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"Leveraging Innovativeness Towards Sustainability"

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Proceeding Book

Editor

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UNIVERSITI TEKNOLOGI MARA
Cawangan Perak
INSPIRED IPOH INTERNATIONAL SUMMIT ON PROFESSIONALISM, RESEARCH & EDUCATION
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Department of Business and Management, UiTM Perak Branch

INTERNATIONAL CONFERENCE ON BUSINESS MANAGEMENT & INNOVATION

(ICBiv) 2023

Leveraging Innovativeness towards Sustainability

Proceeding Book
(Published November 2024)

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Synopsis

The International Conference on Business Management and Innovation (ICBIV) 2023, held on 18-19 September 2023 and organized by the Department of Business Management, Universiti Teknologi MARA (UiTM) Tapah Campus, Perak Branch, Malaysia, focused on the theme “Leveraging Innovativeness towards Sustainability.” This virtual event provided a vibrant forum for academics, industry professionals, and practitioners to share insights on the critical role innovation plays in advancing sustainable development. The conference highlighted the increasing need for sustainable business practices in response to challenges such as climate change, resource depletion, and evolving socio-economic issues worldwide.

The event featured a wide array of topics central to business sustainability and innovation, such as Operation Management and Supply Chain, Organizational Behavior, Human Resources, Entrepreneurship, Digital Marketing and Innovation, and Emerging Markets. Other key focus areas included Business Innovation and Technology (covering IoT, AI, and more), Business and Economics, Financial Management and Technology, and Islamic Finance. Notable keynote speakers included Professor Dr. Faridah Hj. Hassan, Professor Dr. Rosylin Mohd Yusof, Mr. Khusro Pervaiz Khan, and Mr. Anjar Dwi Astono, offered valuable perspectives from both academic and industry contexts. They stressed the importance of integrating sustainability into business operations, demonstrating that competitiveness and profitability can be maintained through innovation.

A series of case studies illustrated how businesses across sectors like manufacturing, agriculture, and services have successfully implemented sustainable solutions. These examples highlighted the critical role that innovation plays in addressing environmental and social challenges while ensuring long-term business viability. Additionally, discussions delved into the role of government policies and international organizations in promoting sustainable innovation and fostering collaboration between public and private sectors.

ICBIV 2023 concluded with a strong call to action, urging businesses to embrace innovative approaches that prioritize sustainability. The conference reinforced that innovation is not only essential for business growth but also a critical pathway to building a more sustainable and environmentally conscious future.

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TRACK 1:

BUSINESS AND ECONOMICS

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DIGITAL GAME BASED LEARNING TOOLS: AN ANALYTIC HIERARCHY PROCESS (AHP) IN ECONOMICS-RELATED COURSES AT TERTIARY EDUCATION LEVEL

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ABSTRACT

Most tertiary students find it difficult to learn economics, especially during pandemic and endemic times of Covid 19. Low levels of visualisation abilities and memory problems are the main obstacles to learning economics, which prevent students from understanding the subject's theory and applications. The purpose of this concept paper is to identify the priorities and selection criteria that tertiary education students utilise while selecting digital gaming-based learning resources for economics-related courses. In this study, 100 students enrolled in tertiary education at the UiTM Perak Branch Tapah Campus will complete a pair-wise comparison survey. The Analytical Hierarchy Process (AHP), a multi-criteria decision-making process, will then be used to assess their judgements. Two main criteria were considered, "Environment Factors" and "Persuasion Factors," with a total of nine sub-criteria. The conceptual study on DGBL tools employing the analytical hierarchy process (AHP) in higher education level economics courses is crucial because tertiary educational institutions can implement the choice strategies and entice students to utilise DGBL tools when studying for courses connected to economics. In order to further enhance the utilisation rates of DGBL tools in the classroom, tertiary educational institutions, particularly the lecturer or instructors, should leverage on the criteria that tertiary education students are expected to value.

Keywords: *DGBL, Economics, tertiary education students, decision making, priorities Analytic Hierarchy Process, AHP.*

1. INTRODUCTION

Most tertiary students find learning economics difficult, particularly during pandemic and endemic times of Covid 19. According to Johari, Ali, Hassan, Mokhtar, Wahid, Noordin & Ibrahim (2018), the main challenges in learning economics are poor memory retention and a lack of visualisation abilities, which prevent students from understanding the economics concept and its application. As a result, Noviani (2021) proposed using the internet to find instructional materials and media to help students who are having trouble learning economics. According to Gyöngyösi Wiersum (2013), game-based learning and teaching are important to the teaching profession. Lopez-Fernandez (2021) added that educational games can help pupils study in a fun environment while also enhancing their capacity for learning. This proves that a fun learning environment for economics has the ability to boost students' academic performance.

Information and communication technology (ICT) advancements have led to the development of the playful approach of digital game-based learning, which turns the learner into an active participant rather than just a spectator in the virtual and physical learning environment. It is a digital simulation tool that can improve motivation and student involvement while also enhancing the efficiency of instruction. The incorporation of this instructional technology into the teaching and learning process can help students build new information, acquire new skills, and develop new attitudes. A subclass of serious games called digital game-based learning (DGBL) mixes computer games and instructional content (Prensky, 2001a). In addition, DGBL

makes use of cutting-edge tools that are widely considered to have a considerable potential to stimulate active learning, problem-solving, and communication while providing a setting that promotes practise and learning through failure. Digital game-based learning may improve students' learning performance (Lin, Yen & Wang, 2018), motivation to learn (Su, 2016), cognitive load (Chen and Huang, 2020), and anxiety (Su, 2016).

It's critical to update economics-related courses with game-based learning due to the world's quick change. Digital game-based learning has just recently been investigated in a few distinct topics, including STEAM (Chen and Huang, 2020), English (Yang and Chen, 2020), maths (Hung, Huang, & Hwang, 2014), and the sciences (Chen, 2019). The impact, effectiveness, and efficiency of digital game-based learning have also been extensively studied, but little study has been done on the factors and priorities that students in higher education use to choose DGBL tools. In addition, research on digital game-based learning has only a few Analytic Hierarchy Process (AHP) evaluations. The goal of the concept paper is to identify the priorities and selection criteria that tertiary education students utilise while selecting digital gaming-based learning resources for economics-related courses. The following are the research questions:

i. What are the criteria and priorities used by higher education students in choosing digital game-based learning tools in economics-related courses?

ii. What is the priority for each criterion used in selecting digital game-based learning tools in economics-related courses?

2. LITERATURE REVIEW

The importance of student participation in achieving a shared objective is emphasised by the Computer-Supported Collaborative Learning (CSCL) theory. Skillful curriculum and technology preparation, coordination, and implementation are necessary to achieve the goal (Koschmann 1996; Barbara 1998; Stahl, Koschmann, & Suthers 2006). CSCL emphasises that knowledge is the outcome of learners interacting with one another, exchanging knowledge, and both individually and collectively generating knowledge (Resta & Laferrière, 2007). It integrates the ideas of social-constructivist, contextual learning, and cognitivist learning theories. In addition, this study used three crucial variables—environment, motivation, and persuasion—to choose the digital game-based learning (DGBL) tools that are further addressed.

2.1 Environment

Constructivist Learning Environments (CLES) are a broad range of strategies that support conceptual development and problem-solving, according to Jonassen (1999). Researchers and educators can follow the development of constructivist learning environments with the use of CLES, which Taylor et al. first established (Taylor & Fraser, 1991). The reactions to four factors—negotiation, prior knowledge, autonomy, and focus—can be used to gauge how people feel about a learning environment.

The efficacy of DGBL for teaching and learning as well as learners' perceptions of information and technology (IT) were examined through empirical research by Johnson (2019). He affirmed that the participants' opinions of a constructivist classroom at the junior high school level seem to be favourable. A new learning environment will also be readily accepted if participants experience ownership through negotiation, if it turns out to be more engaging than current methods, and if learning occurs their results in concrete outcomes (Johnson, 2019).

Additionally, Lagrimas & Buenaventura (2023) found that the constructivist learning environment and degree of school culture as assessed by technology and livelihood education students in Davao del Sur, Philippines, are both enhanced. This study's findings suggest that constructivist learning environments are highly valued by learners. A constructivist learning environment is one in which psychological and pedagogical factors influence students' attitudes, success, and learning.

However, Yeo, Cho & Hwang (2022) noted that improvements in female learners' learning performance outpaced those in male learners, particularly in the low previous knowledge category. Students with little background knowledge were more likely to be distracted by their surroundings and peers. The purpose of this study is to find out how gender and prior knowledge affected the academic performance and motivation of Taiwanese fifth graders.

Nguyen, Jin, Hoang, Nguyen, Nguyen, Le, & Vuong (2023) found that high school students' growth of digital creativity is positively impacted by their digital capabilities and openness. Parental and teacher support moderates the association between autonomous student learning and digital innovation. According to Nguyen et al. (2023), kids' capacity to use digital devices, openness to new knowledge sources on the Internet platform, and independent learning with

parental and academic support can all be improved. This study looks into the elements that help Vietnamese high school students enhance their digital creativity. Newton's laws of motion were the subject of Wu, Tzeng and Huang's (2020) investigation and comparison of the effectiveness of digital game-based learning (DGBL) and static e-learning materials on students' learning attention, affective experiences, cognitive load, and academic performance. This study showed that the main advantages of DGBL learning are improved emotional health and increased focus when compared to traditional e-learning methods.

2.2 Persuasion

One of the five key components in the transmission of new ideas, persuasion serves to help people recognise the advantages of innovation (Rogers, 2010). Rogers (1995) asserts that persuasion happens when someone has a favourable or unfavourable attitude towards innovation. The following elements must be taken into account for an innovation to spread and be adopted quickly: relative advantage, compatibility, complexity, trialability, and observability (Rogers, 2010).

According to Johnson (2019), participants' impressions of DGBL seem to be somewhat in favour of it (persuasion). Potential users will be more likely to adopt a new technology if they believe it is superior to earlier inventions, compatible with current practises, easy to comprehend and apply, and yields measurable outcomes (Johnson, 2019; Rogers, 2010; and Rogers Everett, 1995). Additionally, Janowicz (2019) found that when persuasive message arguments were strong in higher education, peer-assisted learning and peer efficacy were helpful in promoting and using DGBL.

Franciosi (2014) and Franciosi (2016) claim that foreign language (FL) instructors in Japanese higher education with a research interest in computer-assisted language learning (CALL) are more likely than instructors with other research interests to have favourable views on the relative benefit and compatibility of role-playing game (RPG)/simulators.

According to Franciosi (2014), increasing trialability raises the possibility of adoption. In order to address a wide range of learning/teaching objectives, a diverse set of resources should be created, with samples made freely available online for educators to experiment with.

2.3 Motivation

Plass, Homer & Kinzer (2015) assert that DGBL is primarily seen from a motivational perspective, with a focus on games' capacity for engagement and motivation. He acknowledged that the main goal of motivational theories is to provide answers to questions that draw attention to the variety of elements that affect motivation. Intrinsic Motivation Inventory (IMI) components such as competence, happiness, enjoyment, interest, and autonomy are categorised by Johnson, 2019, Deci & Ryan, 2003, and Ryan & Deci, 2000.

When DGBL content is used in the classroom, Johnson (2019) and Woo (2014) found that students are more inclined to interact with it. According to research by Yousef, Baadel and Makad (2014), game-based learning has a positive effect on students' intrinsic and extrinsic motivation levels and performance in both academic and soft- skills areas. Furthermore, game mechanics analyses show how online game-based technologies help learners learn by energising them with enjoyable learning settings and quick feedback. In higher education foreign language courses, he looked at online gamified resources for formative evaluation (Zhyhadlo, 2022). The use of DGBL in higher education has been discovered to have theoretical and practical ramifications, and Janowicz (2019) stressed the need of understanding and motivating adult learners as well as incorporating them in the co-design of educational innovations.

