect on green attitude towards environmentally friendly products of City Marts in Yangon.

Keywords: Antecedents of green attitude, Green attitude, Green purchase intention

Introduction

Sophisticated technology and economic development bring more convenience and high living standards to people's lives and subsequently touch the environmental challenges such as climate change, global warming, air pollution, depletion of the ozone layer etc. These environmental issues have raised concerns to pay attention to environment which means the concept of going green. In the last few decades, environmentally mindful customers have achieved positive and significant growth in environmental protection campaign, activities, attitudes and knowledge how to save the green world.

Today generations are focusing on the healthy environment, which directly effects the changes in their lifestyles and values. By realizing the importance of the environment, many consumers can also realize that their purchasing patterns will have an impact on the ecological environment. Consumers began to change their personal lifestyles and activities and gradually intended to increase consumption of environmentally friendly products (Kong et al., 2014).

The term green is known as ecological or pro-environmental and environmentally friendly (Shamdasanik et al., 1993; Shrum et al., 1995; Tseng & Hung, 2013). The green customers mean that the customers who have awareness of the importance of environmental issues (Soonthorsmai, 2007). Environmentally friendly products are products that can be reused and safeguard and do not cause air, earth pollution and also natural resources depletion (Shamdasani et al., 1993). The customer attitude is a knowledge work, so that it will be formed by the manner in which people compose their passion for an organization and then structure their resulting buying conduct towards environmentally friendly products (Hawkins, et al., 2004).

Purchase intention is the idea or behavior carried out by consumers which is to purchase or not to purchase environmentally friendly products. The decisions to purchase or consume environmentally friendly products derive

from the customers' willingness to advocate for green corporations (Laroche et al., 2001). Consumers show a solid intention to purchase environmentally friendly products when they have conscious mind about ecological concerns (Rahman, 2017). Moreover, the key purpose of the study is to identify the antecedents of green attitude of the customers and to investigate the effect of green attitude of the customers on purchase intentions towards environmental-friendly products of City Marts in Yangon.

The Objectives of the Study

The specific objectives are mentioned as follows.

1. To identify the environmentally friendly products of City Marts in Yangon,
2. To determine the effect of demographic factors on green attitude towards environmentally friendly products of City Marts in Yangon,
3. To analyse the effect of cognitive factors on green attitude towards environmentally friendly products of City Marts in Yangon,
4. To examine the effect of the social factors on green attitude towards environmentally friendly products of City Marts in Yangon, and
5. To explore the effect of green attitude on purchase intention of customers at City Marts in Yangon.

Methodology

The primary data is obtained through a questionnaire-based survey with the customers randomly selected of the City Marts in Yangon. Descriptive and regression analysis methods are applied in this study. According to Yamane Formula with unknown population, the sample size 233 respondents are determined for this study. The required data are collected by using cluster sampling method. The four days are randomly selected during November, 2023. Data are collected by using structured questionnaires with a five-point Likert scale. Multiple regression analysis is applied and one-way ANOVA tests are analysed. Furthermore, Cronbach's alpha test is also applied in this study. This study focuses on the antecedents of green attitude towards environmentally friendly products, analyzes the impact of demographic, cognitive, and social factors on green attitude, and searches the relationship between green attitude and customers' intention to purchase environmentally friendly products. Demographic factors namely age, gender, education, occupation, income level, social factors such as subjective norms, collectivism and finally cognitive factors namely green perceived quality, green perceived risk, perceived behavioral control are analyzed.

Literature Review

Sustainable Development

Today, sustainability has become important and a relevant topic in different areas of community. The main essence of sustainability is that the highlighting the importance of decisions and taking actions that balance current needs with the preservation of natural resources and the well-being of future generations. Sustainability is important to advance the Sustainable Development Goals (SDGs) established by the United Nations. It also aligns with the business strategies that seek greater efficiency and stronger social and environmental responsibility (Ottman, 2008).

To attain the sustainability development goals, many organizations have engaged the way to become more socially responsible by developing green practices due to the huge occurrence of global warming and the increasing pressure of environmental pollution. Additionally, small and medium-sized businesses are now primarily concerned with environmental management. The phenomenon of environmental conscious consumer behavior has evolved into a new paradigm for academics and marketers. The rate of improvement in consumer awareness of environmental issues and environmentally friendly products is increasing (Albino et al., 2009).

Green Product Development

Ottman (1992) suggested that green products are durable, non-poisonous products that are created and packaged using recycled materials. These products are different from their alternatives by having a lower effect on the environment. Green or environmentally friendly products as ones that require a minimal set of resources result in a reduced impact on the environment, and decrease waste production during the consumption phase. Green products are products designed to save energy and decrease pollution (Liu & Wu, 2009).

In realizing the importance of the environment, today consumers also realize that their purchasing behaviour will have an impact on the ecological environment. Consumers began to change their lifestyles and business activities, and gradually tended to increase consumption of green products (Kong et al., 2014). Green products are designed to

protect or improve the environment by saving energy or resources and reducing or eliminating toxic waste, pollution and the use of toxic substances (Ottman et al., 2006).

Green Attitude

According to Eagly and Chaiken (2007), attitude is a psychological trait that manifests itself as a degree of favour or dislike. An essential component of studying customer behavior is attitude. The green and environmental are used interchangeably, and green attitude is explained in two contexts: (1) attitudes towards the environment, and (2) attitudes towards pro-environmental behavior.

According to Heyl et al. (2013), "green attitudes" refer to a person's tendency to consistently respond favorably or unfavorably to environmental issues. On the other hand, McIntyre and Milfont (2016) define environmental attitudes as the evaluation of natural and built environments and factors affecting their quality. Stern (2000) and colleagues' attempt to create integrated Attitude-Behavior-Context (ABC) models of environmental significant behavior is one of the most important attempts to break through the internal-external conflict in the social psychology literature (Guagnano et al., 1995; Stern et al., 1999).

Green Purchase Intentions

The purchase decision of green products stems from a consumer's eagerness to advocate for green corporations (Laroche et al., 2001) and from their enthusiasm to purchase environmentally friendly products even if this means spending extra money (Hasan & Ali, 2015). Ecological and societal benefits of environmental products have led to customers purchasing them more frequently, according to previous studies (Rahman, 2018). Environmentally friendly products are bought by consumers to lessen their negative effects on the community through the preservation of natural resources, and the improvement of safety and health (Chan, 2001).

Consumers show a solid intention to purchase green products when they have increasing consciousness about ecological concerns (Rahman, 2018). It is assumed that intention represents the motivational factors influencing a conduct (Azjen, 1991). According to Hawkins and Mothersbaugh (2010), the antecedents that drive customers to make a purchase are referred to as the intention. Purchase intention is described by Wang and Yang (2008) as physiological response that shows a person's act in accordance with the product.

Green Attitude and Green Purchase Intention

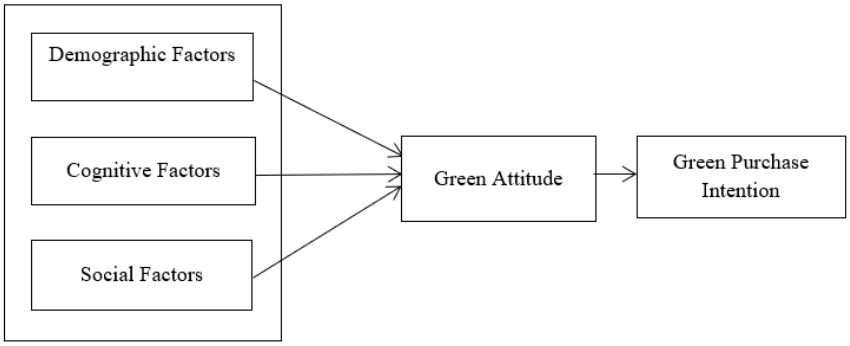
Though societal norms, perceived behavioral control, and self-efficacy with regard to purchasing environmentally friendly products significantly influence green purchase intention and behavior, green attitudes have the biggest influence on the intention to purchase environmentally friendly products (Paul et al., 2016; Taufique & Vaithianathan, 2018; Verma & Chandra, 2018; Biswas & Roy, 2015). This could be the outcome of the growing acceptance and desirability of living a green lifestyle along with the significant decline in barriers to green purchases brought about by international trade, government legislation, and technological developments (Ajzen, 1991).

According to Ajzen and Fishbein (1980), behavioral beliefs determine an individual's attitude toward a certain behavior. If an individual believes that a particular behavior will result in a positive outcome, they will acquire a positive attitude towards that behavior. Therefore, a more positive attitude will lead to a higher intention to perform the behavior (Ajzen, 1991). In this manner, attitudes influence purchase intentions, which influence actual purchasing behavior (Ajzen, 1991).

In the context of green purchasing behavior, attitudes are important since customers are at the centre of the decision-making process. This is because consumers may encounter barriers to purchase, such as uncertainty, while being inundated with product information (Amoako et al., 2020; M. T. Liu et al., 2020). The association between attitude and green purchasing intention has been validated by empirical research in a variety of cultural and demographic factors (Dilotsothlhe, 2021; Kim & Chung, 2011; Marvi et al., 2020; Tarkiainen & Sundqvist, 2005; Taufique & Vaithianathan, 2018; Wu & Chen, 2014).

The Conceptual Framework of the Study

From the above discussions, this study has developed the conceptual framework as shown in Figure 1.



Source: Own Compilation Based on Previous Researches

Figure 1: Conceptual Framework of the Study

According to the conceptual framework, the dependent variables are green attitude and green purchase intention and then independent variables are antecedents of green attitude. This study identifies the antecedents of green attitude towards green products. Moreover, the effect of demographic, cognitive and social factors on green attitude is analysed. Besides, the effect of the green attitude on green purchase intention of customers is also examined.

These variables used in this study are derived from Leila and Zohra (2018), Zubaidi (2020) and Teng et al., (2017). The dependent variables are green attitude and purchase intention towards environmentally friendly products. These dependent variables are determined according to the model suggested by Kumar and Kaushal (2017) and Teng et al., (2017).

Moreover, the demographic factors are covered by extracting from Leila, & Zohra (2018). The questionnaires of cognitive factors are modified from Susanty et al., (2021). In addition, the questionnaires of social factors are based on the research study by Zubaidi (2020). The questionnaires of green attitude are constructed by extracting from Lavuri, R. and Sreeramulu (2020). Finally, the green purchase intention is covered by constructing questionnaires based on Teng et al., (2017).

Results/ Findings and Discussion

The Effect of Antecedents Factors on Green Attitude and Purchase Intention towards Green Products

The first objective of the study is to investigate the effect of the effect of demographic factor on green attitude towards environmentally friendly products of City Marts in Yangon.

To analyze the effect of demographic factors on green attitude, the participants' age, gender, education, occupation, and income level are analyzed.

Table 1: Result of One-way ANOVA for Effect of Age Level on Green Attitude

Age Level (year)	Mean Value	Std Deviation	F Value	Sig.
18-30	3.9339	0.598	4.291	0.006
31-43	4.0640	0.526		
44-56	4.2396	0.425		
>60	4.2308	0.42		

Source: Survey Data 2023

Since the calculated "F" value is significant at 1% level, the green attitude of customers is different according to age level. Therefore, the age group has influence on attitude towards green products.

Table 2: Result of One-way ANOVA for Effect of Gender on Green Attitude

Gender Group	Mean Value	Std Deviation	F Value	Sig.
Male	4.0549	0.6192	0.953	0.33
Female	4.1252	0.4589		

Source: Survey Data 2023

Since the calculated "t" value is not significant, and then the green attitude of customers on green products is not different according to the gender group.

Table 3: Result of One-way ANOVA for Effect of Education Level on Green Attitude

Education Level	Mean Value	Std Deviation	F Value	Sig.
Undergraduate	3.6214	0.726		
Graduate	4.1875	0.478	11.788	0.000
Postgraduate	4.0609	0.449		

Source: Survey Data 2023

Since the calculated "F" Value is significant at 1% Level, the green attitude of consumers is different based on educational background. The educational background has strong effect on the green attitude towards green products.

Table 4: Result of One-way ANOVA for Effect of Occupation on Green Attitude

Occupation	Mean Value	Std Deviation	F Value	Sig.
Student	3.6214	0.726		
Government Staff	4.1875	0.478		
Private Business Staff	4.0609	0.449	2.779	0.028
Private Business Owner	4.1016	0.518		
Dependent	3.7143			

Source: Survey Data 2023

Since, the calculated "F" value is significant at 5% level, and then the green attitude of customers is different among occupation level groups. Therefore, the occupation level has significant effect on green attitude towards green products.

Table 5: Result of One-way ANOVA for Effect of Monthly Income on Green Attitude

Monthly Income	Mean Value	Std Deviation	F Value	Sig.
Under 500,000	4.0542	0.547		
500,000 - 1,000,000	4.1948	0.454	1.262	0.288
1,000,000 and above	4.1880	0.517		

Source: Survey Data 2023

Since the calculated "F" value is not significant and then the green attitude of customers on green products is not well different according to their monthly income. It can be concluded that their monthly income is not considered.

The Effect of Cognitive Factors on Green Attitude

The second objective of the study is to examine the effect of the effect of demographic factor on green attitude towards environmentally friendly products of City Marts in Yangon.

In this section, cognitive factors include green perceived quality, green perceived risk, and perceived behavioral control. It is calculated standardized regression coefficient, standard error and significant "F" values presented in Table 6. According to the Table 6, adjusted R squared value is the percentage or value that expressed how the independents variables can explain the dependent variable. The R squared value of the study is 0.477. As a result, 47.7% variation of green attitude can be presented by cognitive factors. Moreover, the calculating results present that green perceived quality and perceived behavioral control are significant at 1% level. However, the results also display that green perceived risk is not significant.

Table 6: The Effect of Cognitive Factors on Green Attitude

Independent variable	Unstandardized coefficients		Standardized coefficients	t	Sig
	B	Std. Error	Beta		
Constant	0.639	0.286		2.234	0.026
Green Perceived Quality	0.560***	0.072	0.443	7.834	0.000
Green Perceived Risk	-0.012	0.036	-0.015	-0.323	0.747
Perceived Behavioral Control	0.308***	0.050	0.347	6.105	0.000
R square : 0.477					
F (p-value) : 71.362 (p<0.001)					

Source: Survey Data, 2023
Dependent Variable: Green Attitude
*** Significant at 1% Level

Based on the regression analysis, the effect of green perceived quality on respondents' green attitude is significant (B=0.560, p<0.001). That is, the green product quality is significantly effect on respondents' green attitude. The green perceived risk has not significant effect on green attitude (B=-0.012, p>0.001). The meaning of results is that the more they get risks, the more they have negative perception on green attitude. The effect of perceived behavioral control on respondents' green attitude is significant (B=0.308, p<0.001). Most respondents agree that the first priority is product quality and taking time to check the quality is important. For perceived behavioral control, respondents agree that they choose the green products because of natural environment and their friends green behavior can change their purchasing styles.Among these significant antecedents of green attitude green perceived quality and perceived behavioral control are the most significant influencing factors on green attitude.

The Effect of Social Factors on Green Attitude

The third objective of the study is to determine the effect of the effect of demographic factor on green attitude towards environmentally friendly products of City Marts in Yangon.

In this section, social factors which include subjective norms and collectivism are considered as independent variables and green attitude is considered as dependent variable. It is calculated standardized regression coefficient, standard error and significant "F" values presented in Table 7.

Table 7: The Effect of Social Factors on Green Attitude

Independent variables	Unstandardized coefficients		Standardized coefficients	t	Sig
	B	Std. Error	Beta		
Constant	0.704	0.168		4.189	0.000
Subjective Norms	0.431***	0.055	0.442	7.863	0.000
Collectivism	0.409***	0.054	0.425	7.567	0.000
R square : 0.641					
F (p-value) : 207.452 (p<0.001)					

Source: Survey Data, 2023
Dependent Variable: Green Attitude
*** Significant at 1% Level

According to the Table 7, adjusted R squared value is the percentage or value that expressed how the independents variables can explain the dependent variable. The R squared value of the study is 0.641. As a result, 64.1% variation of green attitude can be presented by social factors. Moreover, the calculating results present that green perceived quality and perceived behavioral control are significant at 1% level. However, the results also display that green perceived risk is not significant.

The effect of subjective norms has a positive significant coefficient (B=0.431, p<0.001). This indicates that respondents have positive effect on subjective norms to buy green products and positive green attitude towards green products. Moreover, collectivism is valued by respondents and its effect on green attitude is positive significant (B=0.409, p<0.001. Respondents agree that they involved in environmental protection by choosing green products

and they learn about the benefits of green products to share the knowledge to others. Subjective norms and collectivism are the significant influencing factors on green attitude.

The Effect of Green Attitude on Green Purchase Intention

The final objective of the study is to analyze the effect of the effect of demographic factor on green attitude towards environmentally friendly products of City Marts in Yangon.

When estimating standardized regression in concerned with the effect of green attitude on green purchase intention towards green products of City Marts in Yangon, it is calculated standardized regression coefficient, standard error and significant "F" values presented in Table 8.

Table 8: The Effect of Green Attitude on Green Purchase Intention

Independent variables	Unstandardized coefficients		Standardized coefficients		
	B	Std. Error	Beta	t	Sig
Constant	0.426	0.194		2.196	0.029
Green Attitude	0.863***	0.047	0.771	18.412	0.000
R square : 0.595					
F (p-value) : 338.989 (p<0.001)					

Source: Survey Data, 2023
Dependent Variable: Green Purchase Intention
***Significant at 1% level

The R squared value of 0.595 means that green attitude accounts for 59.5% of the total variance in green purchase intention. According to the results of the ANOVA, F-value of 338.989 and p-value of 0.000 indicates that the independent variables statistically predict the dependent variable and the data is fit to model. On the other hand, each variable is a significant predictor of the dependent variable.

According to the Table 8, green attitude contributes the most to consumer's green purchase intention towards green products at a 0.01 significant level, and the standardized coefficient of green attitude 0.771. Respondents agree that they have self-awareness to buy green products and they buy green products because of high quality and environmental contribution. Respondents have purchase intention for green products because they know the importance of green environment. It means that green purchase intention towards green products increases if green consumers have good attitude on green ones.

Suggestions and Recommendations

The attitude of today people towards green products is getting important and they should have willingness to purchase the green products that save the environment. According to the findings, the demographic factors are also influencing the green attitude. Most of the older age have more positive attitude than other age group. Consequently, other age groups can also be the potential customers and City Marts will attain the more market share.

With regard to Education level, the graduated respondents are more interested in green products and also have positive attitude towards green products. Moreover, the City Marts should educate people for the purpose of having green purchasing behavior. Furthermore, the occupation level of respondents presents that most of the customers are government staff and private staff. They have more willingness to use the green products because of their environmental mindset.

However, the income level of customers does not affect the green attitude because whether the customer has positive attitude or not is more important than their monthly income. Cognitive factors such as green perceived quality, perceived risk and perceived behavioral control are explored to enhance the green attitude. The green perceived quality has strongly impact on green attitude. Today people are demanding the good quality products according to their advanced living style.

Green product offered by City Marts should also match the demand of the customers and environmental texture. For increasing the usage of the green products, organizations should increase the reliability of the green products. The results show that the perceived risks of buying green products are not considered by customers.

They agree that the green products cannot harm their health and life styles. Products of City Marts should have green brand image to get the credit of customers and as a result, then these customers will release the negative

perceived risk. Besides, the perceived behavioral control strongly affects the green attitude. Only if the City Marts can provide the good quality products and reduce the risk, they have willingness to purchase the green products of City Marts in Yangon. In concerned with the social factors, this study finds that the subjective norms has a significantly effect on green attitude towards green products.

Today generation comply with subjective norms because they pay attention for social issues and pressure from the society. Moreover, the social factor, collectivism also has a significant effect on green attitude. Collectivist generation tend to be more environmentally friendly, as they are interested in society, group-oriented goals and society. Although the results shows that the social factors are influencing the green attitude of customers, the customers still hesitate to buy the green products because of the high price, taking risk and low awareness level of environment.

In conclusion, the cognitive and social factors should be more emphasized to attain the positive green attitude. It is suggested to develop high-quality green new products and services and then to encourage the green consumption of customers with their own interests and beliefs. City Marts should take responsibility for using green products by customers beneficially.

Moreover, City Marts in Yangon should develop new strategies and plans to develop the green new ideas and should support the entrepreneurs who launch the environmentally friendly products in Myanmar. These green initiative ways can contribute to attract the potential customers and the sustainable development of Myanmar economy as well. The cognitive and social factors are the most significant ones and so the City Marts should provide the quality green products with high-price.

It can be concluded that the organizations which launch the green products and services should emphasize the quality of green products and then they need to share the knowledge of the importance of green products today. That is, today people will have the social, subjective and collectivism mindset which can positively lead to green attitude and purchase intention towards green products of City Marts in Yangon.

Need for Further Studies

The purpose of the study is to examine the green attitude and green purchase intention towards green products. There are some limitations in the study. This study only focuses on antecedents of green attitude, green attitude and green purchase intention. The research field is 25 City Marts Outlets in Yangon. This study uses the 233 respondents who visit City Marts in Yangon. In order to explore more the consumer behavior towards green products, other marts, supermarkets and malls in Yangon and other regional marts are needed to examine. For further researches, it should be interesting to study deeper in the analysis of the other supermarkets and other geographic locations. Although there is time constraint, the study should be conducted on more and more customers who visit all supermarkets in Yangon with a larger sample size than this study.

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ID 305
Customer Satisfaction and Loyalty of Private Banks in Monywa

Ye Wint Aung[1]* and Daw Sie Sar Oo[2]

[1] Monywa University of Economics, yewintaung2157@gmail.com
[2] Monywa University of Economics, siesaroo2015@gmail.com

* Correspondence: yewintaung2157@gmail.com

Abstract

This study investigates the effects of hospitality behavior of bank personnel on customer satisfaction in the case of private banks in Monywa. Moreover, it is also developed the effect of servicescape on customer satisfaction and analyses whether it exist the effect of customer satisfaction on loyalty or not. A total of 200 bank customers from private banks in Monywa were surveyed through the structured questionnaire instrument with this respect. Both the correlation and regression were evaluated using IBM SPSS Statistics 22. Results reveal that customers are satisfied with the hospitality behavior of bank personnel and servicescape environment in the private banks in Monywa. Regression analyses confirm that bank hospitality exerts positively have significant effect on customer satisfaction; moreover, "servicescape in the private banks have the positive direct effect on customer satisfaction. In addition, the customer satisfaction has also significant effect on customer loyalty. Therefore, this study suggests that the private banks in Monywa need to rely on the training programs to improve their hospitality behaviour at further levels and invest more on servicescape in their banks.

Keywords: Banks hospitality, Servicecape, Customer satisfaction and loyalty

Introduction

In service industry, there is also a form of communication either directly or indirectly between employees and customers. Hospitality has an important role which directly communicate with customers, such as hotels, banks, restaurants, hospitals, tourism agencies, airline companies and insurance agencies. Banks have customers who come from various backgrounds and occupation or profession. Therefore, quality of bank hospitality and servicecape should be good so that it can maintain the loyal customers through the satisfaction. The point is that clients are loyal to those products which have a greater value as compared to those of competitors. Therefore, banks can earn higher profit if they are one step ahead of their competitors in terms of services provided by them. For this reason, every banking institution should focus on service quality so as to satisfy customer and retain customer loyalty.

With regard to the development of competition, accomplishing the higher level of customer satisfaction is the challenging task especially in the banking sector. In order to face this challenging task, bank industry has captured to loyal customer through the satisfied customers by providing bank hospitality and banks servicecape so as to achieve the competitive advantages.

Hospitality is the quality or disposition of receiving and treating guests in a warm, friendly and generous way (Brotherton & Wood, 2008). Ariffin, et al (2013) defined hospitality behavior as a supplementary service that improves the value of the core service. Hospitality is a relationship between the host and guest that has a good effect on society.

Ariffin etal (2013) stated that previous studies showed that hospitality hosting behavior has a positive effect on customer satisfaction. The impact of staff's positive behaviors gains profitability and good reputation in the long term. The quality of the service, the behavior of staff and the access of the service rapidly and in an uneventful manner to the customer are the necessary factors for the customer satisfaction. Ariffin et al. (2013) studied about the customer satisfaction that is affected by the quality of the staff performance and an emotional experience that is not tangible elements of the service.

The bank hospitality behavior impact on customer satisfaction because only with good communication quality, so any information provided by employees will be well received by customers. The quality of communication should

positively influence the satisfaction with communication. Gropper & Boily (1999) suggest that customer satisfaction is a primary goal for the success of the organization.

The customer expects the staff to treat hospitably while taking service, and various group of customers may prefer the banks again as they are pleased just with the hospitableness. Therefore, the bank's existing customers' loyalty increases. Ariffin et al. (2013) described that hospitality is conceived as the hosting treatment stressing the hospitality of the host-guest relationship in order to create a remarkable service experience.

According to Hacıefendioglu and Koç (2009), satisfaction is the customer's comparison of the benefit which the customer gain from the service when customer is serviced with his expectations. The benefit that customer provides may not always be financial. Sometimes, the ambient of work place wellness, decoration and harmony relieve the customer psychologically. Customer wants to take the service in a peaceful place which makes the customer be pleased. Hacıefendioğlu and Koç (2009) studied about the concept of quality in service that is enhanced with the differentiation of the service provided. The more qualified the service which is offered is the more pleased the customer is. That is to say, customers' preferences which are based on their satisfaction make the companies advantageous in the competition.

However, satisfaction is not enough to achieve an organization's success if the customers do not have a loyalty to the organization. Customer satisfaction will create customer loyalty. In general, the indicators of loyalty include less intention of customers to switch to competitors despite the existence of uniformity in banking goods and services (Chakravarty et al., 2004), and repurchase intents and favorable word-of-mouth to others (Supriyanto et al., 2021). According to Wakefield & Blodgett (1996), servicescape can influence behavior intention of customers such as approaching or avoiding behavior and the intention to repurchase. The approaching or avoiding behavior of customers suggests that they will choose servicescape of the bank that makes them comfortable in doing banking transactions or otherwise they would choose a bank that has a certain characteristic that they do not get from other banks. This is an appearance of the customer loyalty.

Research on service industry like banking, customer satisfaction and loyalty has been drawing high attention in this era. In early 90s, service sector has transformed greatly because of change in marketing environment (Zafar et al., 2011). Additionally, maximum number of the research has been accompanied in developed countries. Hence, there is a need for more authentication of customer satisfaction and customer loyalty in service sector like banking particularly for developing countries like Myanmar. Therefore, in such situation, testing customer satisfaction might be interesting one in the country like Myanmar. This study is carried out in context of private banks in Monywa in order to identify the factors that affect the customer satisfaction because the factors leading to satisfied customers differ from one geographical region to another. In some places, customers are satisfied with the service provided by government banks and in some places, customers are satisfied towards private banks.

Moreover, in upper Myanmar, Monywa is a second largest city and the most important one in Sagaing division of Myanmar. In addition, Monywa is the major trading and communication center. Many University students, many marketers and farmers are rapidly developed in using the banks service. Consequently, the objective of this study is to examine the effect of the bank hospitality and servicecape on customer loyalty through satisfaction.

Literature Review

The literature review is constructed using different sections that are related to the purpose of the research. This section is to present why the bank industry needs to manage the bank hospitality behavior and servicecape to achieve the loyal customer through the customer satisfaction.

Bank Hospitality and Customer Satisfaction

Factors such as the bank's decor, ambiance, lighting, and comfortableness influence the customer, the staff's loyalty to the bank and his performance positively. In addition, the communication between staff members are very influential in the staff's hospitableness of hosting behavior. Avcı & Sayılır (2006) pointed out that one of the important factors in customers' perception of service quality is the staff's behavior. The customer should be impressed with both hospitableness and ambient positively, thus the customer wants to take the service again. Namely, the hospitableness behavior of the staff and the positive effect of the servicecape play a maximum role in the customer's satisfaction. Ariffin et al (2013) identified hospitality and stated that it is all about the style in which the service is brought but servicescape is about the style of the physical surrounding within which the task is carried out. Hospitality is the quality or disposition of receiving and treating guests in a warm, friendly and generous way (Brotherton & Wood,

2008). Ariffin et al (2013) defined hospitality behavior as a supplementary service that improves the value of the core service to achieve the customer satisfaction.

Servicescape and Bank Customer Satisfaction

According to Hacıefendioglu and Koç (2009), satisfaction is the customer's comparison of the benefit which the customer gain from the service when customer is serviced with his expectations. The benefit that customer provides may not always be financial. Sometimes, the ambient of work place wellness, decoration and harmony relieve the customer psychologically. Customer wants to take the service in a peaceful place which makes the customer be pleased. Hacıefendioğlu and Koç (2009) studied about the concept of quality in service that is enhanced with the differentiation of the service provided. The more qualified the servicecape (such as ambiance, design and layout) which is offered is the more pleased the customer is. That is to say, customers' preferences which are based on their satisfaction make the companies advantageous in the competition.

Servicescape originates from marketing terms. The concept of servicescape has been established in the marketing field since the past few decades. In marketing literature, the physical environment is called servicescape (Baker, 1987). While Kotler (1973) has defined the meaning of servicescape as an atmosphere, servicescape also means the physical environment in a service organization (Weerasinghege, 2019). Correspondingly, there are various definitions of servicescape from other researchers' perceptions. Servicescape is a built environment or the man-made physical surrounding as opposed to the natural or social environment (Bitner, 1992). Besides that, Bitner (1992) also states that the facility itself, or the 'servicescape', may have a large effect on the customers' satisfaction with the experience of service, and hence will play an important role in determining whether customers will intent to revisit in the future.

Servicescape and Hospitableness of Hosting Behavior and Bank Customer Satisfaction

Ariffin et al. (2013) showed that hospitality and servicescape have important role on guest satisfaction. If the servicescape in which the customer takes service is unfavorable, the customer doesn't prefer the bank even if the staff has hospitableness of hosting behavior. Namely, the bank staff's hospitableness of hosting behavior and the positive effect of servicescape provide the customer satisfaction considerably in banks focusing on customers.

Since the customers' demands are fullfilled fast and reliably, hospitableness of hosting behavior appeals the customers. Gümüş and Korkmaz (2014) studied about the banks that were at the beginning of the institutions in which communicated with customers face to face and so the differentiations were revealed in hospitability and the quality of servicescape individually. Reliability is the most important factor for the bank customers, and then the monitoring of personal information and the compaigns suitable for customers' income level and that the transactions are achieved in a short time are also very important.

The banks' goods are the services they offer and this service provides the maximum customer satisfaction with the help of qualified servicescape of banking sector and the hospitableness of hosting behavior as this service is offered communicatively. According to Gümüş and Korkmaz (2014), the banks' services are focused on customers and has become more important with the developing technology in order to compete against the others and survive recently. Hence, banks should make innovations to provide the customer satisfaction and servicescape in hospitableness of the hosting behavior.

Besides that, the International Standard Organization (ISO) (2017) defines facilities management (FM) or servicecape as an organizational function which integrates people, place, and process within the built environment for the purpose of improving the quality of life and productivity of business. Drion, Melissen, & Wood (2012) assert that facilities management or servicecape is a management function that focuses on how to develop, maintain and improve the physical environment that is needed to support and add value to the business organization's process, as well as to create and maintain a physical workplace that provides optimal support to the people and employees of the organization. The scopes of facilities management or servicecape are to facilitate the use of resources, enhance organizational effectiveness, and improve the living and working environment for social and economic activities. As have been cited by Mohd Noor & Pitt (2009), FM can be summarized as creating an environment that is cohesive to conduct primary operations of an organization, taking an integrated view of the infrastructure services and to use it to provide customer satisfaction and value for money through the support for enhancement of the core business. Therefore, it can be concluded that FM is creating an environment for supporting the organization in conducting its core business, whatever that is possible, by providing a safe, efficient and effective environment for business operation.

Customer Satisfaction and Customer Loyalty

Customer satisfaction is an emotional response that varies in intensity depending on how well a customer's expectations were met during or after using a particular good or service. Positive disconfirmation results from customers' perceptions of product or service performance that exceeds expectations, while negative disconfirmation, or dissatisfaction, results from perceptions of underperformance, and zero disconfirmation results from perceptions of performance that is equal to expectations (Balcha, etal., 2023)

Consumer satisfaction is a central concept in modern thought and marketing in their practice. The new marketing concepts emphasize the transmission of satisfaction, not just products, to the consumers in order to make profits out of it. Satisfaction can be understood as the perception of the extend of the customer in their needs, goals and desires have been fully achieved (Oliver, 1999). It can also be defined as achieve or meter individual expectations for a product or service. Rooted in the psychology literature, assessment of satisfaction asks customers of companies to achieve total satisfaction, as if this not occur, the company does not become competitive and becomes unable to retain its customer base (Mittal et al., 2014).

The management literature claims that customer satisfaction is the result of perceptions that consumers have from the amount received during a transaction or relationship where the value equals perceived service quality (Hallowell, 1996). Keeping customers happy is still seen as important for companies to achieve success. However, the importance of customer satisfaction differs based on the degree of hedonism and benefits that company offers has to give (Mittal et al., 2014).

In the banking segment customer satisfaction key element is the nature of relationship between the client and the service. However, the quality thereof is usually indicated as a requirement to satisfy and retain customers (Hoq & Amin, 2010). However, satisfaction alone is not enough to explain in the fullest customer loyalty, Oliver (1999) argued that loyal customers are not necessarily satisfied customers, but customers satisfied tend to be loyal customers by advocating that satisfaction is an indisputable determinant of loyalty.

Customer loyalty combines both attitudinal and behavioral loyalty. Attitudinal loyalty refers to the customers' positive propensity toward a good or service based on their overall experiences. If a competitive brand with better quality and a lower price becomes available on the market, these customers are more likely to switch. Contrarily, behavioral loyalty refers to customers' commitment to buy the good or service in question despite the presence of competitive alternatives on the market (Balcha, etal., 2023). In general, the indicators of loyalty include less intention of customers to switch to competitors despite the existence of uniformity in banking goods and services (Chakravarty et al., 2004), and repurchase intents and favorable word-of-mouth to others (Balcha, etal., 2023)

For companies that already have a strong focus on service, future improvements in service can come only through the addition of new programs betting on endo marketing to their employees in order to achieve better productivity and efficiency with consumers (Zahorik & Rust, 1993).

Hypotheses Development

Based on the above literature, the following two hypotheses were formulated. This which can be seen below:

H1: Bank hospitality behavior and banks' servicecape (ambiance, color and design) will lead to the positive effect on bank customers' satisfaction

H2: Customer satisfaction will have a significant effect on customer loyalty.

Source: Own Compilation

Figure 1: Conceptual Framework of the Study

In the course of testing the relationship between variables, the study generates the theoretical contribution. The study needs to investigate whether the positive direct effect of bank hospitality and servicecape on consumers satisfaction to meet the consumers loyalty is existed or not because servicecape is important in studying the consumers satisfaction (Bitner, 1992). In the conceptual model of the study, the independent variables are bank hospitality and servicecape (ambiance, layout and décor). Moreover, dependent variable is customer loyalty through the customer satisfaction.

Methodology

In this study, both primary and secondary data are used. The required data for this study were collected from the consumers who visited at private banks (Kanbowza Bank, AYA Bank, YoMa bank, United Amara Bank and Asia Green Development Bank) in Monywa. Firstly, there are 17 private banks, it is selected five private banks among them simple random sampling method. In addition, the sample size of the study was 200 respondents from the five private banks by using cluster sampling method. Structured questionnaires were used to collect both qualitative and quantitative primary data. Primary data were used to explore the consumers' satisfaction and loyalty and these primary data were collected during the weekday. The secondary data were collected from the sources such as internet websites, journals, books and documents that have conducted by previous researchers. The questionnaires are composed of four sections: 1. bank hospitality; 2. servicecape of bank; 3. Customer satisfaction and 4. Customer loyalty. All the statements were measured by a 5-point Likert scale ranging from strongly disagree (1) to strongly agree (5). The research model was analyzed by applying multiple regression analysis.

Correlation Matrix of the Items

In this section, the correlation matrix of the variables was analyzed to identify the presence of highly correlated variables. As shown in the correlation matrix table Table 1, there are correlated between independent and dependent variables: bank hospitality and customer satisfaction and servicecape and customer satisfaction. There is also low correlated between two independent variables: (bank hospitality and servicecape).

Table 1: Correlation Matrix

Contracts	Bank Hospitality	Servicecape	Customers Satisfaction
Bank Hospitality	1.000	0.299**	0.837**
Servicescape	0.299**	1.000	0.472**
Customers Satisfaction	0.837**	0.472**	1.000

**. Correlation is significant at the 0.01 level (2-tailed)

The relationship between bank hospitality and customer satisfaction are measured by using Pearson's correlation coefficients. According to Table 1, bank hospitality and customer satisfaction are correlated at 1% level of significance. Since the calculated value of correlation coefficient for bank hospitality and customer satisfaction is 0.837, then there is a positive relationship between these variables. Likewise, the calculated value of correlation coefficient for servicecape and customer satisfaction (0.472) show there is a positive relationship between servicecape and customer satisfaction. Moreover, the relationship between two independent variables: bank hospitality and servicecape are measured by using Pearson's correlation coefficients. The calculated value of correlation coefficient for bank hospitality and servicecape is 0.299, then it can be concluded multicollinearity is not considered as a significant problem.

Empirical Analysis of the Effect of Bank Hospitality and Servicecape on Customer Satisfaction and Loyalty towards Private Bank in Monywa

In this section, bank hospitality and servicecape are considered as independent variables and customer loyalty is considered as dependent variables through customer satisfaction. When estimating regression coefficient in concerned with the effect of bank hospitality and servicecape on customer satisfaction of private banks in Monywa, it was calculated regression coefficient, standard error and significant 'p' values presented in Table 2.

Table 2: Effect of Bank Hospitality and Service on Customer Satisfaction of Private Bank in Monywa

Independent Variables	Unstandardized Coefficient		T value	Sig
	B	Std Error		
(Constant)	-0.782	0.187	-4.170	.000
Bank hospitality	0.991	0.046	21.494	.000
Servicescape	0.214	0.030	7.138	.000
R : 0.879				
Adj R2 : 0.770				
F Value : 332.092				

Source: survey data (2024)
Dependent Variable: Customer Satisfaction
Notes: ** indicates that 't' is significant at 5% level and
***indicate that 't' is significant at 1% level.

According to the Table 2, adjusted R squared value is the percentage or the value that indicated how the independent variables can explain the dependent variable. The adjusted R-squared value of the current study is 0.770. Therefore, 77% variation of customer satisfaction can be explained by bank hospitality and servicecape. The results also show that bank hospitality and servicecape are significant at 1% level. In addition, F value is 332.092 which indicates that the model is less error and significant.

Based on the regression analysis, the effect of bank hospitality on customer satisfaction is found to be positively significant (B = 0.991, $p<0.01$). The results of multiple regression model for testing H1 are provided. This implies that a greater level of bank hospitality can increase the customer satisfaction of this Bank. Moreover, the effect of servicecape on customer satisfaction has the significantly influenced with the standardized coefficient (B = 0.214, $p<0.01$). This implies that customers satisfaction can be much enhanced if the private banks provide its servicecape such as ambiance and design.

. As this result, the private banks can provide well train staff and preference servicecape to achieve to achieve customer satisfaction from the pleasant emotional feeling and the bank atmosphere can influence on product and service carried in these private banks with regard to communication of banks staff and bank servicecape.

Analysis of the effect of Customer Satisfaction on Customer Loyalty

In this section, customer satisfaction is considered as independent variables and customer loyalty is considered as dependent variables. The regression model is estimated by using backward method to examine the relationship between customer satisfaction and customer loyalty of private banks in Monywa. When investigating the significant factors, the calculated 't' values for each coefficient is examined. The calculated 't' values are presented in Table 3.

Table 3: The Effect of Customer Satisfaction on Customer Loyalty

Independent Variables	Unstandardized Coefficient		T value	Sig
	B	Std Error		
(Constant)	2.283	0.314	7.282	.000
Customer Satisfaction	0.476	0.078	6.135	.000
R : 0.401				
R2 : 0.160				
F Value : 37.644				

Source: survey data (2024)
Dependent Variable: Customer Loyalty
Notes: ** indicates that 't' is significant at 5% level and
***indicate that 't' is significant at 1% level.