A game-based educational environment increases learners' attention and motivates them to research and take part in educational activities, according to an empirical study by Orhani (2023). The purpose of the study is to describe how basic mathematical ideas can be taught and learned more effectively via digital games. Additionally, Jonker, Vincent, and Wijers (2008) looked at how computer games affect motivation, interest, and problem-solving abilities. It is supported by numerous research findings.

Other research by Orhani (2023) shows that digital computer games can significantly improve students' understanding of and enjoyment of mathematics. Students engage in active learning when they "think and evaluate the mathematics embedded in digital games with three factors that are particularly vital in concentrating students' attention on mathematics: student attitudes, support activities, and collaborative play" (Orhani, 2023).

Additionally, according to Fang, Tapalova, Zhiyenbayeva & Kozlovskaya (2022), a child with a higher Social Competence score exhibits prosocial behaviour and is happier, more tolerant, socially integrated, calm, and willing to cooperate

with peers. The findings of this study may help parents and educators make efficient use of digital learning tools, particularly video games, when dealing with young children. The Multiplication Game (MG) should have a permanent place in the teaching process for the purpose of students' progress monitoring and self-evaluation as well as a fun way to exercise and develop multiplication skills, according to
Leonardou, Rigou, Panagiotarou, & Garofalakis (2022), who also supported the claims made by participating educators.

A previous study examined a potential approach to teaching with Minecraft by having Norwegian high school students take notes while playing the game, followed by a test to assess their memory. Enjoying the assigned activity and playing the game together with other relevant interactions were found to have important effects. It's also important to note the correlation between enjoyment of the activity and motivation to perform well, both of which predicted exam scores. Interestingly, the results suggest that task satisfaction is a potential mediating factor for these traits (Reynisson, 2023).

Papanastasiou (2022) claims that serious games satisfy a number of fundamental psychological needs, including those for autonomy, competence, and relatedness, which lead to some form of reward or satisfy a particular basic need related to encouragement.
Previous research has mostly focused on the influence, impacts, efficacy, and efficiency of digital game-based learning, omitting to investigate the criteria and priorities utilised by students in higher education to choose DGBL tools. In order to close the gap, this study investigates the criteria and priorities employed by tertiary education students while selecting digital game-based learning aids.

3. METHODOLOGY

The Analytical Hierarchy Process (AHP) was employed in this study as an MCDM, or multi-criteria decision-making process. One of the multi-criteria decision-making techniques Saaty (2012) describes to produce ratio scales from paired comparisons is AHP. There are three processes in AHP that the researcher must take to make decisions regarding the importance of the criteria (Brunelli, 2015). The first phase involves asking the respondents to compare the criteria in pairs. The definition of the scale, which ranges from 1 to 9, is given in Table 1.

Intensity of Importance	Definition
1	Equal importance
2	Weak
3	Moderate importance
4	Moderate plus
5	Strong importance
6	Strong plus
7	Very strong or demonstrated importance
8	Very, very strong
9	Extreme importance

Table 1: Saaty's Pairwise Comparison Scale (Saaty, 2012)

If there are m criteria to be evaluated, then the respondent has to make $\frac{m(m-2)}{2}$ comparisons. For example, 10 pairs of criteria will be compared if the number of criteria is 5. Suppose criterion 1 is compared with criterion 2. If criterion 1 is 'strong importance' compared to criterion 2, then m_{12} = 5, and m_{21} = $\frac{1}{5}$. All the pair-wise comparisons collected from each respondent were transferred into matrix form, M, where $m_{jk} = \frac{1}{m_{kj}}, k > j$ such as in Figure 1.

$$M = \begin{bmatrix} 1 & m_{12} & \dots & m_{1n} \\ m_{21} & 1 & \dots & m_{2n} \\ \vdots & \vdots & \vdots & \vdots \\ m_{n1} & m_{n2} & \dots & 1 \end{bmatrix}$$

Figure 1: Matrix M

Evidently, one of the major drawbacks of AHP is that the number of pair-wise comparisons increases exponentially as the number of criteria increases. In Step 2, the degree of consistency is then measured by the Consistency Index (CI). Perfect consistency implies a value of zero, but as individuals' judgments are often inconsistent, it is difficult to comply. Therefore, inconsistency up to a certain degree is acceptable in computing pair-wise judgements. The CI for M is calculated as

$CI = \frac{\lambda_{max} - n}{n-1}$

(1) where λ_{max} is the maximum Eigen vector of matrix M. If the consistency ratio, $CR = \frac{CI}{RI} < 0.10$, then the degree of consistency is acceptable, where the random index, RI values are given in Table 2 (Taylor III, 2004).

Number of criteria, (n)	Random index (RI)
2	0.00
3	0.58
4	0.90
5	1.12
6	1.24
7	1.32
8	1.41

Table 2: Random Index, RI, Values (Saaty, 2012)

In the third step, the weight for criterion $j, j = 1, 2, \dots, n,$ for each respondent's evaluation is calculated by using the following formula:

$$w_j = \frac{1}{n}\sum_{k=1}^{n} \frac{m_{jk}}{\sum_{i=1}^{n} m_{ik}} \quad (2)$$

Every criterion is again considered after repeating this process. Next, if more than one respondent is used in a study, the rule for aggregating judgements in a comparison matrix is to aggregate the judgements using the geometric mean. The weight values can then be used to establish the ranking of the criteria. A criterion's ranking in relation to other criteria increases as its weight increases. Saaty and Peniwati (2007) and Saaty and Alexander (2013). The final weight for criterion j is calculated as a geometric mean if p respondents participated in the assessment, which is done by taking the pth root of the product of all p weights for that criterion.:

$$w_j = \sqrt[p]{w_{j(1)} \times \dots \times w_{j(p)}}$$

(2) Purposive sampling will be used in this study to select tertiary students who have already used DGBL in class for economics-related courses during their study at the UiTM Perak Branch Tapah Campus. 100 students will be sampled for the study. The Google Form used to produce the surveys will be used to distribute them online. Each respondent will receive instructions on how to complete the pairwise comparison questionnaire for the various study criteria.

There are two main criteria that were identified and considered for the study, which are environment factors and persuasion factors with nine 'covering criteria'. The nine covering criteria are shown in Table 3. The final major criteria, motivation, was discarded for this study due to research limitations, primarily a lack of time and money.

Each respondent will be asked to rank the importance of each criterion in relation to the others after the criteria have been established, and the evaluation will then be turned into the matrix shown in Figure 1. Then, using equation (1), the weights of the criterion will be determined. The geometric mean approach described in equation (3) will be used to aggregate all verdicts.

Environment Factor	Persuasion Factor
Autonomy	Compatibility
Learner Focus	Complexability
Negotiation	Observability
Prior Knowledge	Relative Advantage
-	Trialability

Table 3: Educational Pathway Selection Criteria (Johnson, 2019)

4. RESEARCH TIMELINE

The project is expected to be completed in 17 weeks with the following indicated as the activity's durations for every section of the research project:

Research Section	Duration
1. Title	1 week
2. Introduction	2 weeks
3. Need for this Study	2 weeks
4. Background	4 weeks
5. Objectives	1 week
6. Research Questions and or Hypothesis	1 week
7. Research Methodology	4 weeks
8. Data analysis interpretations and discussions	4 weeks
9. Summary conclusion and recommendations	3 weeks
10. Reviewing work for final submission	1 week

Table 4: Timeline for Research

5. CONCLUSION

The conceptual study on DGBL tools employing the analytical hierarchy process (AHP) in higher education level economics courses is crucial because tertiary educational institutions can implement the choice strategies and entice students to utilise DGBL tools when studying for courses connected to economics. In order to further enhance the utilisation rates of DGBL tools in the classroom, tertiary educational institutions, particularly the lecturer or instructors, should leverage on the criteria that tertiary education students are expected to value as majority of studies on digital games have found that using DGBL tools has a good effect on learning, pushing students to learn or evaluate information in a fun and creative way.

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TRACK 2:

BUSINESS INNOVATION AND TECHNOLOGY

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INTEGRATIVE REVIEW OF IOT IMPLEMENTATION IN AGRI-FOOD SUPPLY CHAIN: FINDINGS AND ANALYSIS

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ABSTRACT

The study focuses on the Internet of Things (IoT) implementation in Agri-food supply chain, due to the increasing benefits gained from implementation these technology on this industry. Traditional farming methods are unable to cope with the demand, leading to the use of fertilizers that can have negative impacts on agricultural productivity. The paper examines the various research related with components of smart farming, such as IoT, smart farming, technologies, wireless communication technology, sensors, and hardware, and highlights the need for careful selection of these technologies in different agricultural practices to increase mechanization. The study also provides an extensive review of the implications of automation in agriculture and discusses the benefits of digital transformation, coordinating and production system, modern sensors, wireless communication technologies, and hardware. The paper also addresses the challenges associated with agriculture automation and explores future applications for crop health, human health, and machine health. The objective of this article is to present a comprehensive overview of the enabling technologies in IoT implementation with smart and sustainable agriculture and discuss potential avenues for improvement in the future.

Keywords: *IoT, Agri-food, Supply Chain.*

1. INTRODUCTION

Agriculture remain as one of important sector to be emphasized due to current environmental and needs, especially post Covid 19 disease and movement restriction around the world. The frequently research themes on agricultural sector were food supply chain, food waste, sustainability, food safety, supply chain management, food industry, and food security. However, there is new research themes in these research field, such as blockchain; Internet of Things (IoT); contract; resilience; short food supply chain; life cycle assessment; environmental impact; packaging; water use; food waste; and carbon footprint (Barbosa, M. W., 2021).

In terms of IoT technologies, there is six IoT technologies and their applications in the context of agriculture supply chain (Luthra, S. et al, 2018) . These technologies were radio-frequency identification, vibrational spectroscopy, bio/wireless sensors/ mechanisms, traceability, artificial intelligence, and high pressure processing. However, there is certain issues to adopt IoT technologies in agriculture supply chain towards developing countries. The issues related with an employability and knowledge of technological terms, high costs, low level of research and development facilities and equipment, and low standards of industries.

In order to sustain agri-food supply chain and industries, government interference also play significant roles. It is also related with top management support especially for training, awareness on environmental regulations, and pollutants reducing; IoT based infrastructure to provide an important data about global demand; quality standards, and logistic; cold chain to controlling the quality of the products; education and training especially towards the farmers; information sharing among the multi-tier suppliers; and smart packaging of agri-products (Yadav, S. et al., 2021).

2. DATA AND METHODS

This study explores the literature of the IoT (Internet of Thing) implementation in Agri-Food supply chain, related with Block-Chain System by employing integrative literature analysis methods. This methods is able to reduce any potential biases by searching specific words, and examining the trends in these article (Denyer, D.

& Tranfifield, D., 2009). The papers were selected only from 2018 until 2022 because block-chain technology adopted since 2017 in supply chain management.

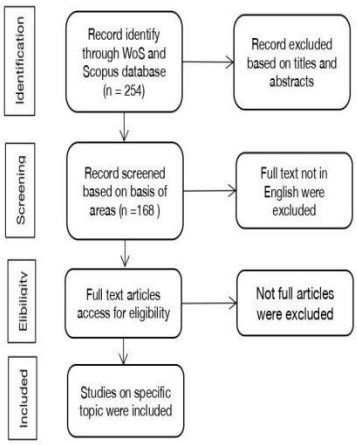

Figure 1: PRISMA Diagram for Inclusion Articles

Firstly, the most relevant studies by key word searching in Google Scholar database were collected. The final key words include'blockchain, 'supply chain management', 'Agri-Food', 'Internet of Things (IoT) Based System', "Artificial Intelligence' and 'Food and Technology'. The papers were considered peer-reviewed journal articles through Google Scholar (www.scholar.google.com) and Web Of Sciences from June 2022 until October 2023. First searching of articles resulted 254 papers related on these research area. However, after refined specific issues, total of 26 references refined.