According to Table 3, customer satisfaction has the direct positive effect on customer loyalty of private banks in Monywa at 1% significant level. Therefore, the results of multiple regression model for testing H2 are accepted. The customer satisfaction has regression value of 0.476. The variable is significant at 1% significant level. R value is 0.401 and R square is 0.160. It indicates 30.1% and 16% relationship between customer satisfaction and customer loyalty of private banks in Monywa. In addition, F value is 37.644 which indicates that the model is less error and

significant. Therefore, it can be concluded that the more the bank managers used the successful qualify bank hospitality and servicecape; the more the customers achieved customer satisfaction and loyalty.

Findings and Discussion

This study offers several contributions that can help private banks which want to appeal to more customers and increase loyalty or patronage. As expected, banks hospitality and servicecape had significant influence on customers satisfaction of private banks. In the current study on customer loyalty of private banks, it can conclude that banks hospitality and servicecape have the positive effect on customer loyalty through customer satisfaction. This means that customer loyalty is due to banks hospitality and servicecape because of reasonable information-inference from the preference or positive emotional feeling. This implies that customers satisfaction can be much enhanced if the private banks provide its servicecape such as ambiance and design.

. It can be concluded the private banks can provide well train staff and preference servicecape to achieve to achieve customer satisfaction from the pleasant emotional feeling and the bank hospitality and servicecape can influence on product and service carried in these private banks with regard to communication of banks staff and bank servicecape.

Conclusion

The conceptual framework for this study aims to understand consumer satisfaction and loyalty of private banks in Monywa. The model explained the relationships among bank hospitality, servicecape, customer satisfaction and loyalty. This study found that the private banks can maintain the loyal customers through the customer satisfaction by providing the appropriate bank hospitality behavior and servicecape. It is also essential for the private banks to build the preference experience of customers. Similarly, even if the bank hospitality and servicecape meet the customer's expectations, the customer perceives the banks to be satisfactory that will lead the patronage behavior or loyalty.

Limitation and Needs for Further Study

This study analyzes the bank hospitality and servicecape to meet the loyalty through the customer satisfaction of private banks in Monywa. First limitation would be that the study analyzed only in the context of private banks in Monywa. Second, attention must be exercised when generalizing these findings to other types of private banks' product categories. Third, the bank hospitality and servicecape within a private bank catering to a particular customer segment might be perceived differently from bank hospitality and servicecape within other apparel retailer catering to a different customer segment. Fourth, this study did not measure any specific servicecape (e.g., ambiance, design and layout).

This section attempts to explain the requirement for further study. Firstly, this study only focuses on consumers' satisfaction and loyalty of private banks in Monywa. As the further study, consumers' satisfaction and loyalty of private banks in other cities and public banks in Myanmar should be analyzed.

Adding on to the first, the one limitation of the study would be that this study did not consider individual elements of the store environment or servicecape (e.g., design or ambiance); but attempted to capture the overall effect of the servicecape. For example, the effect of music on consumer loyalty of the private banks.

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ID 137
Marketing Mix Affects Food Tourism Behavior in Mueang District, Narathiwat Province

Nurfadla Yunu[1], Asmida Awae[2], Suhaida Binalee[3], Kotchaponpan Pongtongmuang[4]*, Weerasak Sojipun[5] and Krisana Promchart[6]

[1] Princess Narathiwas University; Nurfadlayunu9@gmail.com
[2] Princess Narathiwas University; 6360701013@pnu.ac.th
[3] Princess Narathiwas University; 6360701021@pnu.ac.th
[4] Princess Narathiwas University; nickky4921@gmail.com
[5] Princess Narathiwas University; Vcool99@hotmail.com
[6] Princess Narathiwas University; Krisana_pnu@hotmail.com

* Correspondence: nickky4921@gmail.com

Abstract

This research aimed to analyse the impact of marketing mix elements (7P's) on food tourism behaviour in Mueang district, Narathiwat province. The research sample consisted of visitors in Mueang Narathiwat district, Narathiwat province, which has a sizable population of uncertain precise size. Researchers determined the sample size using the method of Cochan (1977), which specified a confidence level of 95% and a margin of error of 5% for a sample group consisting of 400 individuals. The research utilised descriptive statistics analysis, namely mean and standard deviation.

The results indicate that the majority of respondents in the sample group were females aged between 20-30 years, comprising 73.3%. Additionally, 82.80% of them were single, 43.80% had an income of 10,000-15,000 baht, and their employment was commerce. The study revealed that the physical attributes part of tourist marketing mix variables scored the highest level at 4.69. Personal rating is 4.69, process average is 4.68, and marketing promotion factor is around 4.63. The study revealed that all seven variables of the 7P marketing mix significantly influenced food tourist behaviour at a 0.05 significance level. There is the opportunity to participate in a cuisine tourism trip organised in Narathiwat province, with an average rating of 4.69. Encouraging food tourism will result in an average travel rate of 4.73. culinary tourism is rated at 4.70, indicating a high level of interest in bringing family, friends, or acquaintances to visit for culinary tourism in Narathiwat province.

Keywords: Marketing Mix 7P's, Food tourism behavior, Mueang distitict, Narathiwat province

Introduction

Global tourism trends indicate that travelers are consistently travelling, as reported by the United Nations World Tourism Organization. By 2030, it is forecasted that the global tourist population would surpass 1.8 billion persons (Chunkaiorn and Na Thalang, 2021, as mentioned in UNWTO, 2017). The Tourism Authority of Thailand has encouraged collaboration between the public and business sectors to develop economic, social, and tourism activities in line with its vision of being a leader in promoting tourism to popular and sustainable destinations. This initiative aims to boost tourism income and promote sustainability in the grassroots economy, empowering local communities by leveraging their fundamental strengths. Thai customs and local traditions provide a great travel experience for both Thai and international tourists, contributing to the development of the local economy. Vision 2023-2027 aims to position Thailand as a strategic leader in promoting experience-based and sustainable tourism (https://www.tat.or.th/en/about-tat/vision).

Food tourism is a type of tourism that offer travelers a unique experience by allowing visitors to enjoy local cuisine and engage with five senses: sight, taste, smell, sound, and touch (Krittidetch Anan, 2018). Food tourism

involves a harmonious fusion of cultures (Panupat, Thanawachiranun, & Saowapawong, 2021). Food tourism is developing cultural experiences for tourists by engaging visitors with local cuisine traditions and ways of life. Developing cuisine tourism that offers a positive experience for travelers requires consideration of several variables. The marketing mix, including products, prices, distribution channels, marketing promotion, personnel, process, and physical characteristics, provides a crucial role in enhancing the success of food tourism (Sainoi, Wongmonta, & Chiratana, 2023). Food tourism is an increasing phenomenon in the tourist industry that will expand alongside the development of digital technologies. Food tourism is a categorization based on visitors' travel behaviour (Ministry of Tourism & Sports, 2017).

Research Framework

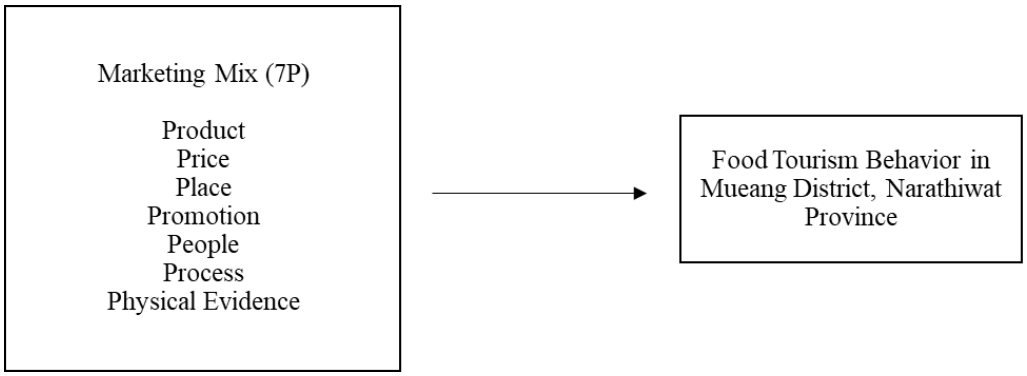

Figure 1: Conceptual Framework

Methodology

Population and sample size

The research focused on travelers engaging in culinary tourism in Mueang district, Narathiwat province, however the specific population size is unknown.

The sample size was determined through convenience sampling. This is appropriate for samples taken from an unspecified number of individuals based on the Cochran model, which applies to a sizable population. A confidence level of 95% was determined, leading to a sample size of 385 individuals. (Cochran, 1977)

$$\text{From Formula} \quad n = \frac{Z^2}{4e^2}$$

When n = Sample size
z = Level of Significance
e = Experimental Uncertainty level at 0.05

When the confidence level is *95%* and the allowed error is *5%*, the formula determines the required sample size as follows:

$$\text{represent} \quad n = \frac{(1.96)^2}{4(0.05)^2}$$

$$n = 385 \text{ people}$$

The research requires a minimum sample size of 385 individuals to accurately determine the percentage with a maximum margin of error of 5% at a 95% confidence level. The researcher utilized a sample size of 400 samples for ease in assessing outcomes and data analysis, meeting the given parameters at least 385 samples.

Research tools

To creating research tools, it proceeds in the following order:

1. Reviewing concepts, theories, and research tools from various sources such as documents, textbooks, journals, theses, and online platforms to develop a questionnaire.

2. Determine the scope and structure of the questionnaire.

3. Revise the questionnaire according to the research advisor's suggestions and ensure it aligns with the research objectives.

4. Complete the questionnaire and make improvements based on the teacher's feedback. Three experts assessed its content validity and determined that it aligned with the study objectives by employing the Index of Congruence: IOC utilizes the subsequent scoring criteria:

+1 mean Making sure that it is correct and consistent with the objectives.
0 mean Not sure if it is consistent with the objectives
-1 mean Not consistent with the objectives

5. Bring the updated questionnaire to test with tourists in Narathiwat province, a sample of 30 sets, to assess the questionnaire's reliability by calculating Cronbach's Alpha Coefficient.

6. Defects were identified in the sample group's replies, prompting a revision and improvement of the questionnaire for perfection.

7. Create a comprehensive questionnaire for gathering study data.

This study is a survey investigation that use a questionnaire consisting of four parts:

Part 1 Questionnaire on personal information including gender, age, marital status, education level, occupation, and income.

Part 2: Questionnaire on the marketing mix factors (7P's) of food tourism.

Part 3: Food tourism behaviour questionnaire.

Part 4: Additional suggestions.

Data collection

The researcher begins the data collection procedure by drafting a letter to request authorization from the Faculty of Management Sciences Committee at Princess of Naradhiwas University. Subsequently gathered data in the designated location, specifically Mueang District, Narathiwat Province. Thus, data collecting has concluded, and the data collected is being reviewed for accuracy and thoroughness. The data collected has been determined to be comprehensive and adequate for analysis. Thus, the researcher is ready to analyze the data using statistical methods.

Data Analysis

1. Descriptive statistics are utilized for describing the characteristics of the sample, such as percentage, frequency, mean, and standard deviation (SD).

2. Inferential Statistics were utilized to analyze the variance of two independent variables based on a single hypothesis. Comparing independent sample T-test and one-way analysis of variance and reliability.

Results and Discussion

The majority of respondents identified as female, with 243 individuals represented 60.8%, while 157 individuals identified as male, accounting for 39.3%. The variable age has statistical values arranged in the following order based on study results. There are 293 persons aged between 20-30 years, accounting 73.3% of the total. Those aged between 30-40 years account for 12.0%, and those between 41-50 years old contribute 2.5%. Status variables have statistical values in the following order: 331 individuals are in a single status, representing 82.8%. Out of 400 persons, 62 are married accounting for 15.5% and 7 are widowed, divorced, or separated with 1.8%. The statistics of the education level variable are as follows: 260 participants hold a Bachelor's degree, representing 65.0 percent. 48 participants at the secondary school or vocational certificate level, representing 12.0%. 48 participants hold a Master's degree, representing 12.0% of the total. Occupation variables are arranged in statistical order as follows: 96 individuals in trading professions, representing 24.0%. There are 75 individuals in general contract jobs, representing 18.8 percent, and 70 people in other occupations, representing 17.5 percent. The income variable is arranged in statistical values in the following order: An income of 10,000-15,000 baht is received by 175 individuals, which

represents 43.8%. 146 individuals, representing 36.5%, have an income below 10,000 baht, while 15 people, accounting for 7.8%, earn between 15,000-20,000 baht.

Table 1: of Population, frequency, and percentage of individual characteristics within the sample (n=400)

General Information	Frequency	Percentage
Gender		
Male	157	39.3
Female	243	60.8
Age		
Less than 20 years old	49	29.8
20-30 years old	293	42.3
31-40 years old	48	18.8
41-50 years old	10	7.0
More than 60 years old	0	2.0
Occupations		
Agriculturist	19	4.8
Government service	40	10.0
State enterprise employees	48	12.0
Commerce/ Trade	96	24.0
Company employee	52	13.0
General employee	75	18.8
Other (please specify)	70	17.5
Status		
Single	331	82.8
Married	62	15.5
Divorced/widowed/separated	7	1.8
Monthly income		
Less than 10,000 Baht	146	36.5
10,000 - 15,000 Baht	175	43.0
15,001 - 20,000 Baht	31	7.8
20,001 - 25,000 Baht	15	3.8
25,001 - 30,000 Baht	12	3.0
More than 30,001 Baht	21	5.3

Table 2: of means and standard deviations regarding marketing mix factors (7P's)

Marketing Mix Factors (7P's)	Mean (x)	Standard Deviation (S.D.)	Result
1. Product	4.62	0.509	Highest
2. Price	4.58	0.562	Highest
3. Place	4.63	0.541	Highest
4. Promotion	4.68	0.544	Highest
5. People	4.69	0.741	Highest
6. Physical Evidence	4.69	0.538	Highest
7. Process	4.74	0.487	Highest
Total	**4.44**	**0.493**	**Highest**

The respondents rated the overall marketing mix factors at the highest level. The data has a mean of *4.66* and a standard deviation of *0.479.* When examining each feature, it was seen that the values were arranged in the following order: The physical characteristics variable has a mean of *4.7363* and a standard deviation of *0.4874.* The personnel variables have a mean of *4.6925* and a standard deviation of *0.5407.* The process variables have a mean of *4.6870* and a standard deviation of *0.5379.* The marketing promotion variables have a mean of *4.6831* and a standard deviation of *0.5436.* The process variables have a mean of *4.6870* and a standard deviation of *0.5379.* The product variable has a mean of *4.6245* and a standard deviation of *0.5095*, while the price variable has a mean of *4.5837* and a standard deviation of *0.5624.*

Table 3: of means and standard deviations regarding food tourism behavior in Mueang District, Narathiwat Province.

Tourism behavior	Mean (x)	Standard Deviation (S.D.)	Result
1. If given an opportunity, you plan to engage in food tourism in Mueang District, Narathiwat Province.	4.69	0.615	Highest
2. If gourmet tourism is encouraged in Mueang District, Narathiwat Province	4.73	0.590	Highest
3. Food tourism in Mueang District, Narathiwat Province is fascinating to compare.	4.70	0.617	Highest
4. If given the opportunity, you will invite your family, friends, or acquaintances to participate in cuisine tourism in Mueang District, Narathiwat Province.	4.70	0.591	Highest
5. Local cuisine's uniqueness attracts tourists to food tourism.	4.72	0.561	Highest
6. Local cuisine is delicious and interesting, making it ideal for food tourism.	4.74	0.565	Highest
7. The diverse cuisines may inspire you to engage in food tourism.	4.69	0.596	Highest
8. Local cuisine is healthy and enticing enough to inspire food tourism.	4.73	0.573	Highest
Total	**4.71**	**0.527**	**Highest**

Overall, respondents displayed the highest level of travel behaviour in the study. The mean is *4.71* and the standard deviation is *0.527.* When investigating each feature, it was seen that the statistical values are arranged in the following order: The local cuisine is delicious and suitable for travelers, with a mean of *4.74* and a standard deviation of *0.565.* Food tourism promotion is based on a mean of *4.73* with a standard deviation of *0.590.* The nutritional value of local cuisine has a mean of *4.73* with a standard deviation of *0.573*, attracting food tourists. The local food's uniqueness in attracting attention for food tourism had a mean value of *4.72* with a standard deviation of *0.561.* The mean for food tourism in Mueang district, Narathiwat province is *4.70* with a standard deviation of *0.617.* Would you recommend family, friends, or acquaintances to travel in food tourism, with a mean rating of *4.70* and a standard deviation of *0.591.* The likelihood of travelling for food again has a mean of *4.69* and a standard deviation of *0.615*, whereas the appeal of travelling for food tourism due to a diversified culinary culture has the least mean value of *4.69* and a standard deviation of *0.596.*

Conclusion

Most of the total responders, 243 were female, making up 60.8%, and 157 were male, making up 39.2%. The age variable was distributed as follows: 21-30 years had 293 participants, accounting for 73.3 percent; 31-40 years accounted for 12.0 percent, and 41-50 years accounted for 2.5 percent. Furthermore, the status variables were distributed as follows: 331 individuals (82.8%) were single, 62 individuals (15.5%) were married, and 7 individuals (1.8%) were widowed, divorced, or separated. The educational level variable statistics are listed in the following order: 260 individuals held a bachelor's degree, representing 65.0% of the total, while 48 individuals each held a secondary school/vocational certificate and a master's degree, each accounting for 12.0%. The occupation factors were ranked in the following statistical order: Trading occupations were represented by 96 individuals, accounting for 24.0% of the sample, while general contracting occupations were represented by 75 individuals, accounting for 18.8%. Other occupations were represented by 70 individuals, accounting for 17.5%. This data corresponds to a study by Suboonlieng Sainoi, Seri Wonmonta, and Pakamas Chairatna (2022) on guidelines for promoting local cuisine cultural tourism in Phra Pradaeng, Samut Prakan province. The study found that females provided more information, and most informants were under 29 years old. The informants were unmarried, had a bachelor's degree or comparable education, and the income variable had statistical values in the following order: Out of 175 people, 43.8% have an income between 10,000 and 15,000 baht. 36.5% of the people have an income less than 10,000 baht, and 7% have an income between 15,000 and 20,000 baht.

The respondents rated the overall marketing mix components highly, with a mean of 4.66 and a standard deviation of 0.479. Upon examining each aspect, it was discovered that the values are as follows: The physical attributes variable has a mean of 4.73 and a standard deviation of 0.487. The average value of the personnel variable is 4.69 with a standard deviation of 0.540. The process variable has a mean of 4.68 and a standard deviation of 0.537. The marketing promotion variable has a mean of 4.68 and a standard deviation of 0.543. The product variable has a

mean of 4.62 and a standard deviation of 0.509, while the price variable has a mean of 4.58 and a standard deviation of 0.562.

Research results part 3, results of data analysis on food tourism behavior in Mueang district Narathiwat province

Summary respondents' travel behaviour was determined to be at the highest level with the mean is 4.71 and the standard deviation is 0.527. When analyzing every characteristic, it was seen that the statistical values are arranged in the following order: The local cuisine is both excellent and visually appealing, making it ideal for tourism, the mean is 4.74 with a standard deviation of 0.565. Would you travel if food tourism is promoted? The mean is 4.73 with a standard deviation of 0.590, which corresponds to Puri Chunkajorn and Chawalee Na Thalang's (2021) research on promoting gastronomy tourism in Thailand. Their study suggests that elevating local festivals and food traditions to a provincial and national level can enhance defensive strategy. Local food is highlighted for its nutritional value, attracting food tourism with the mean value stated was 4.73 with a standard deviation of 0.573. A proactive strategy was identified to promote the production of safe agricultural food products for processing into health foods that cater to the preferences of health-conscious tourists. The average rating for this strategy was 4.72 with a standard deviation of 0.561.

In line with the research conducted by Nipon Yamkasem and Natnaree Smith on recommendations for managing gourmet tourism in Samutsongkham province, it has been found that the province possesses distinctive native raw resources. Tourists should visit Samutsongkhram province for its unique and distinctive culinary offerings. When comparing culinary tourism in Mueang district, Narathiwat province, the average rating is 4.70 with a standard deviation of 0.617. The mean and standard deviation for recommending family, friends, or acquaintances to go for culinary tourism are 4.70 and 0.591, respectively. You will travel for food again if the probability is 4.69 with a standard deviation of 0.615. A study by Chirabharn Phomtep and Dudsadee Chuaysook (2021) found that the gastronomy tourism potential of Atsamart community in Nakhon Phanom province, Thailand, depends on using locally sourced raw materials and offering unique local cuisine. Culinary tourism benefits from the variety of occupations within the community and the unique features of the environment, geography, and location. With diverse culinary customs Ignite your interest in participating in gastronomic travel. The data has a minimal mean value of 4.69 and a standard deviation of 0.596. In line with Sudsawath, Layraman, Vinijvorakijkul, Somnuxpong & Ratanaprasert (2023), the study on Lanna traditional food tourism revealed that food tourism is a significant revenue generator and contributes to the preservation of local culinary traditions. It promotes sustainable tourism while also conserving the culture and lifestyle in those areas.

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Development of a Mobile Application to Promote Community-Based Innovative Tourism in Ao Manao Bay, Kaloi Nuea Sub-District, Mueang District, Narathiwat Province

Surachet Sangkhapan[1]*, Jaeinyas totayong[1], Sirilak Intasaro[1], Ninadier Dahamang [1] and Yutthapoom Yakoa[1]

[1] Faculty of Management Sciences Princess of Naradhiwas University Narathiwat Province 96000

* Correspondence: surachet.sa@pnu.ac.th

Abstract

This study investigated the development of a mobile application to promote community-based innovative tourism in Ao Manao Bay, Kaloi Nuea Sub-District, Mueang District, Narathiwat Province, Thailand, on the Android operating system. The application was presented as a mobile app. It had two objectives: 1) to evaluate the effectiveness of the mobile application and 2) to develop the mobile application. The sample group consisted of 36 people, including 10 tourists, 14 students, 9 general people, and 3 IT experts. Three experts validated the research instruments for content validity. All items in the IOC questionnaire received a score of no less than 0.5. Following validation, the research instruments were used to collect data. The data analysis revealed the following: The evaluation of the performance of the mobile application for promoting community-based innovative tourism in Ao Manao yielded positive results. The overall quality of the application was rated highly, with a mean score of 4.37 and a standard deviation of 0.58. A user manual was developed for the system.

Keywords: Mobile application, Promote tourism, Community-based innovative tourism

Introduction

Aumanau Bay, located in Kalowo Nuea Sub District, Mueang District, Narathiwat Province, is an area bordering the eastern coast of Thailand. In the past, Her Royal Highness Princess Maha Chakri Sirindhorn visited the people of Ban Bang Manau, Moo 2, Kalowo Nuea Sub District, Mueang District, Narathiwat Province. She had a royal initiative to improve various aspects, including economics, education, culture, and tourism promotion. In terms of tourism promotion, the Pattani Forest Office has responded to the royal initiative by surveying the area outside the royal palace of Taksin Ratchaniwet to establish a park with an area of approximately 720 rai and named it "Aumanau Bay Forest Park". In addition, Aumanau Bay is an area with potential for many tourist attractions, such as Tharasawan Waterfall, Hin Yai Viewpoint, Nature Study Trail, Aumanau Bay Beach, and Khao Tanyong Beach. However, these places are not well-known to tourists, making it difficult for tourists to access tourism information. According to an interview with a representative of the Aumanau Bay Community Tourist Guide, U-har Buraheang (interviewed on February 11, 2022), Aumanau Bay has had boat tours for a long time, mostly for specific groups of tourists who come to fish and squid. However, external tourists cannot access this part of the tourism. To be in line with the economic and tourism development policies of the Kalowo Nuea Subdistrict Municipality, to promote and support occupations to increase income for people in all professions, especially low-income earners, such as establishing occupational groups, training to improve skills in occupations, supporting equipment, tools, and equipment for occupations, promoting and supporting the development and improvement of tourist attractions, conservation tourism attractions, tourism personnel for tourist services to be complete, and publicizing tourist attractions to be widely known and potential tourist attractions to attract tourists (Kalowonuea Municipality, 2022). According to an interview with a representative of the entrepreneur, Koirunisa Hawe (interviewed on February 11, 2022), she said that the problem that

many entrepreneurs face is that the group of entrepreneurs is ready to welcome tourists and the group has activities for tourists to participate in. However, most people who come to Narathiwat Province do not know about the tourist attractions and businesses here. This is due to problems with public relations, lack of cooperation between people in the community, and the COVID-19 outbreak, causing entrepreneurs to lose income from tourism, such as hotel operators having no customers. From the perspective of tourism, communication innovation is currently changing towards new-age tourism that uses communication technology, which is considered a communication innovation in the information technology age and presents a new perspective in the tourism industry (Sunthonwiboon, 2018). In the present world, it is widely accepted that "innovation" is one of the main cores.

From the aforementioned problems, the researcher has seen the importance of problems with public relations, tourism promotion, COVID-19 problems, poverty problems, economic problems, and problems with cooperation between people in the community. Therefore, the researcher has developed a mobile application to promote innovative tourism, Aumanau Bay, Kalowo Nuea Sub District, Mueang District, Narathiwat Province, to publicize and promote income during the COVID-19 pandemic and promote community tourism in Aumanau Bay. The application is named "Aumanau Junket", which means Aumanau Bay tourism based on the happiness of tourists. The application includes booking accommodation, tourist activities, and recommendations for restaurants. There is cooperation between the community, businesses, and Aumanau Bay National Park. The system also allows booking hotels and searching for restaurants in Mueang District, including Aumanau Bay Beach, Kalowo Nuea Sub District.

Methodology

Population and Sample Group The target group of the research is tourists who travel to Narathiwat Province and entrepreneurs in Narathiwat Province. The sample group in the research are tourists, students, and general people who volunteered with 33 people. Experts consist of 3 app experts selected by purposive sampling.

Research instruments

1. Mobile application for developing innovative community tourism promotion, Aumanau Bay, Kalowo Nuea Sub District, Mueang District, Narathiwat Province.

2. Evaluation form for the effectiveness of the mobile application for promoting community tourism, Aumanau Bay, Kalowo Nuea Sub District, Mueang District, Narathiwat Province.

Research Methodology

1. The researcher conducted a field survey, interviewed and collected basic data to find the importance and problems from the community, entrepreneurs, and officers of Aumanau Bay National Park, Kalowo Nuea Sub District, Mueang District, Narathiwat Province.

2. The researcher designed and developed a mobile application to promote community tourism in Aumanau Bay, Kalowo Nuea Sub District, Mueang District, Narathiwat Province, based on the background and preliminary problems from the field survey.

Implementation Plan and Application Development Steps:

2.1 Context Diagram
2.2 Data Flow Diagram (DFD)
2.3 Entity-Relationship Diagram (E-R Diagram)
2.4 Data Dictionary and
2.5 User Interface Design

3.The researcher developed an evaluation form for the effectiveness of the mobile application for promoting community tourism in Aumanau Bay, Kalowo Nuea Sub District, Mueang District, Narathiwat Province. The evaluation form included four aspects: usability, functionality, data security, and system performance. The researcher gave the evaluation form to two content experts and one measurement and evaluation expert to review the accuracy, collect data, and calculate the reliability of the instrument. The researcher then printed the instrument for use in the next stage of the research. The evaluation criteria were a 5-point rating scale, according to the method of Boonchom Srisaean (2002:103).

4.The researcher submitted the two evaluation forms, the effectiveness evaluation form and the satisfaction evaluation form, to the application experts for content validity (IOC) and then revised them.

5.The researcher submitted the revised effectiveness evaluation form to the application experts and the sample group to evaluate the effectiveness of the mobile application for promoting community tourism in Aumanau Bay, Kalowo Nuea Sub District, Mueang District, Narathiwat Province.

The researcher analyzed the results of the effectiveness evaluation and found that the mobile application was effective in promoting community tourism in Aumanau Bay. The tourists were satisfied with the information and features of the mobile application. They found it easy to use and helpful in planning their trip to Aumanau Bay. The researcher concluded that the mobile application was a useful tool for promoting community tourism in Aumanau Bay. The researcher recommended that the application be further developed and promoted to attract more tourists to the area.

6. Data Analysis. The data was analyzed using a statistical software program. The researcher calculated the percentage, mean, and standard deviation. This research uses Java Script ES6 for programming and utilizes React, a library framework, and Responsive device and web component technology to develop the application.

Results and Discussion

1. Design and Development Results of the Community Cultural Tourism Promotion Mobile Application for Reading 'Ma Nao Tum Ban Kallu Wa Nuea' in Muang District, Narathiwat Province consist of a Context Diagram as shown in Figure 1, Data Flow Diagram (DFD) as shown in Figure 2, Entity-Relationship Diagram (E-R Diagram) as shown in Figure 3, Data Dictionary as shown in Figure 4, and User Interface Design as shown in Figure 5

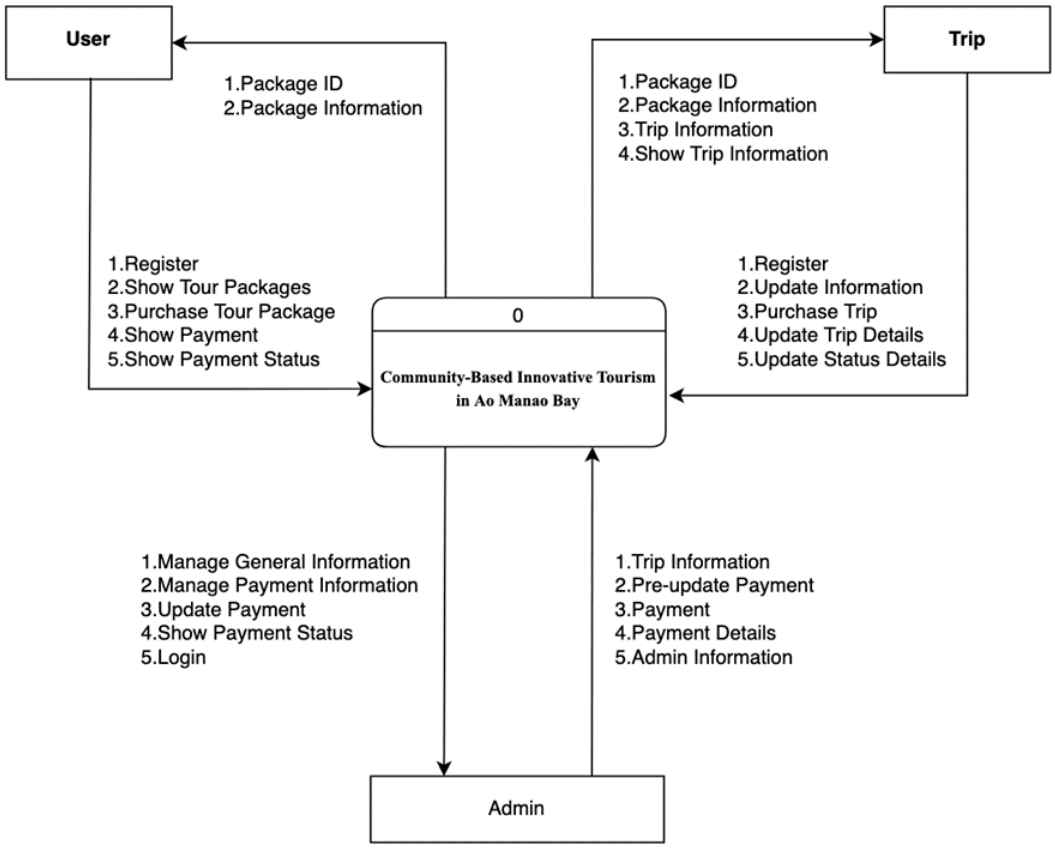


Figure 1: Context Diagram

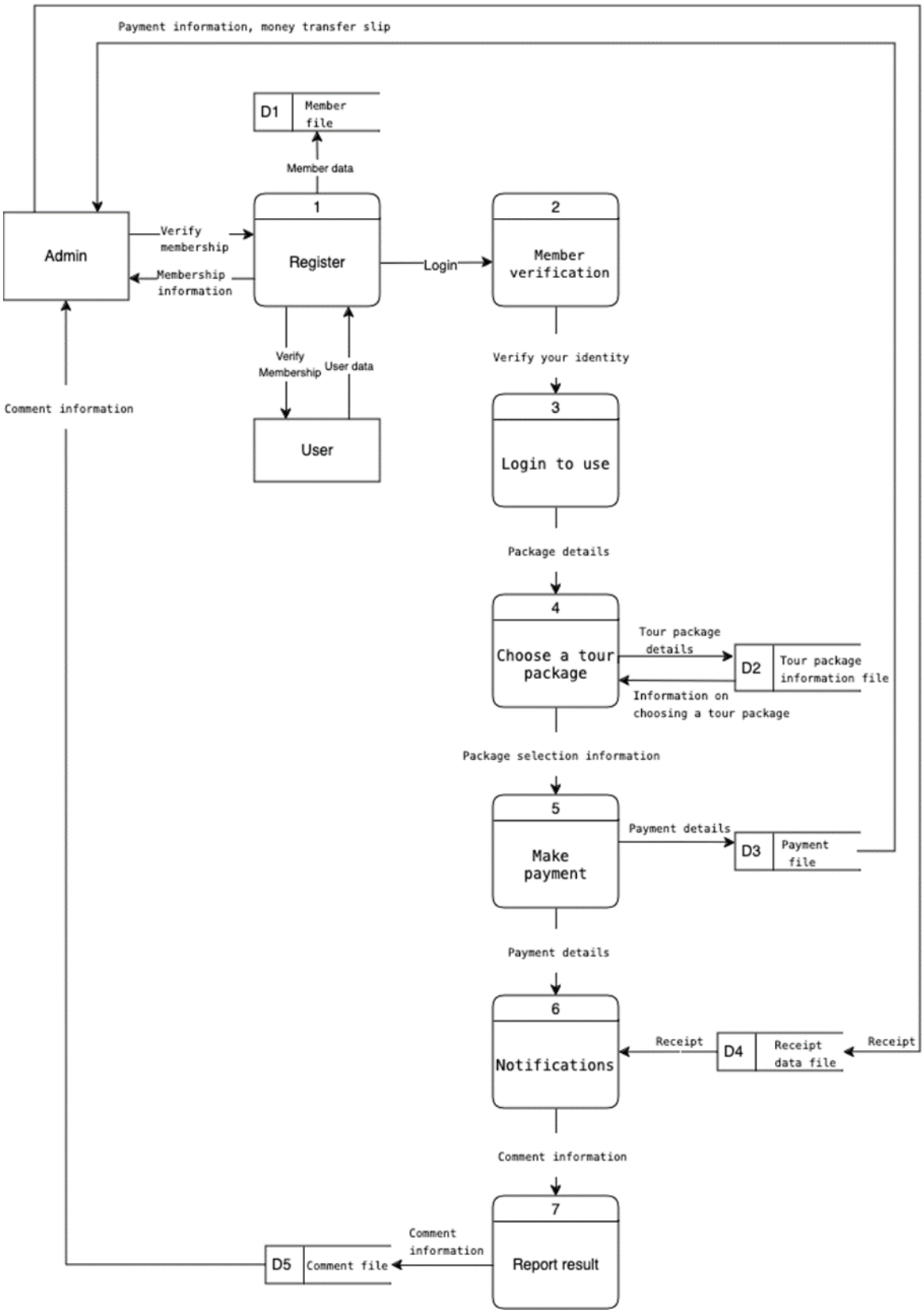


Figure 2: Data Flow Diagram (DFD)

Figure 3 was an Entity-Relationship Diagram (E-R Diagram), which was a diagram that illustrated the data and the relationships between the data that were interconnected in the development of the mobile application promoting community cultural tourism, 'Reading Ma Nao Tambon Kalu Wa Nuea,' in Muang District, Narathiwat Province.

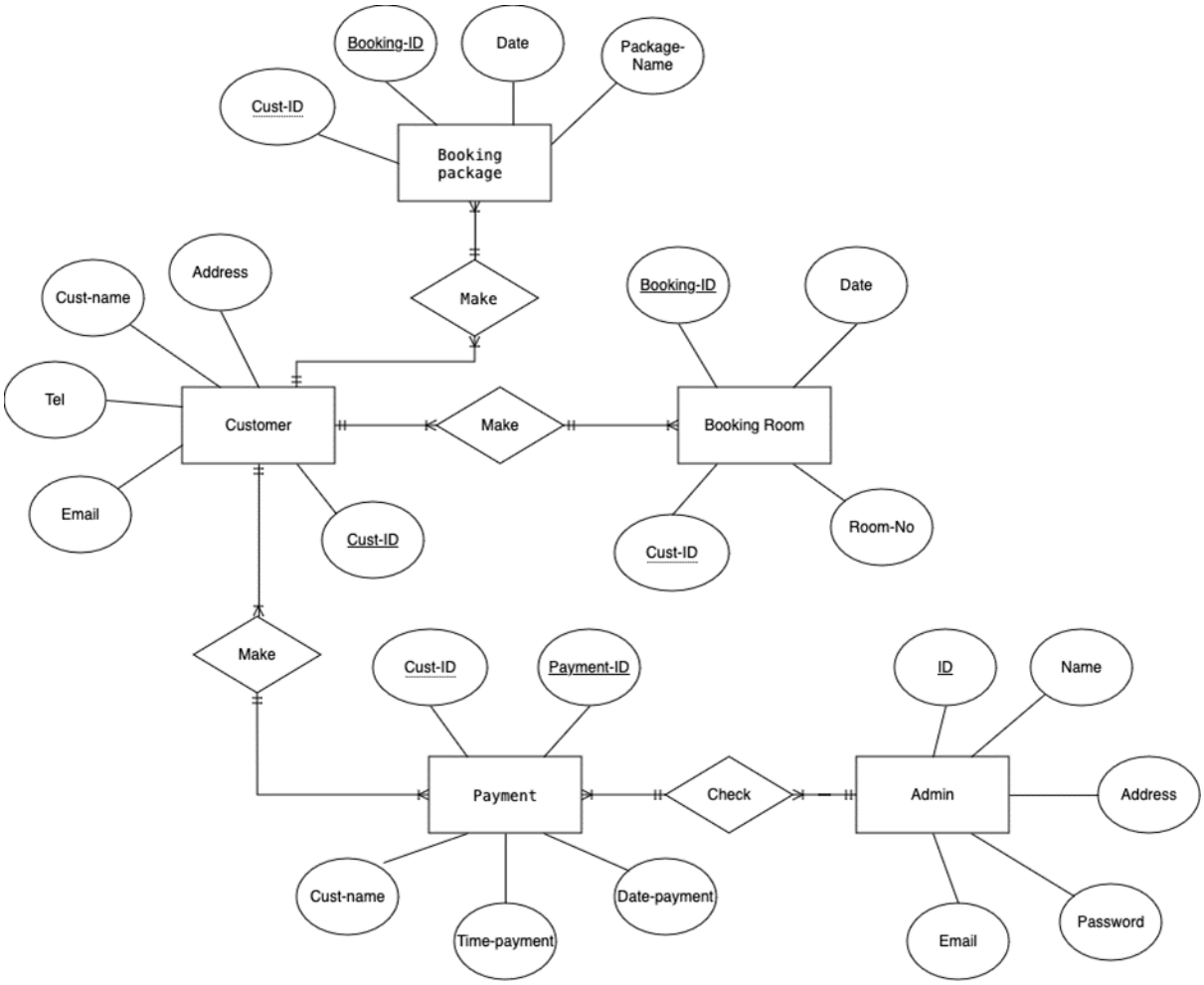


Figure 3: Entity-Relationship Diagram (E-R Diagram)

The user interface design consists of: (a) Login system, (b) Email login feature, (c) Registration page, (d) Main page featuring a bottom menu and tour packages, (e) User account page, (f) Notification page, (g) Review page, (h) Review rating page, (i) Booking and payment page.