Table 1 indicates a literature summary of these 26 references. As in the table, the most common words were 'IoT Based System', 'Block Chain', and 'Supply Chain Management'. Previous study examined on IoT implementation (Xie, J. et al, 2022) in Agri-food supply chain with discussion through the case studies or literature review (Yadav, S. et al., 2021; Dadi, V. et al, 2021) with bringing the gaps in traceability system (Tagaris et al, 2021; Tagaris, A. C. et al, 2021). Cocco, L. et al (2021); Niknejad, N. et al (2021); Kamblea, S. S. et al (2020) and Kaijun, L. et al (2018) investigated on a blockchain in Agri-food or Agri-culture. While Manning, A. et al (2022) consider the ethical narrative used when adopt AI (Artificial Intelligence) in supply chain. Saurabh, A. S and Kushankur (2020) and Fua, H. et al (2020); study on blockchain technology adoption and sustainable agri-food supply chain. Visconti, P. et al (2020) were developed software platform for smart farming through implementation of IoT. While Rejab, A. et al (2022) discussed on digitalization in food supply chains. Furthermore, Almadani, B. and Mostafa, M (2021); Yadav, S. et al (2020) and Luthra, S. et al (2018) introduced IOT and blockchain (Bhat, S. A. et al, 2022) on multimodel for Agro-Industres or Agri-Culture and supply chain. Moreover, Egwuonwu, A. et al (2022) examined the infleunce of blochain and IoT on global value chain. Finally, Barbosa, M. W. (2021) critically reviewed on Agri-food supply chain management by bibliometric study. Detailed descriptions on these topics can be found in the next section.

No.	Key Words	Author/Year
1	IoT, Agro-Industries	Almadani B. & Mostafa S. M. (2021)
2	Agri-food Supply Chain	Barbosa M. W. (2021);
3	Block Chain, IoT	Bhat, S. A., Huang, Nen-Fu, Sofi, I. B.; Sultan, M. (2022)
4	Block Chain, Agri-food	Cocco, L., Mannaro, K., Tonelli, R., Mariani, L., Lodi, M. BB., Melis, A., Simone, M., Fanti, A. (2021)
5	Block Chains, IoT	Egwuonwu, A., Mordi, C., Egwuonwu, A., Uadiale, O. (2022)
6	Agri-food, Supply Chain	Dadi, V., Nkhil, S. R., Mor, R. S., Agarwal, T., Arora, S., (2021)
7	Block Chain, Agri-food	Fu, H.; Zhao, C., Cheng, C., Ma, H. (2020)
8	Block Chain, Agrifood	Jahanbin, P., Wingreen, S. C., Sharma, R., Ijadi, B., reis, M. M. (2023)
9	IoT and Block Chain	Hasan, I., Habib, M. M., Mohamed, Z., Tewari, V. (2023)
10	Smart Agriculture	Jararweh, Y., Fatima, S., Jarrah, M., AlZu'bi, S. (2023)
11	Agri-cultural Supply Chain	Kaijun, L., Ya, B., Linbo, J., Nieuwenhuyse, I. V. (2018)
12	Block Chain, Agri-culture	Kamble, S. S., Gunasekaran, A., Sharma, R. (2020)

13	Technologies, Agrifood	Konfo, T. R. C., Djouhou, F. M. C., Hounhouigan, M. H., Dahouennon-Ahoussi, E., Avlessi, F., Sohounhloue, C. K. D. (2023)
14	IoT, Supply Chain	Luthra, S., Mangla, S. K., Garg, D., Kumar, A. (2018)
15	Supply Chain	Manning, L., Brewer, S., Craigon, P. J., Frey, J., Gutierrez, Jacobs, A. Kanza, N., S., Munday, S., Sacks, J., Pearson, S. (2022)
16	Block Chain, Agriculture	Niknejad, N., Ismail, W., Bahari, M., Hendradi, R., Salleh, A. Z. (2021)
17	Smart Farming, IoT	Prakash, C., Singh, L. P., Gupta, A., Lohan, Sk. K., (2023)
18	Food Supply Chain	Rejab, A., Rejab, K., Abdollahi, A., Zailani, S., Iranmanesh, M. (2022)
19	Block Chain, Agri-food	Saurabh, S., & Dey, K. (2021)
20	IoT Based System	Tagaris, A. C., Benos, L., Kateris, D., Tsotsolas, N, Bochtis, D. (2021)
21	IoT Based System	Trenerry, B., Chng, S., Wang, Y., Suhaila, Z. S.,Lim, S. S.; Lu, H. Y.; Oh, P. H. (2021)
22	Agri-food	Visconti, P., Fazio, R. D., Velazquez, R., Del-Valle-Soto, C. (2020)
23	IoT, Traceability	Xie, J., Wan, C., Becerra, A. T., Li, M. (2022); Guangjie, L. V., Caixia, S., Pengmin, X., Zhiguo, Q., Heyu, s., Yi., L. (2023)
24	IoT System	Wang, T., Wang, X., Jiang, Y., Sun, Z., Liang, Y., Hu, X., Li, H., Shi, Y., Xu, J., Ruan, J. (2023)
25	IoT, Agri-food	Yadav, S., Luthra, S., Garg, D. (2021)
26	IoT, Agri-food Supply Chain	Yadav, S., Luthra, S.; Garg, D. (2022)

Table 1. Literature Summary (Final Access in December 2022)

Each article includes a set of 4-6 keywords that are specific to the authors and help describe the content of the papers. When these keywords co-occur, it indicates the evolution and development of a particular field of study over time. The size of the nodes in the diagram represents the frequency of occurrence, with larger nodes indicating higher frequency. The lines connecting the nodes show co-occurrence. The most frequently used keywords in this analysis were "Agri-food supply chain, Supply chain, agri-food, block chain, IoT based system, ethical language interaction, production system, digital transformation, smart farming, traceability, food industries, technologies, coordinating systems, smart agri-cultural, IoT, and agro-industries. These keywords had the highest occurrences, highlighting the emphasis on the issues related on IoT and agri-food supply chain. Color coding was used to distinguish between different clusters represented on the map (see Figure 2).

3.0 DISCUSSION

3.1 IoT and Agriculture Supply Chain

The main issues has been studied by researchers in agri-food supply chain industries were blockchain system. Nicknejad, N. et al (2021) highlighted three categories research trends on blockchain technology on agri-food studies including traceability, transaction, IoT, safety, and food supply chain. Traceability seems as the most highlighted when Kamble, S. S. et al (2020) found that traceability were the main reason of blockchain implementation for managers and policy makers. The other reason were auditability, immutability, and provenance. Saurabh, S. and Dey, K. (2021) in their research approved that traceability, dis-intermediation, price, trust, compliance, coordination and control as blockchain ICT's integrated were important influence on supply chain application.

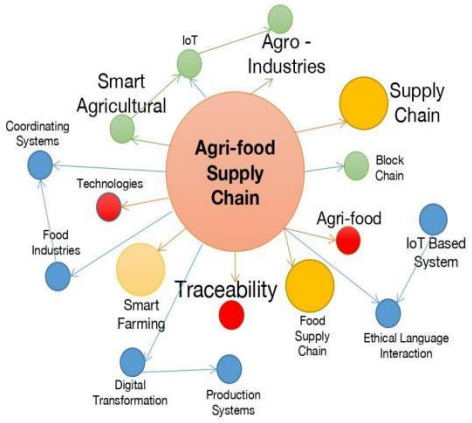

Figure 2: Key Words Co-occurence Analysis Map

To maximized transparency and auditability traceability, quality of the products, and hygienic condition along the supply chain process, Cocco, L. et al (2021) in their research proposed the Near Field Communication (NFC) and RFID as model implementation on an IOT blockchain based system in Carasau Bakery's.

3.2 Blockchain System

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3.3 Traceability System

The revolution on agri-food technological advanced influenced by IoT leading benefits and optimization productive processes lead Visconti, P. et al (2020) to developed smart traceability for farm management system based on IoT, proposed suitable software to support the process of decision making, designed and testing solar-powered wireless sensor network (WSN), Bluetooth Low Energy (BLE) as low cost sensor tag to monitor the parameter of failure processing products, and mobile application for monitoring tracking information and sharing the data of the products. However, all the prototype were tested on 5.6 months with certain particular devices, only several tested carried out to verify the function on certain application.

On the other side, there is also emerging demands of clean, hygienic, and fresh fruits and vegetables in the current world market. These demands become as one of the push factors towards agri-food industries. However, certain challenges faced including increasing of the cost related on transportation, processing, packaging, handling, and shipping. Thus, it is very important to develop the reliable agri-food supply chain to maximized the food safety. There is a study proposed the system that incorporated IoT and websites, as well as an android as platform to monitor the quality of the fruits and vegetables throughout the agri-food supply chain processes. One of the system named as AgroTRACE with user-friendly open access tracing system, and data sharing on operational processes, as proposed by Tagaris, A. C. et al (2021).

However, the prevention on food safety, security, and traceability in agri-food supply chain need to be emphasized rather than only responding and reacting by peoples (Dadi, V. et al, 2021). Digitlization, and advanced tehnological usage remains as the important solutions towards agri-food supply chain industries. In addition, there is certain scope of the issues need to explore in future related with the implementation cost, cyber-security, block chain technology (BCT) application, combination and integration of technologies, and stakeholders issues on implementation.

Despite from all this research, most of the previous studies on traceability applications in agri-food products has not been accessed on how far the systems effectively implemented. Xie, J. et al (2022) introduces an integrated system machine to machine connections in Organic Apple production that automatically collecting information in operation field. The IoT base system integrated with hardware system, a platform of Smart Farm Cloud (SFC), and a mobile application including collect, upload, and stores an information. Throughout the system, QR code generated to provide traceability information by consumers. Therefore, it is important to focus on the efficiency of the IoT systems and trustworthy manner of practical application rather than the methodology issues. The implemented IoT system will obtain increasing the customers confidence towards the products, as well as increasing the product value.

However, optimization of the storage scale, the ability on inter-operations, encounter the security and privacy issues of personal data, as well as the storage concerns on agriculture supply chain systems also need to be focused. Bhat, S. A. et al (2022) presents Agri-SCM-BIoT (Africulture Supply Chain Management using Blockchain and Internet of Things). There is also a discussion on security treats classification with an IoT infrastructure as mechanism by blockchain based defense. The study also emphasized on the emerge needs of trustworthy block-chain based cross-chain in supply chain management system to encounter the issues related with confidentially, integrity, and availability.

In other study, Kaijun, L. et al (2018) found that certain chain from agri-food sector were

applicable to adopted in Chinese Public Service Sector. Thus, the study used double chain architecture for security of information, seeking resources, increasing credibility and efficiency of the public service systems.

On the other hand, it is important to focused on the reformation of agri-food supply chain management with blockchain technology from the institutional economics perspective, rather than only on the application of blockchain from technological perspective. Fu, H. et al (2020) described possible situation on how to utilised opportunities effectively based on block chain agri-food supply chain aspect (uncertainty, trading frequency, asset specificity). While, there is also important to look a from broad perspective, on how to ensure the business will able to remain sustain in the industries. Egwuonwu, A. et al (2022) were discussed on the enhancement impact of combination blockchain technology and IoT ecosystem towards global value chain (GVC) and value creation. Their study approved that combination on blockchain technology and IoT were able to improve GCV in terms of scalability, security, and traceability. It is also recognized that these combination creates significant value for value chain partners to increase competitive advantage.

3.4 Digital Transformation

Alongside with issues on IoT, blockchain, and traceability system, digital transformation towards IoT implementation in agri-food suply chain need to be emphasized. Trenerry, B. et al (2021) proposed the information on digital transformation across multi-disciplines and integrated the findings into multi-level framework (individual, group, organization). At the individual level, the factors of employees' effective digital transformation were technological adoption; perceptions and attitudes on technological changes; skills and training; workplace adaptability; and work related well-being. While the factors of digital transformation at the group level were team communication and collaboration; workplace relationship and team identification; and team adaptability and resilence. Finally there is three factors of digital transformation at organization level like leadership; human resources; and organizational culture/climate. However, the other future research may provides an integrated rich body of literature on technology adoption with the process of digital transformation and the outcomes.