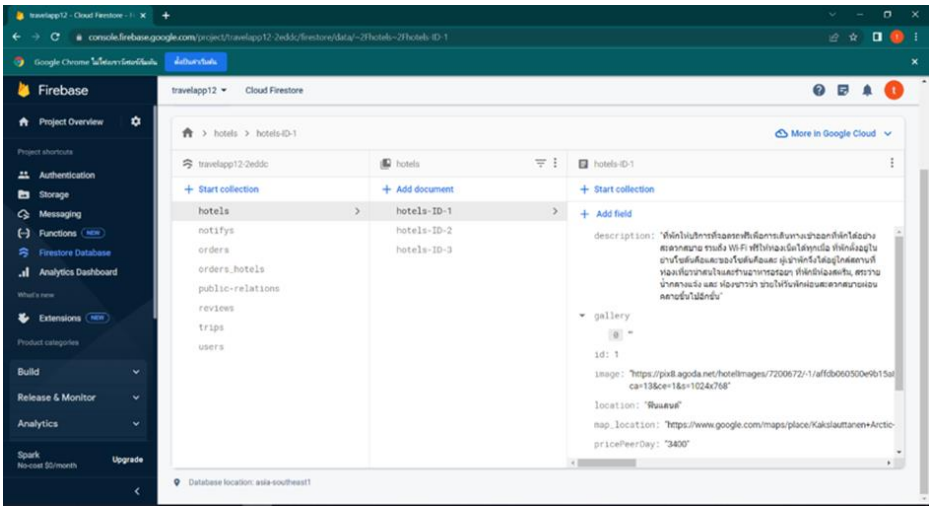
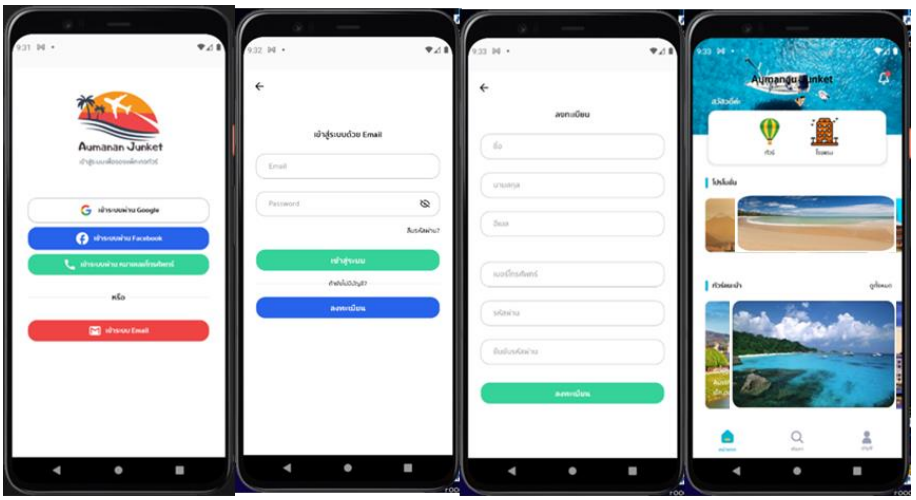
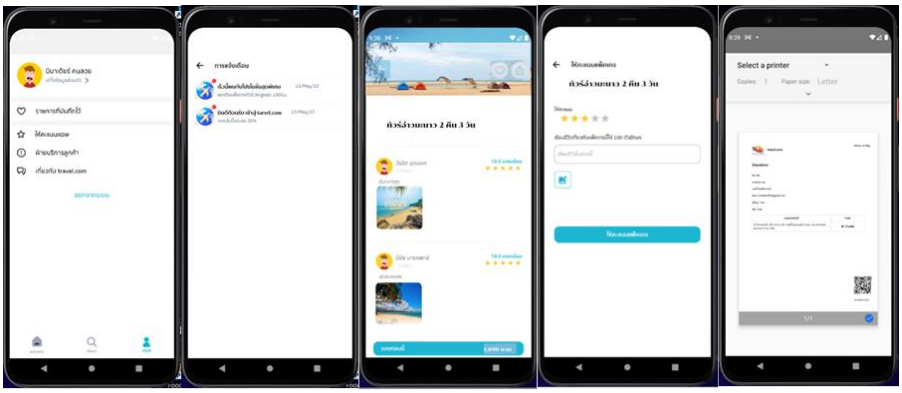


Figure 4: Data Dictionary



(a) (b) (c) (d)



(e) (f) (g) (h) (i)

Figure 5: User Interface Design

2. Analysis of the Results of the Evaluation of the Efficiency of the Development of the Mobile Application for Promoting Community Tourism in Aumanau Bay, Kalowo Nuea Sub District, Mueang District, Narathiwat Province. A survey was conducted of experts, tourists, students, and the general public to evaluate the efficiency of the mobile application for promoting community tourism in Aumanau Bay, Kalowo Nuea Sub District, Mueang District, Narathiwat Province. A total of 36 people responded to the survey, which was divided into three parts: Part 1: General information about the respondents. Part 2: Evaluation of the efficiency of the mobile application and Part 3: Suggestions for improving the mobile application. The results of the survey showed that the mobile application was efficient in promoting community tourism in Aumanau Bay. The respondents found the application to be easy to use, informative, and helpful in planning their trip to Aumanau Bay. The respondents also suggested some improvements to the application, such as adding more information about tourist attractions and activities, and making the application available in multiple languages.

Part 1: General Information about the Respondents

The general information was analyzed by distributing the frequency and finding the percentage. The results of the evaluation are shown in Table 1.

Table 1: General Information about the Respondents (n=36)

Demographic variable		Frequency	Percentage
Gender	Male	16	44.40%
	Female	20	56.60%
Age	15-25	20	56.60%
	26-30	9	25%
	>30	7	19.70%
Occupation	Expert	3	8.30%
	Tourist	10	27.80%
	Student	14	38.90%
	General public	9	25%

Table 1 showed the following: Gender: 44.4% of the respondents were male (n=16), and 55.6% were female (n=20). Age: 56.6% of the respondents were aged 15-25 years (n=20), 25% were aged 26-35 years (n=9), and 19.4% were aged over 30 years (n=7). Occupation: 8.3% were experts (n=3), 27.8% were tourists (n=10), 38.9% were students (n=14), and 25% were members of the general public (n=9).

Part 2: Evaluation of the Satisfaction Level

This part explores the evaluation of the satisfaction level with the efficiency of the development of the mobile application for promoting community tourism in Aumanau Bay, Kalowo Nuea Sub District, Mueang District, Narathiwat Province using the black-box testing method

2.1 Usability Testing

Table 2: Evaluation of Performance and Satisfaction Levels of the Application

Usability Testing	$\bar{X}$	S.D.	Interpret results
1.Ease of use of the application	4.33	.63	Very
2. Appropriateness of the vocabulary used	4.44	.60	Very
3.Appropriateness of the use of font color	4.69	.57	The most
4. Appropriateness of the placement of components on the screen	4.08	.55	Very
5.Clarity of images and fonts	3.55	.55	Very
Total	**4.22**	**.69**	**Very**

Table 2 showed that the overall satisfaction with the usability of the mobile application was high ($\bar{X}$ = 4.22, S.D. = .69). The three items that users were most satisfied with were: The Appropriateness of the use of font color ($\bar{X}$ = 4.69, S.D. = .57). The appropriateness of the vocabulary used ($\bar{X}$ = 4.44, S.D. = .60). The ease of use of the application ($\bar{X}$ = 4.33, S.D. = .63).

2.2 Evaluation of the Efficiency of the System's Functional Performance (Functional Testing)

Table 3: The results of the evaluation of the efficiency of the system's functional performance (Functional Testing).

Functional Testing	$\bar{X}$	S.D.	Interpret results
1.Accuracy of membership registration	4.77	.42	The most
2. Accuracy of trip booking	4.33	.47	Very
3.Accuracy of payment	4.44	.55	Very
4.Accuracy of notification	4.72	.51	The most
Total	**4.56**	**.52**	**The most**

Table 3 showed the following conclusions about the functionality of the system: Overall satisfaction with the functionality of the system was high ($\bar{X}$ = 4.56, S.D. = .52). The three items that users were most satisfied with were: Accuracy of membership registration ($\bar{X}$ = 4.77, S.D. = .42). Accuracy of notification ($\bar{X}$ = 4.72, S.D. = .51) and Accuracy of payment ($\bar{X}$ = 4.44, S.D. = .55)

2.3 Evaluation of the Efficiency of Data Security in the System (Security Testing)

Table 4: The results of the evaluation of the efficiency of data security in the system (Security Testing).

Security Testing	$\bar{X}$	S.D.	Interpret results
1. Access using Google account	4.30	.32	Very
2. Access according to assigned rights	4.33	.47	Very
3. OTP verification	4.11	.66	Very
Total	**4.25**	**.56**	**Very**

Table 4 showed the following conclusions about the data security of the system: Overall satisfaction with the data security of the system was high ($\bar{X}$ = 4.25, S.D. = .56). The three items that users were most satisfied with were: Access according to assigned rights ($\bar{X}$ = 4.33, S.D. = .47). Access using Google account ($\bar{X}$ = 4.30, S.D. = .32) and OTP verification ($\bar{X}$ = 4.11, S.D. = .66)

2.4 Evaluation of System Performance (Performance Testing)

Table 5: The results of the system performance evaluation (Performance Testing)

Security Testing	$\bar{X}$	S.D.	Interpret results
1.Overall system performance	4.55	.55	The most
2. Processing speed	4.33	.53	Very
3.Display speed	4.58	.50	The most
4.Recording speed	4.38	0.59	Very
Total	**4.46**	**.55**	**Very**

Table 5 showed the following conclusions about the system performance: Overall satisfaction with the system performance was high ($\bar{X}$ = 4.46, S.D. = .55). The three items that users were most satisfied with were: Display speed ($\bar{X}$ = 4.58, S.D. = .50). Overall system performance ($\bar{X}$ = 4.55, S.D. = .55) and Recording speed ($\bar{X}$ = 4.38, S.D. = .59).

Part 3: Other suggestions

3.1 Problems and Solutions

1. More information should be added about tourist attractions, accommodation and restaurants.

Solution: The application should be developed to cover all districts of Narathiwat Province.

2. A section should be added to recommend places to visit and provide directions to those places.

Solution: The display of directions to tourist attractions, accommodation and restaurants in Narathiwat Province should be linked to Google Maps API to show the user's location. Users should be able to pin their current location and navigate to the desired tourist attraction, accommodation or restaurant quickly and easily.

3.2 Recommendations from the Operation

1. More information should be added about tourist attractions, accommodation and restaurants.
2. A section should be added to recommend places to visit and provide directions to those places.
3. The application should be uploaded to the Play Store so that it can be used.

Conclusion

The development of a mobile application for promoting community-based innovative tourism in Ao Manao, Khlong Luwo Nuea Sub-district, Mueang District, Narathiwat Province aimed to: Develop a mobile application for promoting this specific type of tourism in the mentioned location and Evaluate the performance of the developed application. The developers recognized the importance of utilizing mobile applications for promoting community-based innovative tourism in Ao Manao. This decision was driven by the increasing convenience of mobile applications in everyday life. The application was developed with the following goals: Provide a convenient way for customers to book tour packages. Make it easy for customers to access all available tour packages. Offer a convenient way for customers to book tour packages online. The development process utilized the following technologies: React Native: A library framework and JavaScript language for front-end development. Node.js: A back-end development platform. Firebase: A NoSQL database system. Testing was conducted to verify the application's correctness, identify operational errors, and evaluate its performance with users. The results confirmed the application's accuracy, functionality, and user-friendliness. The development process yielded the following conclusions, opinions, problems, solutions, and recommendations: Conclusions: The mobile application was successfully developed. The application was accurate, functional, and user-friendly. It serves as a valuable tool for promoting community-based innovative tourism in Ao Manao. Opinions: The application is a valuable tool for promoting community-based innovative tourism. It is easy to use and convenient. It serves as a valuable resource for tourists and tour operators. Problems: Some users might encounter difficulties using the application. Compatibility issues with some devices might exist. The application might not be available in all languages. Solutions: User training and support should be provided. The application should be developed for multiple platforms. Translation into multiple languages is recommended. Recommendations: Promote the application to both tourists and tour operators. Continue development and improvement of the application. Conduct research on the impact of the application on community-based innovative tourism.

Evaluation of the Performance of the Mobile Application for Promoting Community-Based Innovative Tourism in Ao Manao A total of 36 users were surveyed to evaluate the performance of the mobile application. The results indicated high user satisfaction with the overall application ($\bar{x}$ = 4.37, S.D. = .58). The evaluation of the application's functionalities aligned with the findings of Tunpanit et al [7]. and (Kunlerd, 2020), demonstrating the application's effectiveness as a channel for tourism information in Narathiwat Province. It was found to be efficient, appropriate, and suitable for real-world use, further aligning with the findings of (Kunlerd, 2020). The development of the application followed the System Development Life Cycle (SDLC), a 7-step process (Kunlerd, 2020). This is consistent with the research of (Gurudev et al., 2022), which provides a comparative analysis of various Software Development Life Cycle (SDLC) models. The researcher meticulously studied and implemented each step, contributing to the positive evaluation of the system. The developed mobile application for promoting community-based innovative tourism in Ao Manao successfully met various user needs, including: Membership registration system. Public relations system. Booking and payment system. Reporting system and Notification system. The application fulfilled the developers' requirements and achieved the predetermined objectives.

Acknowledgements

The development of the mobile application for promoting community-based innovative tourism in Ao Manao, Khlong Luwo Nuea Sub-district, Mueang District, Narathiwat Province was successfully completed. This achievement would not have been possible without the generous support and guidance offered by various stakeholders throughout the development process. The researcher extends his sincere gratitude to all of them.

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ID 163
Sustainable Tourism Management: A Case Study of Ban Thon Community Narathiwat Province

Zaidan Jesni[1], Ibtisam Maseng[2], Suhainee Masae[3], Venusreen Puteh[4], Ibrahim Sarimasae[5], Chonthicha Maliprom[6] and Phornthip Manopkham[7]*

[1] Student of Public Administration Major, Management Science Faculty, Princess Narathiwas University; Saidan31461@gmail.com
[2] Student of Public Administration Major, Management Science Faculty, Princess Narathiwas University; 630705038@pnu.ac.th
[3] Student of Public Administration Major, Management Science Faculty, Princess Narathiwas University; Suhainee2545th@gmail.com
[4] Student of Public Administration Major, Management Science Faculty, Princess Narathiwas University; Weenassrin@gmail.com
[5] Lecturer of Public Administration Major, Management Science Faculty, Princess Narathiwas University; lbrahimpnu@gmail.com
[6] Lecturer of Public Administration Major, Management Science Faculty, Princess Narathiwas University; Lovelynut2524@gmail.com
[7] Lecturer of Public Administration Major, Management Science Faculty, Princess Narathiwas University; manopkham.p@gmail.com

* Correspondence: manopkham.p@gmail.com

Abstract

This research is a study of sustainable tourism management: A case study of Ban Thon community Narathiwat Province The objectives are 1) to study the principles of sustainable tourism management In the Ban Thon community Narathiwat Province 2) To study factors affecting sustainable tourism management. In the Ban Thon community Narathiwat Province. It is qualitative research. Using an in-depth interview tool by interview method with important information providers including. There were 3 local representatives, 5 entrepreneurs in Ban Thon community, and 8 representatives of occupational groups in Ban Thon community, totaling 16 sample groups. By analyzing the essence and analyzed and discussed descriptive data.

The results of the study found that 1) principles of sustainable tourism management in Ban Thon community. Can use principles from infrastructure development in communities Supporting the local economy, education, culture, creating cooperation. 2) Factors affecting sustainable tourism management in the Ban Thon community. Narathiwat Province consists of 4 aspects: good management social and cultural aspects resources and environment learning aspect. Sustainable tourism management without destroying resources and the environment and bring raw material resources within the community to maximum benefit. Create income, have work, and not cause unemployment. It also stimulates the tourism economy. And there is the Khok Khian Subdistrict Administrative Organization to support and promote the organization of various activities and welfare. The source is related to participation in community development. and develop tourist attractions within the community Currently, the Ban Thon community Narathiwat Province. It is a local natural and cultural heritage.

Keywords: Tourism management, Sustainable development, Ban Thon community

Introduction

Sustainable development must be managed, planned, and have clear goals. It should emphasize the importance of the economy, cultural society, and environment in an integrated form to revive the economy for the better. Thailand

has its own development framework that is being used to achieve sustainable development based on the Sufficiency Economy Philosophy. By relying on the principles of wisdom and honesty, following the Sufficiency Economy Philosophy, sustainability has been recognized as an important principle of the 9th National Economic and Social Development Plan (2002–2006). It is a plan that invokes the philosophy of the Sufficiency Economy. According to the royal speech of His Majesty the King, King Rama IX, it is used as a guideline for development in the Narathiwat Province Development Plan (2018-2022).

The country will be able to progress if it must be coupled with the power of the people and the community members who are the driving force. In order to promote the learning process and strengthen the participation of the people, including those within the area, it is necessary. At present, people's way of life is affected by various factors, whether economic, social, or environmental conditions, some of which may come from human actions. Therefore, causing problems to follow. It is necessary to give importance to participation or development of that area to restore it as before. And each community must have volunteers with consciousness in their own community (NBT Narathiwat, 2022).

Narathiwat Province is one of three southern border provinces. It has beautiful nature, distinctive features, and a unique culture. Including the economic center, it also has a rich environment. It is a province in the lower southern region. which has the second largest population in the southern region based on a stable economic foundation and a self-reliant community. According to the Narathiwat Province Development Plan 2018-2021 in Narathiwat Province, there is development and strengthening of economic potential. 1) Agricultural sector 2) Trade 3) Investment 4) Services 5)Tourism to be strong and sustainable on the basis of the sufficiency economy under the trend of globalization, with support for increasing the potential of the production base from the existing income base both in the country and abroad in Narathiwat Province, there are a total of 13 districts, which in Mueang District consists of 7 subdistricts: 1) Kaluwo Subdistrict, 2) Kaluwo Nuea Subdistrict, 3) Lam Phu Subdistrict, 4) Khok Khian Subdistrict, 5) Bang Nak Subdistrict, 6) Bang Po Subdistrict, 7) Manangtayo Subdistrict. The area aims to develop the community in many areas. Create communities for development, such as career development or income generation for people in the area. Whether it is opening tourist attractions for people to come and relax. Come have fun and learn about the culture and lifestyle of the villagers. There probably aren't many. To see, learn and experience the surrounding environment. To become a popular tourist destination, such as a beach house resort villa, seaside cafes, as well as attracting business people to come together to do business and invest. Because it can be seen that the area is next to the beach. Along with nearby airport including in learning and changing behavior leads to participation in problem solving and community development as well and conservation in developing communities to be stable, prosperous, and create income for themselves and people in the surrounding area as well. Tourism in Narathiwat Province has many forms. The province was originally called the Southern Trade Center. Because it is a border city. Its border connects with neighboring country Malaysia. Most tourists are Malaysian tourists and people from other provinces. Later, the form of tourism became more diverse. Whether it is nature tourism cultural tourism and community tourism This form of community tourism (Community Based Tourism) therefore receives more attention from tourists. Especially Ban Thon NBT Narathiwat (2023).

One important tourist attraction in Narathiwat Province is Ban Thon Community or Ban Thon Beach. This is one of the most beautiful beaches in Narathiwat Province, and it has received the attention of tourists because it is a beautiful, clean, and fertile beach. It is also a place where you can see planes landing and taking off in the near distance and capture impressive photos, just like in Phuket. You can also see the view of the coconut grove. The charm of Ban Thon Beach is that it is a Thai-Muslim village that still maintains the traditional fishermen's way of life. Along the route, it is still interesting because you will learn about royal initiative projects that received royal grace from His Majesty the King Rama IX and His Majesty the current King, who graciously established a special arts and crafts project. This project focuses on villagers' income by using raw materials and social costs of the area, as well as local wisdom. The important thing is not to make villagers go out and look for work. In the Ban Thon area, there is also the PSU Pattani radio station (2021).

What can be done to make the Ban Thon community a sustainable tourist destination without destroying resources and the environment? Instead, it is about bringing raw material resources within the community to maximum benefit, creating income, providing work, and not causing unemployment. It also stimulates the tourism economy. At present, there is a unit of the Khok Khian Subdistrict Administrative Organization as the promotion department in organizing various activities and welfare related to participation in community development and developing tourist attractions within the community. Currently, the Ban Thon community in Narathiwat Province is a local natural and cultural heritage (Siamrath Online, 2023).

Sustainable tourism management: A case study of Ban Thon community Narathiwat Province. Therefore, it is important and necessary to understand tourism management in the community. Both tourism management in a way that preserves the environment Society and culture, way of life, with emphasis on promoting sustainable local economic prosperity and conditions that lead to the development of tourism management for the sustainable and long-lasting recovery of the Ban Thon community.

Research objectives

1) To study sustainable tourism management In the Ban Thon community Narathiwat Province.

2) To study factors affecting sustainable tourism management. In the Ban Thon community Narathiwat Province

Methodology

Research method: It is qualitative research, using an interview tool by analyzing the essence.

Key informants: Local representatives, localities, entrepreneurs in the Ban Thon community. Representative of the Ban Thon community professional group Narathiwat Province, 16 people.

Area: Ban Thon Phi Chuen Community at Village No. 11 and Village No. 12, Khok Khian Subdistrict, Mueang District, Narathiwat Province.

Period: The research study was conducted from July-October 2023.

Data collection

1.) Primary data collection was conducted through interviews. It is an in-depth interview. By giving an interview director of the Public Health and Environment Division and Social Welfare Division in the units of the Khok Khian Subdistrict Administrative Organization (Subdistrict Administrative Organization), Narathiwat Province, community leaders, professional entrepreneurs and representatives of professional groups in the Ban Thon community area Narathiwat Province. The interview questions were open-ended questions about Sustainable tourism management In the Ban Thon community.

2.) Secondary data was conducted through a study of relevant documents such as websites, research documents to reinforce educational issues for completeness and completeness in education.

Research tools

Use an interview form in gathering.

Examining qualitative data

1.) In-depth Interview: The in-depth interview is an interview to analyze the essence. The researcher will visit the area to conduct interviews on the issues according to the specified interview format. The questions will cover all research objectives. The interviews lasted 30 minutes each, and the researcher used form filling and audio recording for the interviews during the data collection period of 2023.

2.) Study from document data: including academic documents, research reports, articles, and theses.

Data analysis

1) Checking the reliability of information by applying the triangular inspection method, by storing information on the same subject from multiple sources in order to verify the accuracy.

2) Analyzing data from interviews by taking data from interviews and transcribing them to get data for analysis; used inductive reasoning to organize data and link data to be consistent with the main research context.

3) Analyzing problem data and making suggestions for sustainable tourism management in the Ban Thon community, Narathiwat Province, using the synthesis method to present the work with descriptions in order to reach a conclusion.

4) Presenting information obtained from concepts, theories, and interviewee groups, gathering and interpreting it in order to reach conclusions for the study. The results of the study are presented descriptively, explaining the narrative text, covering the essence of the information, and being consistent with the research objectives.

Results and Discussion

Qualitative research on “Sustainable tourism management: A case study of Ban Thon community Narathiwat Province” aims to study the principles of sustainable tourism management. In the Ban Thon community Narathiwat

Province and to study factors affecting sustainable tourism management In the Ban Thon community Narathiwat Province **f**rom the study results.

The researcher has presented the results of data analysis as follows.

1. At present, there is tourism management. Sustainable tourism management must be improved; and fix it for development in the Ban Thon community Narathiwat Province has undergone various operations as follows.

1.1) Planning: Setting a long-term plan or budget for tourism management that focuses on conservation and sustainability by setting goals. Whether it is a matter of nature, environment, society.

1.2) Assessment study: Surveying the area to find the cause and study the impact on the environment; and society from tourism in the area through the needs of people in the area.

1.3) Measurement and Evaluation: Measure and evaluate results for tourism management. To further improve plans and processes.

1.4) Promoting sustainable tourism: By creating attractions in the areas of nature, the environment, and eco-systems, the Ban Thon community has management. It has features such as tourist attractions, places to stay, places to eat, and a center for souvenir products from the Ban Thon community. And there is a learning center at the Khok Khian Subdistrict Administrative Organization, consisting of 8 agencies involved. Which leads to the creation of learning activities understanding of lifestyle and community culture for tourists. By creating awareness and knowledge in preserving natural resources and culture among people in the community; and visitors also have various social welfare activities occurring within the community develop tourist attractions. By putting knowledge and skills to good use, such as making boats and replicas. Krajut weaving, cradle weaving and bird cage making. These things are the wisdom of the villagers. By taking raw material resources within the community to create them into products, generating income and creating jobs for people in the community. It also stimulates the tourism economy.

In terms of entrepreneurs, it can be observed that there is promotion of creative business management. Leads to local development. By creating a memorable image create an attractive atmosphere for tourists within the Ban Thon community. With which you can have fun or experience beautiful, peaceful scenery. Whether it is local food that is very delicious such as Nasi Lue Moh, Pulo Pakhi, which is difficult to find, is a native food of Muslims in Narathiwat Province, which will be found that professional entrepreneurs in the Ban Thon community area Narathiwat Province. Has opened a channel to create job opportunities for people in communities in the three southern border provinces. By promoting business management, creativity leads to local development. By taking into account the quality of food products Attention to service that is special and different stands out from other places. In terms of sourcing fresh ingredients every day. To maintain customers sustainably impress and the shop itself helps the villagers. In terms of raw materials and labor, there is management and training for employees. To create love for work and can take responsibility for their duties well Which neighboring countries like Malaysia or customers from other provinces are interested in and have received very good feedback. As a result, many shops in the Ban Thon community area are widely known on social media.

2. Sustainable tourism management in the Ban Thon community Narathiwat Province. To achieve sustainability in environmental conservation. This can be done with the following steps.

Environmental conservation development in Ban Thon community It creates incentives such as ecotourism.

2.1) Nature and natural environment.

- Welcoming tourists to respect the environment and nature in the area.
- Support projects within the community regarding environmental conservation tourism, such as planting trees and eliminating garbage in tourist areas.
- Support the development of important places in the community.
- Adventure and tourism in terms of offering natural opportunities such as horseback riding and white-water rafting.

2.2) Recognition of the diverse cultures of the population, both Muslim and Buddhist, living together in this community.

- Promote the sharing of joint activities as well as experience the way of life in a multicultural society on the southern border.
- Create opportunities for local pride, such as supporting and promoting local products from villagers' handicrafts. Including souvenirs

2.3) Community support.

- Support local businesses and products by promoting the sale of local products and local food.
- Support training and talent development in the community

2.4) Analysis and evaluation.

- Budgeting for community development. It is an important main mission. Because it will be an analysis of the results of operations. and spending results in the past fiscal year
- Evaluate and improve sustainable tourism management and support environmental conservation and local development in the long term.

3. Conditions affecting sustainable tourism management in the Ban Thon community Narathiwat Province.

3.1) Good management Khok Khian Subdistrict Administrative Organization. There is already development in the area; and promoting products in terms of quality About various packages received from enterprises such as boat making and model making (with more than 200 items).

3.2) Social and cultural aspects living together happily. There are strong community leaders, including the village headman, the mayor, and the imam, religious leaders. And the Khok Khian Subdistrict Administrative Organization has activities on both traditions and culture included in the plan every year. Throughout the study, teachers will be called from outside to provide knowledge. And there are activities to promote sports, namely playing football (organized more than 24 times) and there is a gate that goes into saladan through the ax handle that goes to Singapore, Australia which is the entrance door to Narathiwat province and this is Ban Thon which has an airport.

3.3) Environmental aspect Public Health and Environment Division. There is management of the environment in the area such as garbage collection and cleanliness. Khok Khian Subdistrict Administrative Organization Received many awards such as the Good Rowet Award. Good Organizational Management Award Rescuer Development Award And this year received the Strong Country Award.

3.4) In terms of places to stay, resorts or homestays along the sea at the southern border of Narathiwat where you can see airplanes landing. Overlooking the coast listen to the waves complete with many amenities and resorts that have full response every day throughout the month, such as HD Homestay and Ban Thon Beach resort, which are popular with long-term bookings. And there are also many accommodations next to the sea that are ready to provide a place to rest for tourists in the Ban Thon community Narathiwat Province.

3.5) Food

- The highlight in terms of food is freshness, cleanliness, good quality, cheap price, with the opening period, such as the famous Por.Pla noodle shop in the Ban Thon community area Narathiwat Province. Por. Pla noodle shop fresh fish is bought and sold from local fishermen. To make products for the shop In cooking food, meatballs, kru po, and the shop itself also helps the villagers in terms of bringing snacks made by the villagers to sell in front of the shop. And not only that, there are many YouTubers who are interested in this. Therefore, making the shop more well known or publicized on social media. As a result, there are customers in other provinces or abroad who want to stop by and try it. The Por Pla noodle shop has received very good feedback.
- Idyllic House Cafe and Summer Thon are both popular restaurants in the Ban Thon area. That is not very far from the city. It's a shop with a nice atmosphere and cool breeze next to the sea. The shop Idyllic House is an old wooden house mixed with bare cement, 2 floors, with a vintage feel. There are indoor and outdoor seats that are uniquely decorated in an antique style. The shop has an opening for a position. For those who have no experience in making drinks. The shop will have P'King. The owner of Idyllic House Cafe came to interview, test quality and find suitability. Including perspective limitations. The model is management and teaching for those without experience. The shop has a salary per day, benefits, social security, and various accidents, and a holiday once a week. The objective or idea for the shop owner of Idyllic House Cafe is to reflect the opportunity for children in the three southern border provinces. Which is definitely a good result. In terms of providing benefits to society, religion, and oneself, and most importantly, it is creating an image and creating opportunities for people in the community. In the three southern border provinces. (For that reason: being interested in each other)
- Summer Thon Shop, a new landmark in Narathiwat For sea lovers, coffee lovers and those who want to visit the sea in our country. You can sit and eat comfortably, both drinks and many delicious food menus, salads, appetizers, along with a photo corner with a view of the sea, and the highlight is being under the entire plane. Which if you want to take a clear picture you should come before 4:00 p.m. because it is landing time.

3.6) Learning aspect Khok Khian Subdistrict Administrative Organization. There is a learning management center. Create opportunities for people in the community about the environment and local culture. By organizing training and promoting education Including many other agencies involved in learning together. And every week there

will be a meeting between the Khok Khian Subdistrict Administrative Organization; and community leaders were called People in every village in that village area Let's meet and discuss together. In order to suggest press releases on various stories in order to exchange opinions. To carry out the work and find clear conclusions and leads to the development of a sense of success leading to further corrections.

4. Sustainable tourism management in the Ban Thon community Narathiwat Province. It is necessary to consider conditions affecting sustainability.

4.1) Environmental conservation within the community: It is the preservation and control of the use of natural resources in tourist areas. To prevent damage to nature and the environment.

4.2) Support local businesses: Promote local businesses. From the skills of the villagers. Whether it is making boats and replicas, weaving hammocks, and weaving baskets, etc., there will be representatives of the professional groups of the Ban Thon community that are different. This is to support the production of local goods and services leading to the stimulation of local markets.

4.3) Community connection: creating connections between tourists and people in the community to build friendships and create opportunities. Which is an exchange of knowledge between each other in the field of tourism?

4.4) Building cooperation: Supporting cooperation between people in local communities; and organizations that come to help provide knowledge in tourism management.

4.5) Collection leads to evaluation: evaluate, improve continuously. To achieve efficiency and sustainability.

4.6) Quality control: Creating quality standards for services and tourism. By giving importance with efficiency and effectiveness of services paying attention to these conditions will help make tourism management in the Ban Thon community sustainable. Both matters of environmental conservation local culture and create opportunities for long-term local development.

Conclusion

1. Results of the study of principles of sustainable tourism management in the Ban Thon community Narathiwat Province. Found that tourism management in the Ban Thon community is sustainable Narathiwat Province. There are improvements and resolve towards development in the community By Khok Khian Subdistrict Administrative Organization.

- Community infrastructure development: Building and improving infrastructure such as roads, water systems, and electrical systems to create convenience for the quality of life of the people.
- Supporting the local economy: Promoting the production of local products from handicrafts, trade, and produce to generate income; and stable work in the community - Support for education and health: Create opportunities for children to receive a good education. And there is social welfare that takes care of vulnerable groups to help build strength in the community, such as health care services for the elderly. Preventing family violence Community development and promote education at various levels.
- Cultural support and local arts: create opportunities for locals to disseminate and love local arts, culture, and traditions to create a sense of belonging to the community.
- Creating awareness of environmental conservation: Promote resource-saving management and reduce waste reduction campaigns.
- Building partnerships: Build partnerships with government agencies. tourism organizations and the private sector to support development projects in the community.

2. Results of the study of conditions affecting sustainable tourism management in the Ban Thon community Narathiwat Province. Found that factors affecting sustainable tourism management in the Ban Thon community Narathiwat Province consists of 4 aspects: good management social and cultural aspects resources and environment. Learning aspect Sustainable tourism management in the Ban Thon community Narathiwat Province. Let the Ban Thon community be born as a sustainable tourist destination. Without destroying resources and the environment instead, it is about bringing raw material resources within the community to maximum benefit. Create income, have work, and not cause unemployment. It also stimulates the tourism economy. And there are units of the Khok Khian Subdistrict Administrative Organization as the promotion department in organizing various activities or welfare. The source is related to participation in community development; and develop tourist attractions within the community Currently, the Ban Thon community Narathiwat Province. It is a local natural and cultural heritage.

In terms of good management, it was found that the Khok Khian Subdistrict Administrative Organization. There is already development in the original capital area. And there is promotion of OTOP products by villagers. In terms of handicraft products Produced from local raw materials such as the professional group making boats and replicas and large boats, the Krajut basketry professional group. Cradle weaving professional group Professional group of bird cage makers. Fishery occupation group. To focus on utility as the main source of income in the community Khok Khian Subdistrict Administrative Organization Therefore, attention is paid to the quality of the products, which have more than 200 items. In terms of society and culture, it was found that Narathiwat Province is known for living in a multicultural society. It is a very good thing that all nations and religions can be in harmony and help each other. Living happily together must include community leaders, kamnans, presidents, religious leaders, etc. Good leaders must go hand in hand with development. responsible Know how to manage the country to achieve success. and must be a good role model for society and the community.

In terms of resources and environment, it was found that within the Ban Thon community area Narathiwat Province. There are interesting tourist attractions. Whether it's a local product famous local food. The community can create local tourist attractions. To attract tourists and create personal and community income from tourism in the long term. But emphasis should be given to conservation and sustainable use of resources. In order not to destroy the environment in that community Public Health and Environment Division. It has come to play an important role in managing welfare, education, and organizing activities in the community regarding environmental conservation in the area. By creating green space in the community. Area where trees can be planted and the aspect of cleanliness and garbage disposal in order to reduce the amount of garbage.

In terms of learning, it was found that development must know how to learn together. and can actually be further developed. This leads to a process of learning, acknowledging and correcting towards further development such as using technology. In terms of supporting products, services or promoting various stores. Through the internet world Let people see the perspective of the lives of villagers in the Ban Thon community area. Narathiwat Province and there is support for education towards a career it supports vocational education and internships. To increase opportunities for unemployed people to find work and income. Creating sustainable learning will provide the Ban Thon community with the knowledge and skills needed to develop and thrive in their local environment.

From the results of the qualitative study, it can be concluded that tourism management in the Ban Thon community is sustainable. Narathiwat Province Overall, it is at a good level. Tourism management in Ban Thon community. It is considered the development of resources and environment in the community to benefit the tourist attractions within the community. Sustainable tourism in the Ban Thon community can generate income for the community and corporate agencies. Professional entrepreneur and various occupational groups it must be coupled with support for local environmental conservation. It also strengthens the healing wisdom. and long-term local culture for the community.

Sustainable tourism management in the community, in terms of society and culture, found that there are diverse cultures and ethnic groups. There is a mix of both local and external cultures. As a result, a multicultural and learn and exchange between people in the community and tourists This is consistent with Lertphongmanee (2022). Who studied community tourism management for sustainable tourism development Society and Culture. The success of tourism management will lead to the development of the community in terms of the community economy, society, and people in the community to live well. and the environment that has been preserved.

Sustainable community tourism management In terms of resources and environment, it was found that organizing tourism in community areas for sustainable recovery can be done in many ways, such as creating activity Ecotourism water management and improve and develop water management. Including reducing water loss in the water management system. An environmental impact assessment has been done. Whether it is energy use. In order to create a who studied community tourism management based on the concept of sufficiency economy under the dynamics of Ban Mae Kampong, Huai Kaew Subdistrict, Mae on District, Chiang Mai Province, found that community tourism managed by maintaining economic balance Society and culture Regardless of whether it is considering the safety and quality of water intended for consumption.

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1. Study of principles of sustainable tourism management In the Ban Thon community Narathiwat Province. From the results of this study, it is known that Sustainable tourism management In the Ban Thon community Narathiwat Province. Currently there are improvements. and resolve towards development in the community by improving the infrastructure in the community regarding quality of life Supporting and promoting. The local economy

and professional groups within the community including various social welfare studies both government agencies tourism organization and the private sector to continue supporting development projects in the community to ensure sustainability.

2. Study of factors affecting sustainable tourism management In the Ban Thon community Narathiwat Province. Found that factors affecting sustainable tourism management In the Ban Thon community Narathiwat Province. Must be coupled with good management. There is a society and culture that is pleasant to live in. There are pure resources and environment; and learning about each other through tourists and people within the community so that the Ban Thon community will emerge as a sustainable and memorable tourist destination. Currently, the Ban Thon community Narathiwat Province It is a local natural and cultural heritage.

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Mobile Application Development for Cultural Tourism in Narathiwat Province

Prarak Amornsak[1], Pakarat Thongjan[1], Amilee Sala[1], Trasuening Mayi[1] and Surachet Sangkhapan[1]*

[1] Faculty of Management Sciences Princess of Naradhiwas University Narathiwat Province 96000

* Correspondence: surachet.sa@pnu.ac.th

Abstract

This research was research and development (R&D) research. It aimed to: 1) study the mobile application development process 2) design and develop a cultural tourism mobile application for Narathiwat Province 3) evaluate the efficiency of the mobile application. The research process began with a study of cultural tourism attractions in Narathiwat Province. The design was based on the system development life cycle (SDLC). The front-end tools used were Expo and React Native, which were JavaScript library frameworks. The back-end tools used were Laravel Framework, which was a PHP framework, and MySQLi database. The modules included a member system, a tour package system, a hotel booking system, a car rental system, a route tracking system, a payment system, and a data reporting system. The population and sample groups were obtained by purposive sampling, consisting of 5 experts, 17 tourists, 8 students, and 5 general people, for a total of 35 people. The research tools were then used to calculate the content validity of the questions by three experts. Following that, the research tools were implemented. The results of the evaluation of user satisfaction with the efficiency of the mobile application by five experts showed that the overall mean was at a high level ($\bar{x}$ = 4.35, S.D. = .51). Similarly, the results of the evaluation of user satisfaction with the efficiency of the mobile application revealed that the overall mean was at a high level of satisfaction ($\bar{x}$= 4.3, S.D. = .58)

Keywords: Mobile application, Promote tourism, Cultural tourism

Introduction

Thailand was a country with high potential in terms of tourism resources. It was rich and diverse in terms of natural tourist resources that impressed with its beauty and naturalness. It also had historical, archaeological, and religious sites that reflected the local civilization. There were also tourist attractions that included arts, culture, traditions, and activities that were different in each society. Tourism in the three southern border provinces of Thailand was religious and cultural tourism, Sino-Buddhist-Islamic. Narathiwat Province was a southern border province with many religious and cultural tourist attractions and beautiful and interesting natural tourist attractions. (Investment Facilitation Center, Narathiwat Province, In 2020 (Investment One Stop Service Center, Narathiwat Province, 2018) , which was the period of the COVID-19 pandemic, there were 19,525 tourists visiting Narathiwat Province, generating 72.09 million baht in revenue for the province. Most of the revenue came from Thai tourists. (Economic, Tourism and Sports Division, Ministry of Tourism and Sports, 2020) (Ministry of Tourism and Sports, Tourism and Sports Economics Division, 2020). In addition, the promotion of local cultural tourism in Narathiwat Province could also be done through community participation. Community participation played an important role in community product development and cultural tourism could support social equality. Inclusive workshops and community targeting techniques could empower local communities to design their own future development and understand the opportunities and impacts of tourism. In addition, the use of social media as a marketing tool could help promote cultural tourism in the region. It was important to use social media platforms for advertising, online marketing and skill development, and knowledge to attract tourists to engage with the local community. Taking advantage of people and taking advantage of social media was Another interesting idea for the younger generation. It was a research study that aimed to use gaming to explore tourist attractions and provide historical knowledge to visitors in Indonesia. This would allow

Narathiwat Province to effectively promote local cultural tourism. Narathiwat Province also had a variety of tourist attractions that attracted people to choose to travel. There were new places opening continuously, making Narathiwat Province, both within the city and surrounding areas, famous and well-known. Once the tourist destination was known, it could also be publicized to increase channels for tourist attractions to be famous and eventually increase the number of tourists.