At the same time, the involvement of Information, Communication, and Technology (ICT) on digital transformation cannot be denied. Rejab, A. et al (2022) focus on ICT and implementation towards agri-culture and food security, IoT and blockchain on food supply chain (FSC). The study found that the FSCs papers has significantly grown from 1975-June 2021. Thus, it is suggested to explore numerous research on the strategy to ensure successfully adopt sustainability and circular economy into technology enable on agri-food supply chain, increasing research on transformation traditional supply chain and business modal to non-linear sustainable systems, emphasizes the needs of collaboration between industry and academia, country between another country for initiating solutions on food safety and security in future.

3.5 Coordinating System, Production System, and Ethical Language Interaction

The implementation of IoT in agri-food supply chain also can be seen from another perspectives which likely not highlighted by researchers. There are coordinating system, production system, and ethical language interaction. Coordinating system in agri-food supply chain is able to become as a framework towards enables' relationship and improve coordination with operational and strategic decisions. Yadav, S. et al (2022) developed DEMATEL-ISM method to support coordinating system with IoT influences. Throughout the process, seven enables has been identified. The purpose of these method to After adopt these method, it is found that Top Management Support (TMS) were the main driver value. Aside from that, there is also involvement of stakeholder theory in developing IoT with coordination system on AFSCM. These study contributed as a guide for managers in developing strategies using strength-weaknesses-opportunities-threats (SWOT) analysis.

Production system in agro-food supply chain is important to precise the operation in production system, and reduced the unnecessary cost. Almadani, B. and Mostafa, S. M. (2021) reviewed the literature on current industrial revolution on technological in agriculture sector, with emphasized on the gap in supply chain management and identify specific issues on multi-vendor production system in industrial and agricultural sector. The study also proposed multi-model for communication model on systematic integration of multi-vendor agricultural production systems.

Growing of artificial intelligence (AI) into agri-food supply chain industries arises the studies on ethical language by stakeholders, when there is an issues on failure to differentiate nuance meanings that become a barrier on technology adoption. Manning, L. et al (2022) published a review paper to consider embedded ethical language perspective by stakeholders collaborated with AI adoption in food supply chain. The study increased an understanding on the used language, exploring ethical interaction

and increasing engagement between AI technology and management activities. Although there is discussion on benefits of seven aspects of AI technology and algorithm application to considered into food supply chain (transparency, traceability, explainability, interpretability, accessibility, accountability, responsibility), it is also lead towards algorithmic bias only for one groups in food supply chain over another groups of AI in decision making.

4.0 CONCLUSION

The agriculture industry has undergone a significant transformation in recent years, shifting from traditional practices to a more intelligent approach known as "Agri-Food 4.0". This involves incorporating information and communication (ICT) technology into the cultivation process. By utilizing wireless sensor networks, IoT sensors, traceability systems, optimization techniques, and machine learning algorithms, smart farming can maximize agricultural productivity. These emerging technologies have the potential to improve crop productivity and quality, reduce costs, and decrease the environmental impact of traditional farming methods.

A key focus in smart farming is maximizing crop productivity with minimal human involvement. IoT-based systems offer numerous advantages in addressing this concern for both the global population and farmers. These systems incorporate wireless technologies, modules, sensors, and gateways to collect vast amounts of real-time data for optimization and analysis. This article provides an overview of the latest advancements in IoT-based farming methods and technologies, with the aim of assisting researchers in developing a global solution for smart farming.

As the global population grows and agricultural land diminishes, there is a pressing need for smarter, healthier, and more efficient agricultural practices. Advanced farming techniques have evolved over time, and ongoing research continues to yield impressive developments. Machine learning models and big data solutions play a crucial role in predictive analytics for smart farming. However, overcoming challenges related to inequity, implementation scope, infrastructure feasibility, and cost is necessary for the widespread adoption of machine learning models. Comprehensive approaches to adopting these models are required to effectively analyze systems, solutions, and the agricultural life cycle in smart farming conditions.

Recent research has demonstrated significant progress in the field of agriculture, particularly regarding data mining through IoT in smart farming. This approach enables farmers to make informed decisions under challenging farming conditions by providing valuable insights such as yield prediction, optimal harvest timing, and suitable crop selection for specific seasons. In conclusion, data mining through IoT systems empowers farmers with actionable insights, enhances productivity, and promotes sustainable farming, thereby driving the transition toward modern agriculture.

Future research in IoT-based smart farming should focus on optimizing the integration of IoT technologies in various farming aspects, utilizing data analytics and AI for informed decision-making, enhancing security and privacy measures, ensuring scalability for small-scale farmers, and exploring IoT-based supply chain management to streamline agricultural processes and improve overall efficiency.

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Barriers to Building Information Modelling (BIM) Implementation Among Civil and Structural Consultants in Malaysia's Construction Industry

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ABSTRACT

Digitalization technology through Building Information Modelling (BIM) in the construction industry is a key focus in the Malaysian government's Strategic Plan for 2021-2025. Despite the introduction of BIM in 2007 with the aim of achieving 80% implementation by 2025, its adoption among civil and structural (C&S) engineering consultants remains limited. This paper presents the findings of a preliminary study conducted through a questionnaire survey administered to thirty (30) C&S consultants, aimed at identifying the barriers to BIM implementation in government projects. Several statistical analytic approaches, including validity, normality, reliability tests, and factor analysis, are used to identify the crucial specific factors impacting weak BIM adoption among C&S engineering consultants in Malaysia. The instrument reliability was tested, yielding a Cronbach alpha value of 0.91. The results indicate that issues such as coordination of construction activities within BIM, lack of clear BIM policies, legal concerns, data exchange interoperability, high costs associated with BIM investment, demanding software requirements, and difficulties and complexities in using BIM software are the main obstacles hindering the adoption of BIM among the C&S consultants. Therefore, establishing a systematic BIM process is expected to mitigate these challenges. This study contributes to the existing BIM literature within the construction industry context by providing insights to enhance the BIM implementation processes.

Keywords: *Building Information Modelling, Civil and Structural Consultants, Implementation Barriers, Processes.*

1. INTRODUCTION

BIM in Malaysia's context is a modelling technology and associated set of procedures to produce, exchange, evaluate, and use of digital information models throughout the life cycle of construction projects (Construction Industrial Development Board Malaysia, 2016). The BIM process will encompass every stage of a construction project, including planning, design, construction, and maintenance until the building or infrastructure is designated for refurbishment, rehabilitation, or demolition. The integration of Building Information Modelling (BIM) into the design process benefits engineering consultants working on construction projects in terms of time used, cost estimation, and product delivery quality. The digitization of the design process in BIM allows all information on design work to be kept as part of project deliverables in three-dimensional (3D) modelling. As a result, any collaboration effort amongst project stakeholders may be readily discussed, managed, and monitored using a real-time online system in Common Data Environment (CDE) such as BIM360 by Autodesk.

The Construction Industry Development Board (CIDB) was driving the BIM deployment in Malaysia to be generally embraced by 2020 (Construction Industrial Building Development Board Malaysia, 2013). It is adopted to boost efficiency in the Malaysian construction sector in compliance with the CIDB Malaysia Strategic Plan initiative, which runs from 2015 to 2020. According to the Malaysia BIM Roadmap, construction projects in Malaysia must employ BIM technology from the year 2020 onwards, which includes the private-sector-funded

projects. As a result, BIM adoption in Malaysia has increased by 45% in 2019 compared to 17% in 2016. The findings also revealed that 74% of respondents are more aware of BIM, an increase from 45% in 2016. BIM adoption has started to show a favorable trend, with 49% of respondents using BIM in their building projects. Major businesses have the greatest adoption among implementors. This considerably increases BIM adopters over previous research findings (Construction Industrial Building Development Board Malaysia, 2020).

With the presence of Industrial Revolution (IR) 4.0, digitalization has become one of the key contributions to construction modernization. CIDB continues the initiative with a new five-year strategic plan in the Construction 4.0 Strategic Plan (CSP), which runs from 2021 to 2025 and aims to improve the construction sector's performance, reduce negative environmental effects, and promote high-paying jobs for Malaysians.

In 2007, the Design and Build Project for the National Cancer Institute building construction in Putrajaya, owned by the Ministry of Health of Malaysia and implemented by Jabatan Kerja Raya (JKR), marked the commencement of BIM application in Malaysian government projects. JKR, Malaysia's principal technical government agency, has also increased the use of BIM in other types of contracts, such as conventional consultant projects. Through its Strategic Plan 2021-2025, JKR has targeted the adoption of the BIM method to achieve 50% by 2021 and 80% by 2025. With a 10% annual increase through 2025, JKR would ensure that the method is employed in 50% of government projects costing RM10 million or more (Jabatan Kerja Raya Malaysia, 2020).

However, according to current findings Zahrizan et al. (2013), Yasser Yahya et al. (2020) and Idris et al. (2021), BIM adoption in Malaysia remains low. There are only 20 Building Information Modelling (BIM) projects worth more than RM50 million or more within the Eleventh Malaysia Plan (11th MP) (Construction Industrial Building Development Board Malaysia, 2020). Based on statistics from Unit BIM JKR, only 5 of these projects are currently on conventional consultants' contracts and expected to be completed by 2021, while the rest are under Design and Built contracts.

In comparison to architectural firms that have successfully employed 3D modelling in their design processes, engineering consultancies such as civil and structural, mechanical, and electrical firms are projected to have more barriers when using BIM. A recent study by Idris et al. (2021) reveals that Malaysia is still far from the position it should be in BIM implementation due to a lack of awareness, costs, slow adaptation, the lack of a clear guideline to assist organisations and policymakers towards BIM implementation transformation, and BIM was not mandated in sufficient time. According to Yasser Yahya et al. (2020), most Malaysian construction businesses are unaware of BIM technology. Meanwhile, the results of a study conducted by Samad et al. (2018) express that BIM in Malaysia is still hampered by a lack of understanding and willingness to change. In Muñoz-La Rivera et al. (2019) report, structural engineering companies (SECs) currently have a number of deficiencies that impede their processes and interactions, decreasing their productivity, lacking collaborative and interconnected processes, and not including current work methodologies such as BIM. However, there is a gap of study where no research is discussed about the BIM implementation barriers that focus specifically on the Civil and Structural engineering consultant services area.

Furthermore, the Consultant Service Agreement (CSA) produced by the Ministry of Finance (MOF), Malaysia (Kementerian Kewangan Malaysia, 2018) that is currently used in the JKR conventional consultant contract did not clearly mention the guidelines for C&S consultants in a government project, BIM process in C&S design process from Level of Details (LOD) 300 done by consultants to contractor continue up to LOD 500, CDE for sharing platform, submission of drawings to local authorities, and BIM process transition LOD 500 by the contractor. With the lack of a transparent BIM process, C&S consultants are unable to execute the BIM project independently and must rely on modelers from external firms or third parties. Indirectly, the cost of project implementation will rise whether it is borne by the consulting firm or the project owner himself. As a result, engineering consultants in Malaysia are projected to face challenges in implementing the BIM mandated by government agencies as an obligatory project under Rancangan Malaysia ke 12 (RMK-12) by JKR.

Hence, the objective of this study is to gather the most recent information on the critical barriers influencing BIM implementation, specifically among civil and structural engineering (C&S) consultants services in Malaysia, through a structured questionnaire survey.

2. LITERATURE REVIEW

The transformation in the construction industry must be enhanced further to promote economic growth in the construction sector effectively. The Construction Industrial Transformation Program (CITP) 2016-2020, administered by the CIDB, has been designated as the national agenda for transforming the construction industry into more sustainable and cost-effective. As part of this CITP transformation, BIM has been implemented in construction as one of the advantageous technologies in the industry. Since 2017, CIDB has established MyBIM to serve as the construction industry's primary resource for support services and training to expedite BIM adoption in Malaysia. The construction industry works hard with CIDB to promote BIM implementation to enhance professionals' and organisations' awareness and encourage them to adopt and implement BIM in their work environment. It is projected that labor productivity will increase by 3.6% in RMK-12 (Unit Perancang Ekonomi, 2021) due to the implementation of BIM in the construction industry. In addition, CIDB (Construction Industry Development Board Malaysia, 2021) in media statement on 21 March 2021, reported that construction productivity increased by 60% in CITP and will continue its success with the Construction 4.0 Strategic Plan (CSP) for the next five years (CIDB Strategic Plan 2021-2025).

BIM is one of the 12 important technologies listed in the Revolution of Construction 4.0 to improve current and future technologies for the construction industry to achieve higher productivity, better safety, and a more sustainable approach – incorporating whole life cycle analysis (Construction Industry Development Board Malaysia, 2020). As the largest technical department in a government agency, JKR is responsible for ensuring the successful construction of public building and infrastructure initiatives in Malaysia. According to Arahan Perbendaharaan 182, Kementerian Kewangan Malaysia (2008), all non-technical departments must acquire development project services from JKR or Jabatan Pengairan dan Saliran (JPS). In accordance with the Industrial Revolution 4.0 (IR 4.0), JKR has been systematically implementing BIM since 2007 in order to improve the value of product delivery for its construction projects. Therefore, in the JKR Strategic Plan 2021-2025 (Jabatan Kerja Raya Malaysia, 2020), the organization has already mandated the implementation of BIM in projects with a value of RM 10 million or more, with 50% of total projects in RMK-12 predicted to implement BIM with an annual increase of 10%.

According to the CIDB (Construction Industrial Building Development Board Malaysia, 2013) BIM steering group, BIM is a modelling technology and related set of procedures for producing, communicating, and analysing digital information throughout the building life cycle. Meanwhile, JKR described BIM as the process of developing and managing an informed 3D model throughout the life cycle of a project's execution, where this digital model is utilised for particular objectives by multiple parties to boost the efficiency of comprehensive asset management (Jabatan Kerja Raya Malaysia, 2021).

BIM is one of the technologies used in building projects to minimise any potential variation orders (VO). The variation orders might be the result of design modifications caused by clashes amongst multiple disciplines in the project team. The addition of VO will indirectly raise the project's cost. Furthermore, by integrating BIM technology, the process of creating drawings and measuring quantities may be accelerated using 3D modelling tools and software such as Autodesk Revit, Civil 3D, and Cost X. Moreover, improved project visualisation in terms of 3-dimensional (3D) against the standard approach in 2-dimensional (2D) before construction physically on-site also may be explored.

Despite the benefits, recent research reveals that BIM implementation is still in its infancy. Ahlam and Rahim (2021) revealed that there is no clear discussion on risk factors which might hinder the early process of BIM adoption. Meanwhile, Waqar et.al. (2023) identifies critical BIM barriers as technical adoption barrier, behavioral barrier, implementation barrier, management barrier, and digital education barrier, indicate that BIM deployment is still hampered by a variety of constraints. According to international academicians, Porwal and Hewage (2013) and Muñoz-La Rivera et al. (2019), poor BIM implementation is attributed by lack of financial and technical support from organisations, as well as an ambiguous BIM method, standard, and procedure. Similarly, Zahrizan et al. (2013) reported that Malaysian construction industry players are having difficulties implementing BIM because they do not know where, when, and how to start as there is no national BIM standard and guideline for them to follow. The construction players have difficulties understanding how BIM could be executed among parties (Idris et al., 2021). In addition, Yasser Yahya et al. (2020) conducted a survey which revealed that most construction

companies are lack of awareness about BIM technology in Malaysia. The level of BIM implementation and team awareness only increased when the organization practices BIM in its daily works (Idris et al., 2021). The research by Idris et al. (2021) from 268 responses received revealed that only 13% of the participants from both public and private sectors are using BIM in their organization, and this is a negative sign that Malaysia is still far from the position it is supposed to be in BIM implementation. The research listed a lack of awareness, implementation costs, slow adaptation, and unavailability of a clear guideline to assist organizations and policy-makers toward BIM implementation (Idris et al., 2021) as the causes of the slow implementation of BIM in Malaysia. In summary, local researchers Zahrizan et al. (2013), Samad et al. (2018), Yasser Yahya et al. (2020), Idris et al. (2021), and Manzoor et al. (2021) identified several reasons for poor BIM implementation in Malaysia, which includes lack of awareness, high costs, slow adaptation, and the lack of a clear guideline to assist organisations and policymakers.

According to Alreshidi et al. (2017), the factors influencing the efficiency of BIM are classified into five categories based on interviews with BIM experts, academicians, practitioners, and technicians. These categories are ICT factors, socio-organizational factors, practitioner factors, BIM process factors, and financial and legal factors.

Recent studies by Idris et al. (2021) have shown that, on the surface, the BIM process, along with other elements, has a substantial effect on BIM implementation. As a result, this study will further assess the BIM process as a factor impacting BIM deployment because no previous research has done a survey target sample that focused on civil and structural engineering (C&S) consultants in Malaysia.

Based on the literature review, a conceptual framework is developed to understand the factors influencing Building Information Modelling (BIM) implementation among civil and structural engineering (C&S) consultants in Malaysia, as shown in Figure 1. The main components of the framework include the Construction Industry Transformation Program (CITP), BIM adoption initiatives, benefits of BIM implementation, barriers to BIM implementation and factors influencing BIM implementation.

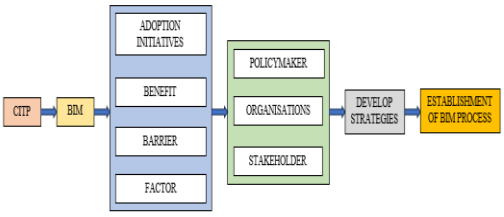

Figure 1: The conceptual framework

The CITP serves as the national agenda for transforming the construction industry in Malaysia to be more sustainable and cost-effective. BIM implementation offers various benefits, including increased labor productivity, improved construction productivity, enhanced project visualization through 3D modeling, and minimized variation orders (VO). BIM technology facilitates design modifications, accelerates drawing creation and quantity measurement, and improves project visualization compared to traditional 2D approaches. Despite the benefits, some barriers include financial and technical support limitations, lack of clarity regarding BIM methods, standards, and procedures, low awareness, high costs, slow adaptation, and the absence of clear guidelines for organizations and policymakers. Factors influencing efficient BIM implementation encompass the technical aspects, organizational dynamics, individual competencies, and the overall BIM process.

The conceptual framework in Figure 1 provides a comprehensive understanding of the factors that impact BIM implementation among C&S consultants in Malaysia. It highlights the significance of CITP, BIM adoption initiatives, benefits of BIM implementation, barriers to implementation, and the factors influencing efficiency. By considering these factors, policymakers, organizations, and industry stakeholders can develop strategies to overcome barriers and enhance BIM implementation processes in the Malaysian construction industry.
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3. METHODOLGY

A quantitative research design was employed to investigate the barriers to Building Information Modelling (BIM) implementation among civil and structural (C&S) engineering consultants in this study. A non-probability convenient sampling method was utilized to select the target respondents. The sample was drawn from the registered C&S engineering consultants listed on the Board of Engineers Malaysia (BEM) (Board of Engineers Malaysia, 2022) website as of

March 31, 2022. The reason for selecting this sample is that all engineering consultants in Malaysia must be registered with BEM under the Registration of Engineers Act 1967 under registration qualifying codes as a Body Corporate, Multi Discipline, Sole Proprietor, or Partnership. Thus, the sampling frame consisted of 1,905 engineering consulting organizations registered in the Civil and Structural discipline. According to Krejcie and Morgan (1970), a sample size of 321 respondents was determined to be appropriate. However, for this pilot study, a smaller sample of 30 respondents was randomly selected for analysis. The data collection process involved contacting the selected respondents via email, phone calls, and an online survey using Google Form. The survey questionnaire was designed based on a 5-point Likert scale to assess the level of relevance for each viewpoint, ranging from 1 (insignificant) to 5 (very significant). The questionnaire included twenty (20) BIM hurdles identified from previous research, as described in the literature section. The collected data were analyzed using various statistical analytic approaches. First, the validity and normality of the data were assessed. Next, reliability tests were conducted to ensure the consistency and stability of the questionnaire. Factor analysis was performed using IBM SPSS software to identify the crucial specific factors influencing the weak adoption of BIM among C&S engineering consultants in Malaysia. The component matrix after rotation was examined, and the purpose and results of each method are explained in the results section..

4. RESULTS

4.1 Respondents

In total, thirty (30) respondents completed questionnaires for this pilot project representing a response rate of 9.4 from 321 target samples C&S engineering consultant. 82% of respondents were registered with BEM, which 28 respondents choose civil discipline, meanwhile 21 from the total 30 respondents choose both civil and structure discipline, as shown in Figure 2 and Figure 3, respectively.

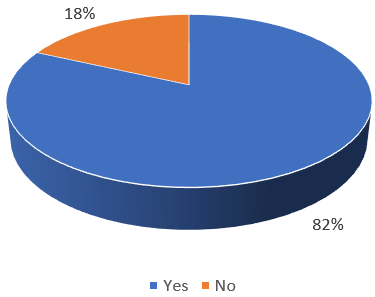

Figure 2: BEM registration of respondents

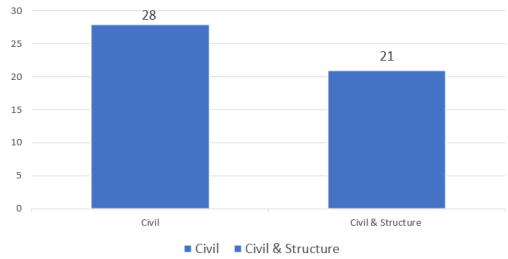

Figure 3: The respondents background discipline.

4.2 Profiles of Respondents

This pilot study involved 73% male and 27% female respondents from various states in Malaysia, including Selangor, Kuala Lumpur, Negeri Sembilan, Johor, and others, accounting for 45%, 33%, 12%, 3%, and 18% of the sample, respectively as shown in Figure 4 and Figure 5. The sample questionnaires were received from individuals with diverse educational backgrounds and various job positions in the civil and structural (C&S) engineering field in Figure 6. Meanwhile, Figure 7 represents the sample, including directors, lead C&S engineers, senior C&S engineers, and C&S engineers.

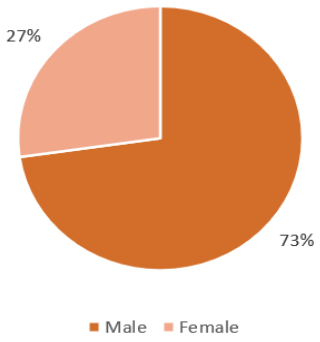

Figure 4: The respondent's gender

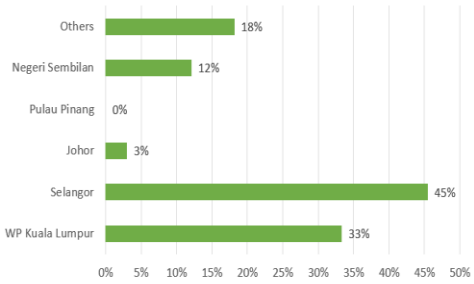

Figure 5: The respondent's origin state.

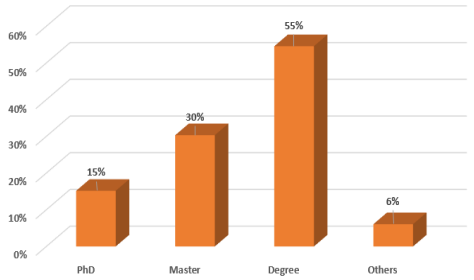

Figure 6: The respondent's education background.