Therefore, the researcher proposes to research and develop a mobile application for cultural tourism in Narathiwat Province. This application will gather information on cultural tourist attractions within the province, providing potential visitors with interesting details and reducing any anxieties stemming from media portrayals. Users will find information on accommodation, attractions, restaurants, car rentals, and exciting activities such as sea and mountain tourism, rafting, observing the sea fog and hornbills, all while exploring the rich cultural heritage of the area. Additionally, the application will offer travel insurance to further enhance visitors' confidence in their safety.

Methodology

This research aims to develop a mobile application promoting cultural tourism in Narathiwat Province for both tourists and business operators. Users can book tour packages, hotel accommodations, and make payments directly within the application. To achieve this objective, the researcher adopted the System Development Life Cycle (SDLC) methodology. The SDLC ensures that the software meets user requirements, is delivered on time and within budget, and is of high quality (Boggs, 2004; Agarwal et al., 2023; Patel, 2023; Leloudas, 2023) which involves the following steps: 1) Problem analysis and feasibility study, including a review of relevant documents and research. 2) Application component analysis. 3) User interface design. 4) Mobile application development and system testing. 5) Application deployment and refinement. To analyze problems and system feasibility, the researcher first gathered data from the population and sample groups, including existing research studies. This data encompassed information on Narathiwat Province's tourist attractions, monthly festivals, and local customs and traditions. The analysis of this data informed the mobile application prototype development. Following the data analysis, the researcher designed the user interface and system architecture, which included: 1) Context diagram 2) Data flow diagram (DFD) 3) Entity-relationship diagram (E-R diagram) 4) Data dictionary 5) User interface design 6) Report design. The final step involved delivering these design specifications to the mobile application development team. Following development completion, the system underwent testing to identify and address any coding issues. Subsequently, the mobile application was tested with the target group using a black box testing approach. This encompassed usability, functionality, performance, and data security testing. A user satisfaction survey, designed to evaluate the mobile application's effectiveness, employed a 5-point rating scale as outlined by Boonchom Srisaean (Boonchom, 2002). Based on expert evaluations and the survey results, the system was further refined. Finally, data was collected and analyzed using statistical software to calculate the mean and standard deviation.

Results and Discussion

The Narathiwat Cultural Tourism Mobile Application development resulted in the following: Context Diagram Figure 1 : This diagram illustrates the overall flow of data entering and exiting the system. It involves three actors: Customers: Register to view tour package details and make payments. Registered Users: Access information and select trips. Administrators: Add, delete, edit users and trips, and view payment details.

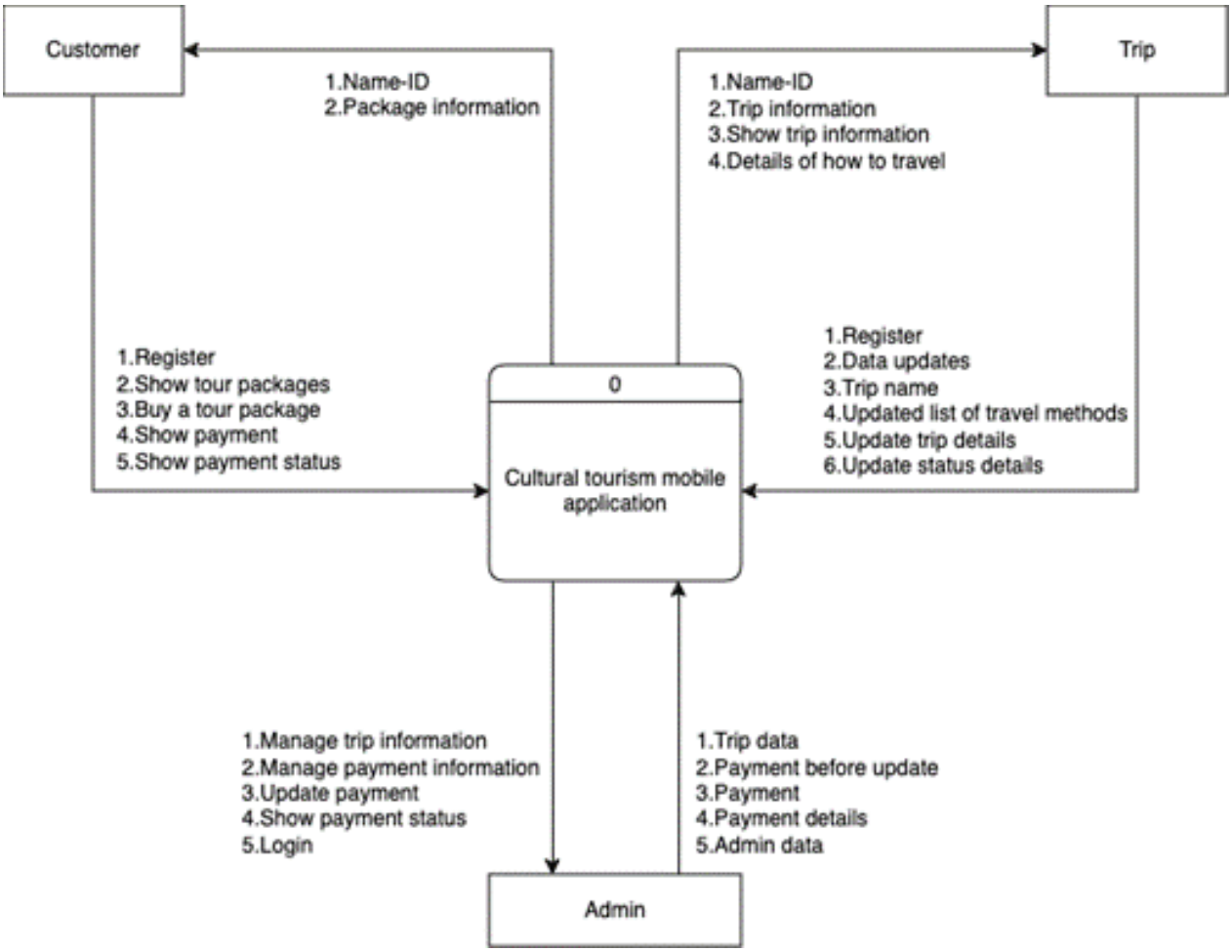


Figure 1: Context Diagram

Figure 2 depicted the Data Flow Diagram (DFD), illustrating the systematic flow of interrelated data: Member Registration: Users registered for an account. Login: Registered users accessed the system. Tour Booking: Users booked tour packages. Payment: Users paid for booked tours. Tracking: Users tracked booking status. Reporting: System generated reports on *bookings* and payments.

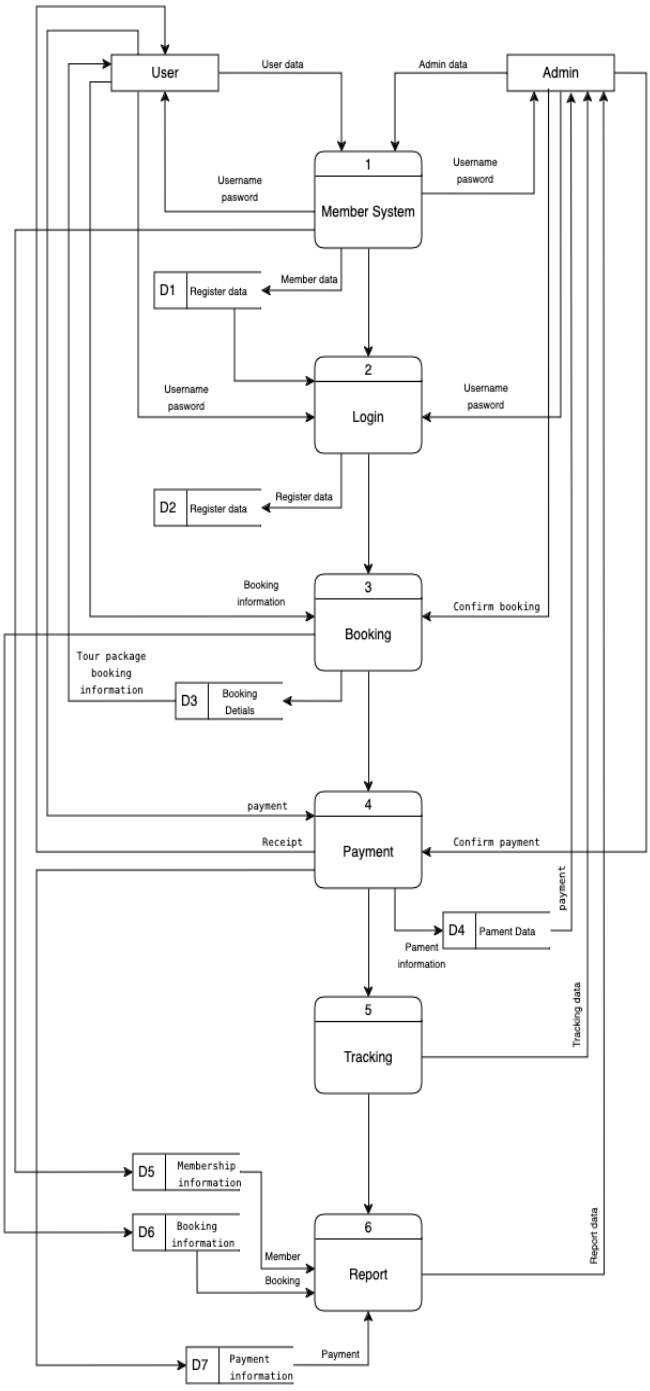


Figure 2: Data Flow Diagram (DFD)

Figure 3 depicts the Entity-Relationship Diagram (E-R Diagram) used in the development of the Narathiwat Cultural Tourism Mobile Application. This diagram illustrates the relationships between various entities within the system. Customers: Customers had the ability to book tour packages. A single customer could book multiple packages, and conversely, a single package could be booked by multiple customers. Payments: Customers could make multiple payments for car rentals and tour guide bookings.

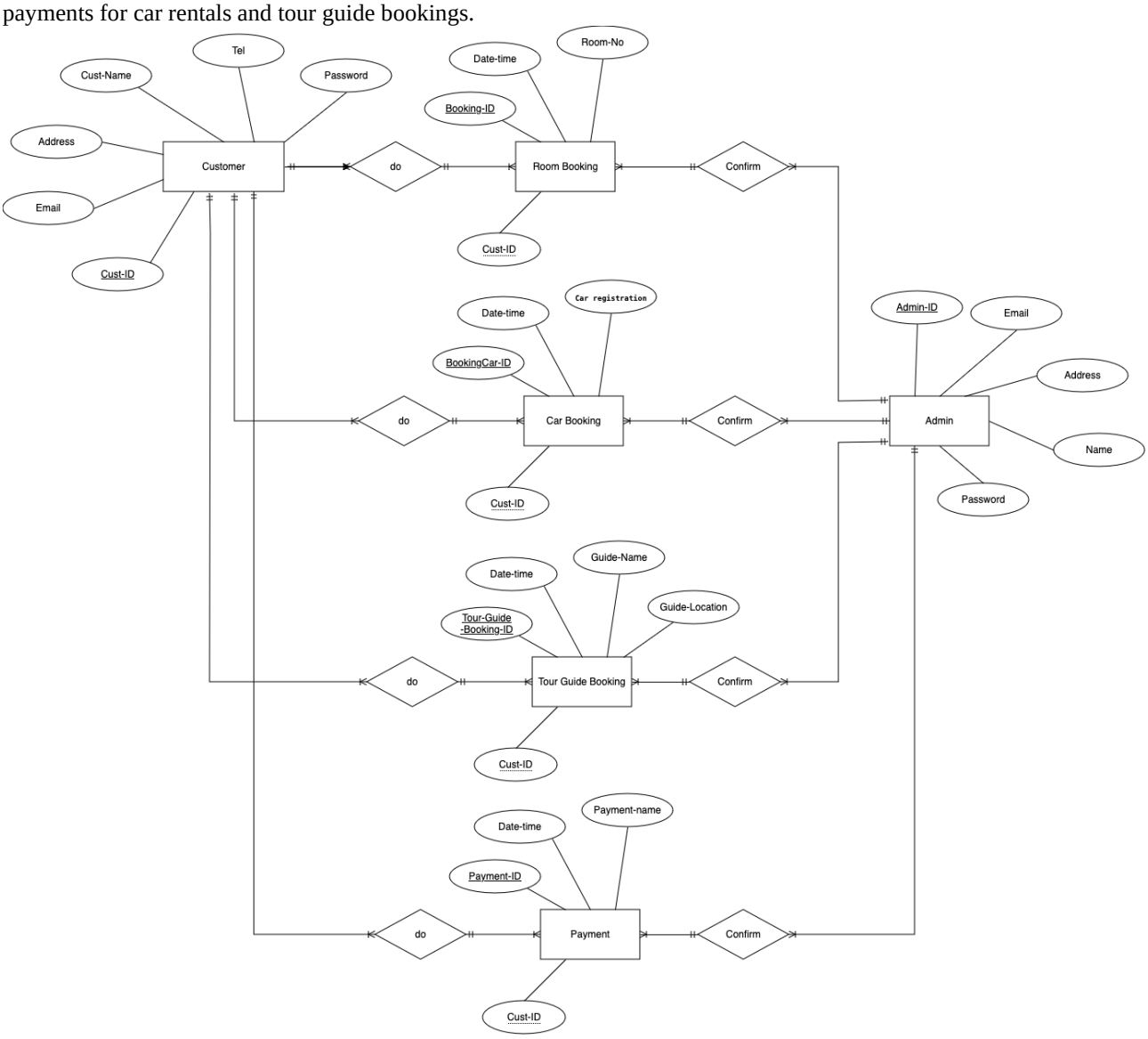


Figure 3: Entity-Relationship Diagram (E-R Diagram)

The results of using the MySqli Database, as demonstrated by the Data Dictionary in Figure 4, were facilitated by the phpMyAdmin database management program.

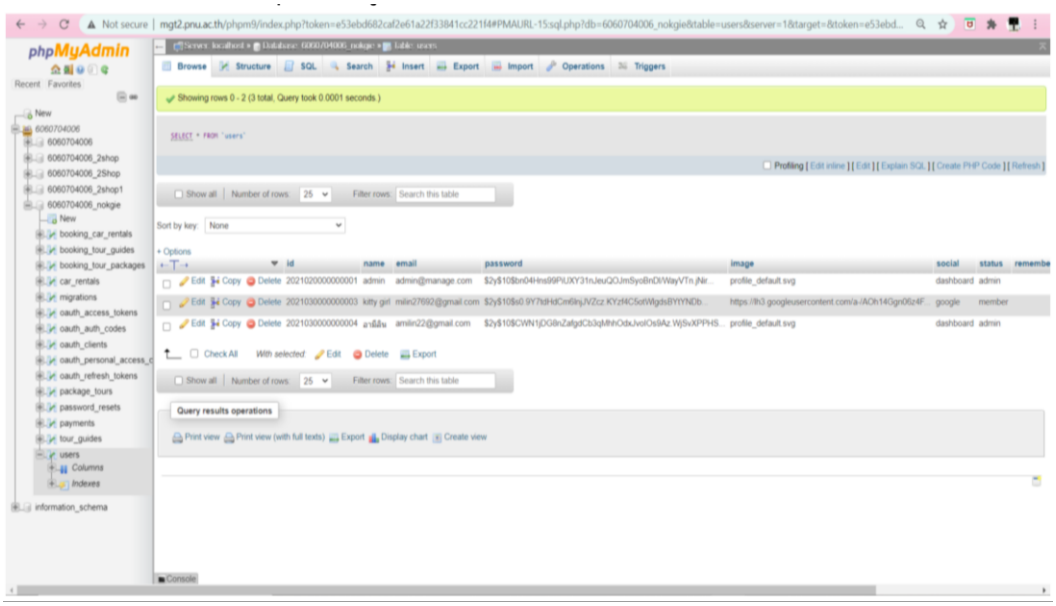
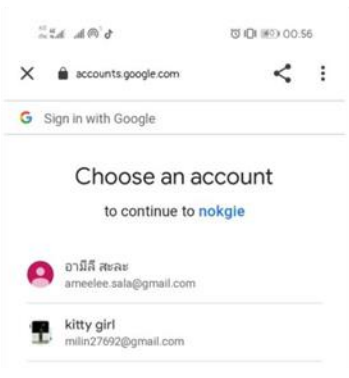


Figure 4: Data Dictionary

The User Interface Design, as shown in Figure 5, consisted of the following sections:

Image (a): Login screen,
Image (b): Google account login option,
Image (c): User information and main menu,
Image (d): List of tour packages for user selection,
Image (e): Selecting a one-day tour package and displaying pending payment status at the bottom,
Image (f): Room reservation screen with various room options,
Image (g): Car reservation screen, including motorcycles and cars,
Image (h): Details of the selected car,
Image (i): Tour guide selection screen,
Image (j): Map of tourist attractions,
Image (k): Payment screen, where users could attach a bank transfer slip for the system administrator
Image (l): Summary of tour bookings.

(a)



(b)

(c) Profile screen

(d) Package tour screen

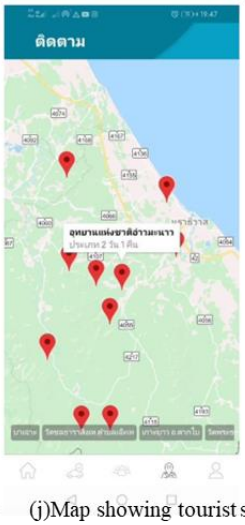
(e) Package tour status screen

(f)Booking room

(g) Booking car screen

(h) Detail of car screen

(i) Select Tour guide



(j)Map showing tourist spots

(k) Payment screen (l) Data report screen

Figure 5: User Interface Design

The results of the performance evaluation of the cultural mobile application development in Narathiwat Province were obtained from 35 respondents using a three-part questionnaire. The evaluation was based on the feedback from experts, tourists, students, and the general public.

Part 1: General Information of the Respondents

The general information was analyzed by presenting the frequency, percentage, and standard deviation. The results of the analysis are shown in Table 1.

Table 1: General Information about the Respondents (n=35)

Demographic variable		Frequency	Percentage
Gender	Male	16	45.70%
	Female	19	54.30%
Age	< 20	5	14.30%
	21-30	17	48.50%
	> 30	13	37.10%
Occupation	Expert	5	14.30%
	Tourist	17	48.60%
	Student	8	22.90%
	General public	5	14.20%

Table 1 shows that 16 respondents were male 45.7% and 19 were female 54.3% 5, respondents were under 20 years old 14.3%, 17 were between 21 and 35 years old 48.5%, and 13 were over 30 years old 37.1%, 5 respondents were experts 14.3%, 17 were tourists 48.6%, 8 were students 22.9%, and 5 were members of the general public 14.2%

Part 2: Evaluation of User Satisfaction with the Performance of Cultural Mobile Applications in Narathiwat Province

Table 2 showed that the overall usability satisfaction rating was high ($\bar{X}$ = 4.20, S.D. = .67). The top three items with the highest satisfaction ratings were: Appropriateness of layout for use and Ease of app installation process (tied for first place ($\bar{X}$ = 4.46, S.D.=.62 and S.D.=.50, respectively); Appropriateness of color and font size ($\bar{X}$ = 4.43, S.D.=.56); Appropriateness of using symbols to communicate meaning ($\bar{X}$ = 4.10, S.D.=.60).