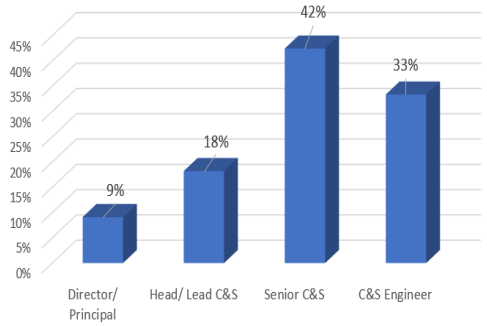

Figure 7: The respondent's job position.

Figure 8 shows that the highest respondent with C&S design experience within 5-10 years was 27%, and only 9% do not have experience. However, the result shows that 61% of respondents have BIM experience minimum of less than 5 years compared to no experience of BIM about 30%, as shown in Figure 9.

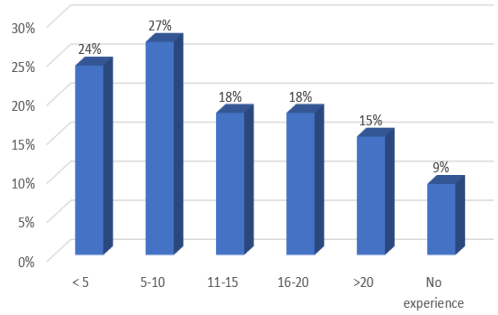

Figure 8: The C&S design experience.

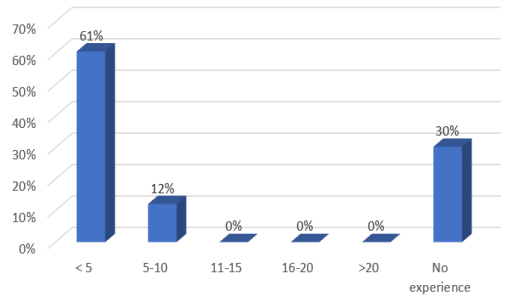

Figure 9: The BIM experience.

4.3 Reliability Test

A reliability test using Cronbach's coefficient was conducted to measure the internal consistency of the BIM barriers under study. Table 1 shows the results for reliability test carried out on factors modified from the rotated component matrix.

Cronbach's Alpha	N of Items
0.910	20

Table 1: Reliability test of BIM barrier factor for C&S engineering consultant.

The result shows that the factors listed in Table 4 is acceptable and reliable to be considered in the BIM barriers by the respondents with Cronbach's Alpha value of 0.91 (>0.7).

4.4 Mean Score Ranking of BIM Barriers

The mean score for each of the BIM barriers was calculated by using descriptive statistics. The objective was to determine if there were any BIM barriers with a mean score of less than 3. The lowest observed mean was 3.30, while the highest was 4.20. Both are larger than 3, confirming that the mean of the data is accurate and that there are no irregularities in the data. Table 2 shows the mean score ranking of BIM barriers of C&S engineering consultants, including mean, standard deviation (SD) and ranking.

BIM Barrier	Mean	Ranking	SD
B1	3.63	10	1.033

B2	3.30	11	1.264
B3	3.97	4	1.066
B4	3.67	4	.884
B5	4.10	2	.712
B6	3.83	6	.874
B7	3.67	9	.959
B8	3.87	5	.860
B9	3.97	4	.964
B10	4.20	1	.805
B11	4.07	3	.907
B12	3.83	6	.913
B13	3.87	5	.860
B14	3.83	6	.834
B15	3.77	8	.935
B16	3.80	7	.805
B17	4.07	3	.785
B18	4.10	2	.662
B19	3.77	8	.728
B20	4.07	3	.691

Table 2: Mean score ranking of barriers factor.

4.5 Validity Test

The Kaiser-Mayer-Olkin (KMO) and Bartlett tests were used to validate the particular parameters examined for BIM barrier decision making in this study. Kaiser and Rice (1948) noted that KMO static fluctuates between 0 and 1 and recommends accepting values larger than 0.5, indicating that the sample fits the essential conditions for factor analysis (Hair et al., 2010). Table 3 displays the Barlett test of sphericity and KMO values for testing validity on certain parameters.

Independent Variable	Bartlett	KMO
BIM Barriers	0.00	0.571

Table 3: Barlett and KMO tests on BIM barriers for C&S engineering consultant.

The findings demonstrate that all KMO values are larger than 0.5. Furthermore, a substantial amount of Barlett value of 0.000 ($p<0.001$) is detected for all BIM barriers.

4.6 Normality Test

The normality of the variables for this pilot study was established by evaluating the data distributions for skewness and kurtosis. The standard error is the range of possible error occurs in data (Good standard error value < 1.0).

BIM Barrier Variable	Skewness		Kurtosis	
	Statistic	Std. E	Statistic	Std. E
Process	-	0.427	-	0.833
Knowledge	0.473	0.427	0.646	0.833
Policy		0.427	-	0.833
Cost	0.350	0.427	0.721	0.833
Technology		0.427	-	0.833
	0.371		0.639	
	-		-	
	0.544		0.544	
	-		-	
	0.471		0.174	

Std. E – standard error

Table 4: Normality tests for BIM barriers for C&S engineering consultant.

The standard errors for skewness and kurtosis are 0.427 and 0.833, respectively, as shown in Table 4. Both results suggest that the standard errors are good (<1.0). As a result, the normality assumption was fulfilled for each variable, indicating that all BIM barrier factors are normally distributed.

4.7 Factor Analysis

Factor analysis was used in this study to examine for groups among the inter-correlations of a set of variables in which the data may be reduced or summarized using a smaller set of factors or components (Pallant, 2013). In addition, Sekaran (2003) stated that factor analysis demonstrates which of the items or factors that are most appropriate for each dimension to establish construct validity. In this study, the analysis used twenty (20) factors and detected structure in the relationship between the factors which require factor rotation (Norusis, 2005). Each factor belongs only to one of the five (5) groups of specific barriers: process, knowledge, policy, cost and technology. Table 5 shows the component matrix after rotation with a value of factor loadings of more than 0.5 (Kaiser & Rice, 1948).

	Group				
Factor	1	2	3	4	5
B9 - Lack of BIM standard	.856				
B10 - Lack of BIM best practice	.846				
B11 - No BIM workflow	.844				
B8 - Time barrier of BIM	.793				
B12 - BIM coordination difficult	.789				

B18 - Lack of BIM experience	.831			
B17 - Lack of BIM knowledge	.775			
B20 - Lack of BIM Training	.732			
B16 - Lack of BIM clear policy	.698			
B15 - Lack of BIM incentive	.610			
B19 - Reluctance to change		.764		
B4 - BIM software difficult		.746		
B13 -Lack of BIM demand		.735		
B14 - No legal contractual of BIM		.579	.503	
B7 - Unwillingness to invest			.743	
B6 - Financial constraint			.724	
B5 - High cost on CAPEX			.720	
B1 - Interoperability data exchange				.851
B3 - High specification of hardware				.799
B2 - Current software not compatible				.756

1 – Process, 2 – Knowledge, 3 – Policy, 4 – Cost, 5 - Technology

Table 5: Rotated component factor analysis for BIM barrier factors for C&S engineering consultant.

The barriers were categorized into five (5) groups. First, the barriers are related to the BIM implementation process itself. The identified factors are the lack of BIM standards, lack of BIM best practices, absence of a defined BIM workflow, time constraints associated with BIM adoption, and difficulties in coordinating BIM activities. These factors highlight the challenges in establishing efficient and effective BIM processes within organizations.

Second, in terms of knowledge and experience, the factors in this group pertain to the knowledge and experience aspects of BIM adoption. They include the need of BIM experience, insufficient BIM knowledge, inadequate BIM training opportunities, absence of clear BIM policies, and the lack of incentives to encourage BIM adoption. These factors suggest that a lack of expertise and awareness hinders the successful implementation of BIM among civil and structural consultants.

Third, the policy group addresses barriers associated with the broader organizational and industry policies. It includes factors such as reluctance to change, difficulties in using BIM software, the absence of a strong demand for BIM, and the need of legal contractual requirements for BIM implementation. These factors underline the need for supportive policies and frameworks to promote and enforce BIM adoption in the industry.

Fourth group is the cost factor that focuses on financial constraints and investment considerations associated with BIM adoption. The factors identified include the unwillingness to invest in BIM, financial limitations, and high capital expenditure (CAPEX) costs. These factors highlight the financial challenges and perceived costs that act as barriers to BIM implementation.

Finally, the technology group encompasses barriers related to the technical aspects of BIM adoption. It includes factors such as interoperability issues in data exchange, high hardware specification requirements, and software incompatibility. These factors underscore the importance of addressing technological challenges to ensure seamless integration and interoperability of BIM systems.

By categorizing the barriers into these five groups, this study provides a comprehensive understanding of the diverse challenges faced by civil and structural consultants in the Malaysian construction industry when implementing BIM. These findings can guide policymakers, industry stakeholders, and organizations in developing strategies and interventions to overcome these barriers and facilitate successful BIM adoption.

4.8 Ranking of BIM Barriers

Table 6 shows the summary of findings on the BIM barrier factors extracted from Table 5 which are ranked based on the five highest factor loadings.

Ranking	BIM barrier factors	Loaded factor
1	Lack of BIM standard	0.856
2	Interoperability data	0.851
3	exchange	0.846
4	Lack of BIM best practice	0.844
5	No BIM workflow	0.831
	Lack of BIM experience	

Table 6: Ranking of BIM barriers based on loaded factor.

5. DISCUSSION

This section examines the findings based on the key barriers impacting poor implementation of BIM among civil and structural engineering (C&S) consultants in Malaysia. The collected thirty (30) samples achieved the objective of the

research which is to obtain feedback from civil and structural engineering consultant respondents. As for demographic background, the highest number of respondents were senior C&S engineers with degree qualifications based in Selangor. This represents that the data is reliable to be analysed as a pilot project because the majority of the respondents are from a developed state which has high level of construction developments for a good BIM exposure. This can be proven by the results of the reliability test conducted on twenty (20) BIM barriers factors which obtained a high Cronbach's Alpha result of 0.91, above the minimum of 0.7.

One of the significant findings of this study is the BIM implementation among the civil and structural engineering consultants in Malaysia are still in a very low level even though the respondents have years of experience in C&S design, as shown in Table 7 and Table 8. Most of the respondents who represents their organisations, are minimally used BIM and the team are not practicing its concept. This results in a delay in the diffusion of BIM implementation.

The benefits of BIM have influenced the construction sector to include BIM into construction projects. The primary purpose of BIM implementation in construction is to enhance productivity and efficiency. However, the three most crucial barriers that were found are significantly affect the implementation of BIM among the C&S engineering consultants. Table 1 shows the three highest ranking of BIM barrier based on mean value which is B10:4.2 (Lack of BIM best practice) followed by B5:4.1 (High cost on CAPEX), B18:4.1 (Lack of BIM experience) and B11:4.07 (No BIM workflow), B17:4.07 (Lack of BIM knowledge), B20:4.07 (Lack of BIM Training).

Meanwhile, based on the factor analysis test in Table 4, there are 5 barriers group namely process, knowledge, policy, cost and technology has been identified. The barriers identified by the respondents aligned with findings from prior research by Roslan et al. (2019) and Yaakob et al. (2016). These studies categorized the elements that impede the adoption of Building Information Modeling (BIM) in the Malaysian construction industry into four overarching groups: i) People, ii) Technology, iii) Process, and iv) Policy.

Table 6 which represents the ranking of BIM barriers based on loaded factor addressed the first five most common BIM barriers factors: lack of BIM standard, interoperability data exchange, lack of BIM best practice, no BIM workflow and lack of BIM experience. Due to these findings, three of these BIM barriers factors were identified under the 'BIM process' (Group 1) from Table 4, which proven the significance of BIM process as one of the major influences in the BIM implementation for C&S engineering consultants. Although this study focuses on the C&S engineering consultant discipline, the finding aligns with the study by Idris et al. (2021), who reported that the BIM process is the main component that causes the slowness of BIM implementation in Malaysia. This circumstance is likely a negative perception for the C&S engineering consultants, as it causes the assumption that BIM C&S design work is prone to delays due to a lack of experience in executing BIM in the project, thus declining to implement BIM.

The survey responses also proved that BIM process significantly influences the BIM implementation for C&S engineering consultants in Malaysia, revealing that 76% have agreed with the statement, as shown in Figure 10. Furthermore, 94% of the respondents agreed that having a proper process guideline for C&S engineering consultants can help to implement BIM, compared to 3% moderate and 3% is not agreed. Hence, there emerges a clear necessity to establish standardized BIM processes and adoption guidelines tailored for the Malaysian context, as emphasized by Azhar (2011)..

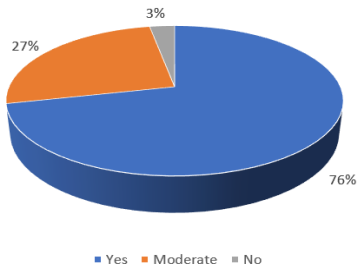

Figure 10: The significant BIM process in BIM implementation

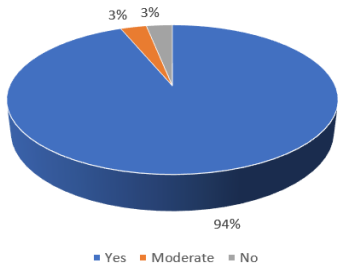

Figure 11: Requirement of proper process in BIM implementation

6. CONCLUSION

BIM is considered a catalyst for innovation in the construction industry. Based on the pilot study data, there is obvious and strong evidence that the BIM process is one of the significant barriers among C&S engineering consultants in using BIM. Therefore, organizations such as C&S

engineering consultants should understand the effective process for implementing BIM projects. Consequently, with 321 targeted C&S engineering consultants registered with BEM, it is reasonable to continue this investigation with a larger sample. Future research can help to develop a BIM process and framework, particularly for C&S engineering consultants, to use BIM as a source of reference in the organization's existing work process without relying on the services of external modelling businesses in the future. C&S engineering consultant as an important engineering consultant in the construction process shall find solutions to overcome the BIM obstacles, particularly the BIM process, which therefore enhances the country's course towards IR4.0.

Various studies show that BIM has been implemented in a fragmented environment to produce models whereas BIM implementation in construction is still inefficient ((Manzoor et. al (2021), Yasser Yahya et al. (2020) and Wong & Gray, (2019)). Therefore, in this study, it is recommended that intensive workshops to promote BIM should illustrate the process of the BIM implementation rather than only promoting BIM awareness and the implementation benefits. The opinions of expert personnel on BIM implementation and its benefits shall be discussed and recommendations shall be taken into consideration accordingly. A few case studies illustrating the whole system process and its usefulness in improving work environment are essential to build concrete confidence for adoption. As a matter of fact, professionals are facing difficulties practicing the technology and improving technical and implementation skills. This research recommended civil and structural engineering consultants to initiate the adoption of BIM and encourage professionals to develop their skills in BIM implementation.

This pilot study aimed to investigate barriers to improve Building Information Modelling (BIM) implementation among civil and structural consultants for government projects in the Malaysian construction industry. It addressed the limited adoption of BIM despite its potential benefits and government initiatives for technology digitalization. A quantitative research design utilized a non-probability convenient sampling method with 30 registered consultants from the Board of Engineers Malaysia. Data collection involved a questionnaire survey with a 5-point Likert scale while the statistical analyses, including factor analysis in SPSS IBM to identify the key factors impacting weak BIM adoption. The findings of this study shed light on the barriers to BIM implementation among civil and structural consultants in the Malaysian construction industry. The identified barriers were categorized into five groups: process, knowledge and experience, policy, cost, and technology. The study revealed challenges in establishing efficient BIM processes, acquiring sufficient knowledge and experience, implementing supportive policies, managing costs, and addressing technological issues.

7. LIMITATION AND RECOMMENDATIONS

This study inevitably has a few limitations. It is also important to highlight that this finding only represents the level of BIM implementation in the last quarter of 2022 when the data were collected. First is the small sample size that limits the generalizability of the findings to the entire population of civil and structural consultants in Malaysia. Second, the study focused on government projects, and the barriers identified may differ in other sectors or project types. Third, the study is based only on self-reported data from questionnaire surveys, which may be subject to respondent and social desirability biases. Finally, the study did not explore the specific strategies or interventions that can be implemented to overcome the identified barriers.

Thus, several recommendations for future research and the main study can be made: (i) A larger-scale study can be conducted with a more representative sample that would provide a more comprehensive understanding of the barriers to BIM implementation. (ii) Exploring the barriers and strategies in different sectors and project types would offer a broader perspective on BIM adoption challenges. (iii) Future research could delve into the specific interventions and strategies that can be implemented to address the identified barriers. In addition, qualitative research methods such as interviews or case studies could provide deeper insights into the experiences and perspectives of civil and structural consultants regarding BIM implementation. (iv) Investigating the long-term impact and outcomes of successful BIM adoption, including its effects on project performance, productivity, and sustainability, further contributes to the body of knowledge in this area..

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TRACK 3:

BUSINESS SUSTAINABILITY

Cawangan Perak INSPIRED IPOH INTERNATIONAL SUMMIT
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EXPLORING THE GREEN BUILDING PROSPECTS IN MALAYSIA

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ABSTRACT

Green building refers to any development project or building that, in its design, construction, and building operation is environmentally responsible, resource-efficient, and eliminates or reduces the negative effects on the environment. Although green buildings provide several benefits to the environment, economy, and society, the public is still unaware of these benefits. The public's lack of knowledge, experience, and awareness of green buildings led to market barriers becoming one of the primary reasons for the poor implementation of green buildings in Malaysia. Thus, the objective of this study is to explore the benefits and the contributing factors of green building towards sustainability in Malaysia. Most of the green building developments are in the Klang Valley. This study focused on the public within the Klang Valley area. A total of 500 questionnaires were distributed via online platforms. A total of 80 respondents were received for the survey. The data were analysed by using SPSS software. Descriptive analysis is used to analyse the data to obtain a mean value, and the score is ranked accordingly. The results summarised that the top three benefits of green building include reduced waste and pollution, improved environmental quality, and enhanced indoor environmental quality. Energy efficiency, improved occupant health and comfort, and greater building value are major factors that contribute to the sustainability of green buildings.

Keywords: *Construction Industry, economy, environment, green building, public, society.*

1. INTRODUCTION

Green building in Malaysia focuses on creating sustainable and environmentally friendly structures that minimise their impact on the environment and promote energy efficiency. Malaysia has seen increasing interest in green building practices due to the growing awareness of climate change, energy costs, and the need for more efficient use of resources. The Malaysian government was committed to realising the vision set in the Construction 4.0 Strategic Plan and Green Technology Master Plan (GTMP) to embark on green building practices and reduce green gas emissions (GHGs) by 45% by 2030 (KeTTHA, 2017; CIDB, 2018). This current situation has positioned green technology and green practices to become a new engine of economic growth in Malaysia (KeTTHA, 2017; Shaharudin & Fernando, 2015; Zaid et al., 2015). Under CITP, the government believed that green buildings would bring a positive change to the current scenario of the construction industry, which is a lack of sustainability-rated construction; buildings and infrastructure not resilient to natural calamities, high carbon emissions and energy usage of buildings, and a high volume of construction and demolition waste dumping (CIDB, 2017). In Malaysia, various green rating tools have emerged, and the Green Building Index (GBI) is Malaysia's first comprehensive green rating system for evaluating the environmental design and performance of Malaysian buildings (CIDB, 2018). GBI is based on six (6) primary criteria: energy efficiency, indoor environmental quality, sustainable site planning and management, materials and resources, water efficiency, and innovation. Currently, more than 500 buildings have received certification from the Green Building Index, but this number is still far from satisfactory (GBI, 2019; Yee et al., 2020).

Many previous studies indicated that a lack of knowledge and awareness, a perception of higher costs for sustainable options, an insufficient supply of green products, a lack of

technical understanding, and a lack of interest and demand from the market are the primary reasons for the poor implementation of green buildings in Malaysia (Algburi et al., 2016; Chan et al., 2017). According to Sabar et al. (2018), the relationship between consumer awareness and concern for nature and the practice of green building is strong and positive. In addition, Lim et al (2018) stated that the green buildings concept is still a new trend in Malaysia and very much unfamiliar among the Malaysian. Among the problems are the public is still not aware of the differences between a conventional and a green building and how it affects the environment differently. Therefore, knowledge and awareness of green building practices are based on people's understanding of the benefits of green buildings in reducing negative impacts on the natural environment and the building occupants while simultaneously increasing the efficiency of building functions and value.

Hence, a significant understanding of the benefits that green buildings could offer can assist in the public's acceptance of green buildings. The lack of appreciation of green buildings from the public and how, in a way, green buildings are good for the environment, economy, and society is still ambiguous to them. Thus, the objective of this study is to explore the prospects of green buildings in Malaysia based on the public perspective of the benefits of green buildings and the contributing factors of green buildings toward achieving sustainability in Malaysia.

2. LITERATURE REVIEW

2.1 The Benefits of Green Building

Green building is an option to ensure the sustainability of new and existing buildings while minimising the negative impacts on the environment. Moreover, green buildings can minimise the use of natural resources by employing renewable energy sources, and through green design, and using eco-friendly products and materials, which reduce carbon emissions and waste from building operations (Wahid & Osman, 2021). In addition, green building promotes the efficiency of a building's operation regarding the use of water, energy, and materials while reducing the building's impact on an individual's health and the environment through better design, sustainable construction, operation, maintenance, and disposal. The goal of green building design is to minimise adverse impacts on human health and the natural environment (Sabar et al., 2018). For instance, green buildings significantly enhance indoor environmental quality by providing more natural lighting, and good ventilation, which leads to more efficient energy consumption (Wahid & Osman, 2021). The use of natural materials in the house will also have a positive effect on the occupants. Green buildings help increasing diversity in daily life and can protect ecosystems through sustainable land use (Henry & Frascaria-Lacoste, 2012). Furthermore, green buildings notably improved the health of the building occupants. During post-occupancy evaluations, a lot of attention is paid to how the occupants feel about the green building (Husin et al., 2013). People are more satisfied with their lighting and air quality than with their thermal and acoustic comfort. According to Hamzah and Hasim (2018), people who live in green buildings with a lot of natural lighting appear to have better psychological and social well-being. Living in a better environment will provide comfort and improve the quality of life, which is important because it can affect the effectiveness of building operations and the satisfaction of building occupants (Zuo & Zhuo, 2014). Green building design can save money compared to conventional buildings. The conventional building may have a lower initial cost, but a green building prioritises low energy consumption, which results in a lower overall cost over the building's lifetime. Lim et al. (2018) highlighted that, in the long run, green buildings can reduce the cost of building maintenance. From a maintenance perspective, green buildings reduce operating costs and perform better than conventional buildings in terms of energy efficiency, water efficiency, and cost efficiency. Ghafori and Osmadi (2019) argue that low-energy office buildings with green features can save half the energy cost compared to conventional buildings. This is because if green buildings are implemented in the right direction, they will be more economical in terms of energy, water, and cost efficiency.