Table 2: Evaluation of User Satisfaction with Usability

Usability Testing	$\bar{X}$	S.D.	Interpret results
1.Appropriateness of color and font size	4.43	.56	Very
2.Appropriateness of layout for use	4.46	.62	Very
3.Ease of app installation process	4.46	.50	Very
4.Appropriateness of using symbols to communicate meaning	4.10	.60	Very
5.Appropriateness of the vocabulary used	3.53	.57	Very
Total	**4.20**	**.67**	**Very**

Table 3 showed that the overall functionality satisfaction rating was high ($\bar{x}$=4.41, S.D. = .58). The top three items with the highest satisfaction ratings were: Accuracy of user data display (had the highest satisfaction level with a mean of $\bar{x}$=4.73, S.D.=.44). Accuracy of data reporting ($\bar{x}$=4.46, S.D.=.56). Accuracy of car rental booking ($\bar{x}$=4.40, S.D.=.62)

Table 3: The results of the evaluation of the efficiency of the system's functional performance (Functional Testing)

Functional Testing	$\bar{X}$	S.D.	Interpret results
1.Accuracy of user data display	4.73	.44	The most
2. Accuracy of tour package booking	4.33	.47	Very
3.Accuracy of accommodation booking	4.20	.66	Very
4.Accuracy of car rental booking	4.40	.62	Very
5.Accuracy of payment	4.33	.60	Very
6.Accuracy of map location	4.36	.61	Very
7.Accuracy of data reporting	4.46	.56	Very
Total	**4.41**	**.58**	**Very**

Evaluation of the Efficiency of Data Security in the System (Security Testing)

Table 4 showed that the overall data security satisfaction rating was high ($\bar{X}$ =4.24, S.D. = .54). The top three items with the highest satisfaction ratings were: Access with assigned permissions had the highest satisfaction level with a mean of ($\bar{X}$ =4.33, S.D.=.47). Google account authentication ($\bar{X}$ =4.30, S.D.=.46). Payment security ($\bar{X}$ =4.10, S.D.=.66).

Table 4: The results of the evaluation of the efficiency of data security in the system (Security Testing)

Security Testing	$\bar{X}$	S.D.	Interpret results
1. Google account authentication	4.30	.46	Very
2. Access with assigned permissions	4.33	.47	Very
3. Payment security	4.10	.66	Very
Total	**4.24**	**.54**	**Very**

Evaluation of System Performance (Performance Testing)

Table 5 showed that the overall system performance satisfaction rating was high ($\bar{X}$ =4.46, S.D. = .55). The top three items with the highest satisfaction ratings were: Overall system performance speed (had the highest satisfaction level with a mean of $\bar{X}$ =4.43, S.D.=.56). Accommodation booking speed ($\bar{X}$ =4.40, S.D.=.49). Tour package booking speed ($\bar{X}$ =4.30, S.D.=.46).

Table 5: The results of the system performance evaluation (Performance Testing)

Performance Testing	$\bar{X}$	S.D.	Interpret results
1.Overall system performance speed	4.43	.56	Very
2. Tour package booking speed	4.30	.46	Very
3.Accommodation booking speed	4.40	.49	Very
4.Payment speed	4.26	.58	Very
Total	**4.46**	**.55**	**Very**

Part 3: Other suggestions

1. Suggestions for future app development. It was recommended to always add new information, packages, tour trips, tourist attractions, accommodation, and restaurants. AR technology should have been used, aligning with the article on engagement by presenting a case study on the use of VR with a mobile app for cultural tourism in Brasov, Romania. It explored the development of the city as a smart city and focused on improving the cultural heritage experience through the app (Briciu et al., 2020). It was recommended to add a navigation system to the destination by displaying a map to tourist attractions, accommodation, and restaurants in Narathiwat Province. It should have been linked to Google Maps API, in line with the research (Panahi et al., 2013) which was a location-based mobile tourism app for Apple mobile devices. It allowed users to explore nearby cultural attractions to make it easier to identify the destination and navigate for users. It was recommended to add a notification when the payment was completed, in line with the research (Stefanov et al., 2023) on improving the prototype by adding security, adding new functions for interactive user interaction in the payment system, and adding and promoting products on social networks.

2. Suggestions from the operation. It was recommended to study the information of tourist attractions, accommodation, and restaurants to keep the information up to date. It was recommended to study the information on cultural tourism by adding places to expand the coverage to the whole south so that the application could be used more widely.

3. However, from the results of this research, it is recommended to further study the problems of using mobile applications, which is consistent with the research (Bowchamchoy et al., 2021) on the problems of using information for art and cultural tourism of tourists traveling to Su-ngai Padi District, Narathiwat Province.

4. However, from the research results, it is difficult to achieve research success by focusing solely on mobile application development. Therefore, it is important to study the motivations or stimuli for tourists to visit attractions, which is consistent with the research of (Nieumhom & Wongwatcharapong, 2021). All forms of cultural tourism have the same focus: they are a form of tourism in which tourists are motivated or stimulated to travel to a destination to observe, learn, share experiences, and appreciate the cultural values of the community at that destination.

Conclusion

Development of a Cultural Tourism Mobile Application for Narathiwat Province. System Testing and Evaluation. A cultural tourism mobile application for Narathiwat Province was developed using a research-based approach. The process began with a study and data collection of tourist attractions in the Narathiwat Province group. The data was collected to analyze and plan the system development, determine the study steps, and select the tools used to develop the system on the Android smartphone platform. After completion, the system was tested and evaluated by information technology experts and relevant user groups to improve and correct errors. The results of the system performance evaluation were summarized. Expert Evaluation. Five experts evaluated the system's performance. The overall system performance satisfaction was high ($\bar{x}$=4.35, S.D.=.51). The highest mean score was for usability ($\bar{x}$=4.48, S.D.=.50), followed by system performance ($\bar{x}$=4.50, S.D.=.51). User Evaluation. Thirty tourists and general users evaluated the mobile application's performance. The overall usability satisfaction was high ($\bar{x}$=4.20, S.D. = .67). The items with the highest satisfaction were the appropriateness of the layout for use and the ease of the application installation process, with mean scores of ($\bar{x}$=4.46, S.D.=.62 and S.D.=.50), respectively. The next highest item was the appropriateness of the color and font size ($\bar{x}$=4.43, S.D.=.56). The overall satisfaction with the functionality was high ($\bar{x}$=4.41, S.D. = .58). The item with the highest satisfaction was the accuracy of the user data display ($\bar{x}$=4.73, S.D.=.44), followed by the accuracy of the data reporting ($\bar{x}$=4.46, S.D.=.56). The overall satisfaction with data security was high ($\bar{x}$=4.24, S.D. = .54). The item with the highest satisfaction was access with defined privileges ($\bar{x}$=4.33, S.D.=.47), followed by Google account authentication ($\bar{x}$=4.30, S.D.=.46). The overall system performance satisfaction was high ($\bar{x}$=4.46, S.D. = .55). The item with the highest satisfaction was the overall system speed ($\bar{x}$=4.43, S.D.=.56), followed by the accommodation booking speed ($\bar{x}$=4.40, S.D.=.49). The researcher used the System Development Life Cycle (SDLC) and carefully studied and followed all research steps. Therefore, the developed system was evaluated to have a high overall performance satisfaction. The developed cultural tourism mobile application for Narathiwat Province consisted of a member system, a tour package booking system, an accommodation booking system, a payment system, and a data reporting system. It could support the needs of users well, was practical, and achieved the set objectives.

Acknowledgements

The research team wishes to express its sincere gratitude to all parties who provided support and assistance to this research. We are grateful to all those who provided information, advice, and guidance, which enabled us to achieve our goals. We would also like to thank all the lecturers in the Digital Technology Department for their cooperation in developing the system until it could be successfully used in accordance with the objectives. We would like to express our deepest gratitude to all those involved on this occasion.

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Guidelines for Promoting Historical and Cultural Tourism: A Case Study of the Talo Manoh Mosque or the 300-Year-Old Mosque, Lubo Sao Subdistrict, Ba Cho District, Narathiwat Province

Suhaidi Maming[1], Saina Dosa[2], Maimoune Madaming[3], Amani Gajer[4], Ibrahim Sarimasae[5]*, Chanathip Wangworawong[6] and Pornthip Manopkham[7]

1 Student of Public Administration Major, Management Science Faculty, Princess Narathiwas University; Suhaildee.2002@gmail.com
2 Student of Public Administration Major, Management Science Faculty, Princess Narathiwas University; Saina2544dosa@gmail.com
3 Student of Public Administration Major, Management Science Faculty, Princess Narathiwas University; 6360705078@pnu.ac.th
4 Student of Public Administration Major, Management Science Faculty, Princess Narathiwas University; amaneekajer@gmail.com
5 Lecturer of Public Administration Major, Management Science Faculty, Princess Narathiwas University; lbrahimpnu@gmail.com
6 Lecturer of Public Administration Major, Management Science Faculty, Princess Narathiwas University; chanathip.w @pnu.ac.th
7 Lecturer of Public Administration Major, Management Science Faculty, Princess Narathiwas University; manopkham.p@gmail.com

* Correspondence: lbrahimpnu@gmail.com

Abstract

The objectives of this research are 1) to study the promotion of historical and cultural tourism; A case study of the Talo Manoh Mosque or the 300-year-old Mosque, Lubo Sao Subdistrict, Bacho District, Narathiwat Province 2) to find ways to promote historical and cultural tourism. A case study of the Talo Manoh Mosque or the 300-year-old Mosque, Lubo Sao Subdistrict, Ba Cho District, Narathiwat Province. Use a qualitative research format. The main informants were 1 official from the tourism authority of Thailand, 1 person from Lubosaw subdistrict administrative organization, 1 mosque leader, 10 people in the area, and 12 tourists using random sampling. A total of 28 people were included. The tools used in the study were 1. in-depth interviews and 2. group discussions. The researcher chose to use content analysis based on data collected from in-depth interviews and group discussion.

The results of the study found that promotion of historical and cultural tourism case study of Talo Manoh Mosque Lubosao Subdistrict, Bacho District, Narathiwat Province areas in the mosque premises are promoted to be beautiful and to develop important areas. To provide convenience and safety to tourists who come to visit the place. In terms of guidelines for promoting historical and cultural tourism case study of Talo Manoh Mosque Lubosao Subdistrict, Bacho District, Narathiwat Province, found that the Lubosao Subdistrict administrative organization. There is assistance in public relations facilitating the community. Coordinating for the community when outside agencies will come in.

Keywords: Tourism promotion, Historical tourism, Cultural tourism

Introduction

Talo Manoh Mosque or Wadil Husayn Mosque, or known to the people as the "300 Year Mosque", is a place of worship in Islam. Standing tall in the midst of the foothills of Budo Mountain, Village No. 1, Ban Talo Mano.

Lubosao Subdistrict, Bacho District, Narathiwat Province built in 1624 (which will be 400 years old in 2024), it is a mosque with historical importance in the southern border provinces. It is regarded as one of the most beautiful and ancient mosques in the Malay world. Inside the mosque is where the Quran is kept. It was written in the handwriting of Wan Hussein Azzanawi, the first imam of the mosque. Southern Border Provinces administrative center As a development agency in the area so we joined with Narathiwat provincial administrative organization including related agencies realized the importance of development therefore wants to push for the development of such areas that have long historical value and is important both in the southern border provinces and in the Malay world by defining the concept of development in the area to be consistent with the ancient and valuable architecture. By adjusting the landscape including construction, taking into account that it does not have a negative impact on the context of the area and does not obstruct the original view of the area. “Talo Manoh Mosque” is the highlight and the main center point in the development of such cultural places.

Therefore, on August 25, 2022, the religion and multicultural working group civil development promotion and support division southern border provinces administrative center collaborating with the Narathiwat Provincial Administrative Organization and agencies under the multicultural plan, both centrally and in the southern border provinces (Southern Border Provinces Administrative Center, 2022).

Currently, at Talo Manoh Mosque, there are Thai and foreign tourists who are interested in ecotourism and historical value. Most of them are Malaysians and Indonesians who come to visit. Therefore, there has been a continuous growth in the number of tourists visiting the area. Narathiwat Province boasts many unique cultural characteristics and traditions of its own, including festivals and religious activities such as Hari Raya and Janazah prayers (for the deceased). This development emphasizes the province's commitment to advancing and supporting its tourism industry

Therefore, the researcher places importance on guidelines for promoting historical and cultural tourism A case study of the Talo Manoh Mosque or the 300-year-old Mosque, Lubo Sao Subdistrict, Ba Cho District, Narathiwat Province. With the objective to study the promotion of historical and cultural tourism in the Talo Mano community. Narathiwat Province and to find ways to promote historical and cultural tourism in the Talo Mano community. Narathiwat Province which is beneficial in promoting tourism to develop into a historical and cultural tourist attraction and see the diversity of cultures and beliefs hidden in the beauty and valuable culture of the ancestors who created them and brought them to manage for the sustainability of Narathiwat Province in the future.

Research objectives

1. To study the promotion of historical and cultural tourism. A case study of the Talo Manoh Mosque or the 300-year-old Mosque, Lubo Sao Subdistrict, Ba Cho District, Narathiwat Province.

2. To find ways to promote historical and cultural tourism. A case study of the Talo Manoh Mosque or the 300-year-old Mosque, Lubo Sao Subdistrict, Ba Cho District, Narathiwat Province.

Methodology

How to conduct research

Research on guidelines for promoting historical and cultural tourism A case study of the Talo Manoh Mosque or the 300-year-old Mosque, Lubo Sao Subdistrict, Ba Cho District, Narathiwat Province. It is qualitative research. with the objective to study the promotion of historical and cultural tourism in the Talo Mano community. Narathiwat Province and to find ways to promote historical and cultural tourism in the Talo Mano community Narathiwat Province details of the research methods are as follows.

Key Informants

There were a total of 25 people providing information. The researcher divided them into 2 groups as seen in Table 1

Table 1: Key Informants of the study

Group	Key informants	Number of people
1	**Tourism Authority of Thailand officials**	
	1) Director of the Tourism Authority of Thailand	1
	Officials of the Lubosao Subdistrict Administrative Organization	
	1) Deputy Permanent Secretary of Lubosao Subdistrict Administrative Organization	1
	Mosque leader	
	1) Imam's table	1
2	**Representatives of the people in the Talo Mano community area**	10
	Tourist agent	12

Research tools

The tools used in this research consisted of 2 tools: 1) in-depth interview form 2) focus group form.

1) Tools used for in-depth interviews

Part 1: General information of the interviewee: name-surname, gender, job position.

Part 2: Interview questions to study the promotion of historical and cultural tourism. A case study of the Talo Manoh Mosque or the 300-year-old Mosque, Lubo Sao Subdistrict, Ba Cho District, Narathiwat Province.

Part 3 Suggestions.

2) Tools used in group discussions

Part 1: General information of the interviewee: first and last name, gender, occupation.

Part 2: Interview questions to study the promotion of historical and cultural tourism. A case study of the Talo Manoh Mosque or the 300-year-old Mosque, Lubo Sao Subdistrict, Ba Cho District, Narathiwat Province.

Part 3 Suggestions.

Method of data collection.

This research is qualitative research using in-depth interviews and focus group tools. Using data collection in research as follows.

1. Proceed to contact and request assistance from the agency to interview with officials from the Tourism Authority of Thailand. Narathiwat city Museum staff officials of the Lubosao Subdistrict Administrative Organization.

2. The researcher proceeds to the area to collect data. By group discussion interview people in the area Talo Manoh community by selecting representatives from a sample of 28 people.

3. Use the information obtained from interviews and group discussions to compose the information again.

Data analysis

Data analysis in this research this is a qualitative data analysis. The researcher has the following analysis steps:

1. The researcher uses the information obtained from the interview. Let's separate the issues and compile the information obtained.

2. Use the information obtained from the interview to separate the questions and then compare the similarities or differences between the interviewers.

3. Use the information obtained from the interviews to separate the questions and compare them with related document information, including concepts, theories, and related research works in order to understand similar characteristics. and different information before the data is analyzed.

4. Use the data obtained from the comparison to analyze the data together. To summarize the research results regarding the study of guidelines for promoting historical and cultural tourism. A case study of the 300-year-old Talo Manoh Mosque, Lubo Sao Subdistrict, Ba Cho District, Narathiwat Province.

Method of data collection in-depth interview is snowball focus group is stakeholder important.

Results and Discussion

Research results.

1. Promotion of historical and cultural tourism. A case study of Talo Manoh Mosque, Lubo Sao Subdistrict, Ba Cho District, Narathiwat Province.

The research results found that the area in the mosque is promoted to be beautiful and the area is developed in important areas to provide convenience and safety for tourists who come to visit the place.

- Development and promotion of tourism in the area to be consistent with the ancient and valuable architecture by adjusting the landscape around the mosque. including construction or additions. We must take into account that there will be no negative impact on the context of the area and that it will not obstruct the original view of the area. "Talo Manoh Mosque" is the main point and center for the development of such cultural sites, including conservation, restoration, dissemination and creation of value for people in the area and outside the area.
- Tourism attractions and facilities to relevant agencies for example, Lubo Sao Subdistrict Administrative Organization. To assist in public relations by the Lubosao Subdistrict Administrative Organization. It will be a medium to help publicize the mosque. and to the Subdistrict Administrative Organization set up a service center to provide advice and assistance to tourists. to come visit the 300-year-old mosque and people in the area will be the one taking care of safety and providing convenience to tourists and there are people in the area waiting to give advice and help tourists.

2. Guidelines for promoting historical and cultural tourism. Case study of Talo Manoh Mosque Lubosao. Subdistrict, Bacho District, Narathiwat Province.

The research results found that the Lamut Sao Subdistrict Administrative Organization has assistance in public relations. Facilitate the community and coordinate with the community when outside agencies come in.

- Community potential in tourism management in managing to achieve sustainability People in the area will be the ones to conserve, restore and maintain the tourist attractions.
- There are public relations. to relevant agencies It is an agency of the Lubosao Subdistrict Administrative Organization. To assist in public relations by the Subdistrict Administrative Organization, Lubosawor will be a medium to help publicize the mosque administrators.
- Community participation in joint management help take care of cleaning and help give advice to tourists who come to visit the 300-year-old mosque.

Conclusion

Discuss the results

1. Promotion of historical and cultural tourism. A case study of Tanumano Mosque, Lubosao Subdistrict, Ba Cho District, Narathiwat Province. The area in the mosque will be promoted to be beautiful and the area developed in important areas to provide convenience and safety for tourists who come to visit the place. It consists of the following:

1.1 Development aspect, consistent with research by Bunnag and Charoenbun (2014) guidelines for developing tourism potential. Kanchanaburi Province to support entry into the ASEAN Community: Study of guidelines for developing tourism potential found that there are development guidelines. Including developing the potential of personnel in tourism and encouraging educational institutions to participate in tourism development. 2 Public relations development tourism includes increasing public relations information. Travel has directions in a foreign language and adding a service center for tourist information. 3 Development of facilities Among the tourist attractions include Development of communication systems in the province improving transportation routes and public transport service and increasing facilities for the elderly and disabled people and 4 promoting sustainable tourism.

1.2 Tourism attractions and facilities Consistent with the research of Chaiphibun (2007), guidelines for managing participatory cultural tourism of cultural communities in the area of Nakhon Sawan Province: studied the potential of cultural tourism of the Nakhon Chum community, Mueang District. Kamphaeng Phet Province. It was found that the tourism potential of the Nakhon Chum community has appropriate elements for management. The three aspects of cultural tourism are attraction, accessibility and facilities.

2. Guidelines for promoting historical and cultural tourism Case study of Talo Manoh Mosque, Lobo Sao Subdistrict, Ba Cho District, Narathiwat Province. It will be administered by the Lubosao Subdistrict Administrative Organization. There will be assistance in public relations. Facilitate the community and coordinate with the community when outside agencies come in. It consists of the following:

Policy recommendations

1. Promote the use of state media to creatively promote the concept and characteristics of historical and cultural tourism by citing successful examples from home and abroad. Let's communicate to give a clearer picture.
2. Agencies involved in tourism in the research study area must give importance to historical and cultural tourism in order to bring out the uniqueness and identity of the community in which the research has been learned and experienced, pushing history and culture forward. There is a life of participatory learning between stakeholders and local creative people who can learn about historical identity and culture every day.
3. Government agencies must be aware of the importance and value of tourism. culturally because it is a form of tourism that is suitable. The context of the area is the most compared to other forms of tourism, so rewards for historical and cultural tourism should be provided. Outstanding creative design to businesses and communities that are successful in creating tourism.

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Faculty of Economics and Business Administration,
Thaksin University

+66894680705, +66909519615
Fax: +6674317698

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