2.2 The Contributing Factors of Green Building Towards Sustainability

Undoubtedly, the implementation of green buildings holds numerous advantages in the pursuit of sustainable development goals. The contributing factors of green building toward sustainable development can be divided into the environment, economy, and society (Zuo & Zhao, 2014). The primary factors that are commonly addressed in the context of green building regarding promoting environmental sustainability include water and energy efficiency, indoor environmental quality, and

innovative practices. In accordance with the findings of Sichali and Banda (2017), it has been demonstrated that rainwater collected from household sources such as bathtubs and sinks can be effectively repurposed for many applications, including but not limited to gardening, toilet flushing, and other domestic uses, hence reducing reliance on conventional tap water sources. In the meantime, there was a particular emphasis on energy efficiency regarding the utilisation of windows for the purpose of harnessing natural light during daylight hours. Enhancing the efficiency of active systems through the optimisation of mechanical and electrical equipment, along with the implementation of a robust sustainable maintenance framework, holds significant potential for a substantial reduction in energy consumption. The presence of high indoor air quality and enhanced individual control over temperature and ventilation exert a notable beneficial influence. All these factors will contribute to minimising the environmental footprint. According to the World Green Building Council (2021), green buildings possess the potential to not only mitigate or eradicate adverse environmental effects but also to generate their own energy or enhance biodiversity, so yielding a favourable environmental outcome. Another contributing component to environmental sustainability is the conservation of natural resources. According to Dahiru et al. (2014), construction activities have a direct impact on both human beings and the environment as they alter the state or characteristics of the environment, affecting its quality and natural resources. Therefore, the construction of green buildings is advantageous for the environment as it involves the incorporation of sustainable site planning and management practices. This approach effectively reduces construction and demolition waste, pollution, and carbon emissions.

Green building has been identified as a significant determinant in achieving economic sustainability, mostly due to its potential to effectively mitigate lifecycle costs. Weerasinghe et al. (2017) argue that the high initial cost associated with green building standards is a significant challenge to achieving higher levels of sustainability in green buildings. Nevertheless, in the long run, the cost of maintenance for the building could be reduced in the future which can be seen that green buildings are quite affordable and can be built for the public (Ghafori & Osmadi, 2019). One of the significant factors contributing to green building in terms of economy is the potential to generate high rental returns and attract premium clients. Devine and Kok (2015) reported that there has been a consistent upward trend in green building practices in the United States, as evidenced by statistical data. This is because most of them perceive green buildings in terms of their lifecycle cost, which provides a commensurate return for their occupants. Green buildings have the potential to capture the interests of affluent people. Moreover, green buildings also positively impact property value, with an increasing proportion of building owners reporting a notable gain of 10% or more in the value of their assets. Sitanggang and Susanto (2018) assert that their study revealed that the incorporation of environmentally sustainable building practices has the capacity to enhance the value of office real estate. This increase in value is attributed to factors such as improved utility, scarcity, effective demand, and transferability. As a result, the national economy has been steadily growing due to the increasing construction of green buildings and green economy growth.

In terms of social contribution, green buildings positively influence public health, comfort, and satisfaction. According to Ghafori and Osmadi (2019), the perceptions and senses that interpret information from the environment in terms of current needs, activities, and priorities create the psychological effects of health, comfort, and satisfaction. The commitment to social responsibility should be a part of the Community Social Responsibility (CSR) that is carried out by corporate bodies, governments, and large corporations to provide green buildings that are used for things like schools, clinics, libraries, community halls, and other community gathering places. One of the key factors that contributes to the sustainability of green buildings in society is the facilitation of knowledge sharing and best practices. The notion of sharing is a fundamental concept that is important for the functioning of any given community (Tokbolat et al., 2018). By placing attention on this principle, individuals have the ability to mitigate the negative consequences. Subsequently, educational programs emerge as a significant determinant in fostering sustainability within the context of green building practices in society. According to Sabar et al. (2018), the government needs to intensify programs to educate the public about the importance of green buildings through various channels such as newspapers, television, radio, and exhibitions. Other than that, factors that contribute to the sustainability of green buildings in society are attracting quality employees and reducing

employee turnover. This is usually related to the construction project. This aims to give workers in the construction sector awareness as well as knowledge in terms of sustainability (Chi et al., 2020). One additional element that plays a role in fostering sustainability in green building within society is the heightened level of consciousness. Sabar et al. (2018) and Hamzah et al. (2018) highlighted that various stakeholder, such as governmental entities, manufacturers, consumer groups, and non-governmental organisations, should collectively contribute to enhancing consumer and community understanding of the implementation of environmentally sustainable building practices.

3. RESEARCH METHODS

The unit of analysis of this study is the public residing in the Klang Valley area. Thus, this study employed a quantitative method by administering an online survey using Google Forms to this target population to obtain their perceptions and responses to the questionnaire. The sample size was determined following the methodology proposed by Krejcie and Morgan (1970). Hence, in order to adequately reflect a specific population, a sample size of 384 was deemed necessary for this investigation. Thus, a total of 500 questionnaires were distributed among the respondents, and 80 usable responses were received from all sources. This indicates a response rate of 21%, which is considered acceptable. According to Nulty (2008), a 20% response rate is deemed satisfactory. The collected data were analysed using descriptive analysis using SPSS version 26.

This study used a 5-point Likert scale to measure each construct in the survey. The scale used ranges from 1 to 5, where 1 indicates that the respondent 'strongly disagrees', 2 indicates that they 'disagree', 3 indicates that they are 'neutral', 4 indicates that they 'agree', and a score of 5 indicates that they 'strongly agree' on the green buildings prospect in Malaysia. The questionnaire consisted of three (3) sections: Section A: Respondents Background, Section B: The Benefits of Green Buildings to the Public, and Section C: Public Perspective on the Contributing Factors of Green Buildings toward Sustainability in Malaysia. Descriptive analysis was employed to analyse this data. The Cronbach's Alpha coefficient for the collected data is 0.963. These figures were above the limit of .70, as suggested by Nunnally (1978, cited by Cheng et al., 2014, p.85). This finding provides evidence of the consistency and reliability of the gathered data.

4. DATA ANALYSIS AND FINDINGS

This section presents the respondents' information, findings, and discussion results. From the analysis, a discussion and explanation of the variations in each section will be provided.

4.1 Respondents Background

A total of 80 respondents were involved in this study. Most of the respondents possessed a bachelor's degree or higher (57.5%) and a diploma (37.5%). In terms of age, 86.3% of the total number of 80 respondents were between the ages of 20 and 29 years old. Meanwhile, 6.3% were between the ages of 30 and 39, and 7.5% were between the ages of 40 and 49. All of them have knowledge regarding green buildings, as it is one of the requirements outlined to participate in the questionnaire survey.

4.2 The Benefits of the Green Building

Table 1 shows a summary of the benefits derived from green buildings based on public perspectives. According to the survey findings, the most prominent benefits of green building are the reduction of waste and pollution, and the improvement of environmental quality ranks highest for green building benefits. These benefits indicate a mean score of 4.59. Ranked third is the enhancement of indoor environmental quality, with a mean score of 4.51. These three benefits of green buildings were highlighted in this survey by the public. In addition, respondents provided positive responses to reduce energy consumption (mean score = 4.43) and improve occupant satisfaction and well-being (mean score = 4.38). However, this study reveals that green buildings can reduce initial cost has display the lowest mean score of 3.75. As supported by Samari et al. (2013), a high initial cost is needed to be spent on green building development. The findings suggest that most respondents advocate that green buildings are beneficial to the environment which is similar with study by Akreim et al. (2018). They believe that green buildings may effectively address environmental concerns by minimising waste and pollution, ultimately leading to long-term improvements in environmental quality.

The benefits of green buildings	Mean Score	Rank
Reduce waste and pollutions	4.59	1

Improve environmental quality	4.59	2
Enhance indoor environmental quality	4.51	3
Save energy consumption than conventional buildings	4.43	4
Improve occupant satisfaction and well-being	4.38	5
Reduce operating cost and perform better in terms of cost, water, and energy efficiency	4.34	6
Improve health for the occupants	4.28	7
Helping community and society	4.19	8
Initial cost for green building can be reduced	3.75	9

Table 1: Summary of the benefits of green buildings based on the public perspective

4.3 The Contributing Factors of Green Buildings toward Sustainability

The contributing factors of green building towards sustainable development are discussed further. Table 2 below indicates the environmental factors that contribute to green building to achieve sustainability. Most respondents suggested that green buildings have a positive influence on the environment. The three primary factors are energy efficiency, indoor environmental quality, and low environmental impact. The variable 'Energy efficiency' has the greatest impact on green buildings, with a mean score of 4.59. Next, 'Better indoor environmental quality' and 'Low environmental impact' both have comparable mean scores, with both derived mean scores of 4.44. The enhancement of energy efficiency contributes to the improvement of environmental conditions and provides economic and social benefits to the occupants of green buildings. Green buildings have been recognised to enhance diversity in daily life and promote the conservation of ecosystems via the implementation of sustainable land use practices (Henry & Frascaria-Lacoste, 2012). Based on the findings, it can be observed that each respondent expressed a favourable viewpoint regarding the significance of green building practices in promoting environmental sustainability. The survey results reveal that all respondents strongly agreed that green buildings have significant positive impacts on the environment. Hannula (2012) stated that increased energy efficiency has the potential to enhance the productivity and well-being of individuals within buildings, while also contributing to economic growth.

Contributing factors: Environmental factors	**Mean Score**	**Rank**
Energy-efficiency	4.59	1
Better indoor environmental quality	4.44	2
Low environmental impact	4.44	3
Reduced construction and demolishing wastes	4.36	4
Preservation of natural resources	4.30	5
Water-efficiency	4.28	6

Table 2: Summary of the Environmental Factors of Green Building toward Sustainability

Table 3 provides a summary of the economic factors that contribute to the sustainability of green buildings. Based on the public's perspective, three economic factors of green building have been highlighted as receiving the highest rating score. According to this study, the economic viability of green buildings depends on increased building value, reduced lifecycle costs, and enhanced economic growth. Under economic factors, 'Increased building value' had been ranked first with the highest mean score of 4.36 and is firmly supported by the previous studies. According to Hussin et al. (2013), green buildings exhibit positive impacts on property value, with an increasing proportion of building owners reporting a significant increase in the value of their buildings. Next, 'Reduced lifecycle costs' is ranked second (mean score = 4.28), and 'Improvement in the national economy' is ranked third with a mean score of 4.21. Furthermore, from a maintenance perspective, green buildings have better performance than conventional buildings in terms of energy efficiency, water efficiency, and cost efficiency (Wahid & Osman, 2021). The enhanced value of a building stems from the potential benefits it offers to the developer or contractor firms when there is a substantial demand for green buildings in the market (Ghafori & Osmadi, 2019). The analysis reveals that there is a growing trend towards the adoption and implementation of green buildings in Malaysia. In recent years, the incorporation of green principles in the design and features of residential spaces has garnered greater appeal among individuals compared to traditional housing concepts. This study also found that all respondents expressed a preference for

incorporating more green building features into their homes.

Contributing factors: Economics factors	Mean Score	Rank
Increased building value	4.36	1
Reduced lifecycle costs	4.28	2
Improvement in the national economy	4.21	3
High rental returns	4.11	4
Attract premium clients	3.91	5

Table 3: Summary of the Economic Factors of Green Building toward Sustainability

Table 4 presents a summary of the social factors that contribute to green building to achieve sustainability. Most of the social factors associated with green buildings receive positive feedback from the public. The findings of this study indicate that 'Improved occupant health, comfort, and satisfaction' obtained the highest mean score of 4.49 and were ranked first among the social factors examined. Subsequently, 'Increase of awareness in sustainability aspects' with a mean score of 4.45. Followed closely by 'Facilitation of sustainable lifestyle', which obtained a mean score of 4.18. The effective benefit of green buildings can be realised by building occupants when this concept is largely implemented. This result was supported by Wahid and Osman (2021) which found that the perceptions and senses of living or working in a green building can influence individuals to adopt more sustainable behaviours and lifestyles. These practices can extend beyond the building and contribute to a broader culture of environmental consciousness. Incorporating social factors into green building design and planning is crucial to ensuring that the built environment enhances the quality of life for occupants and fosters a sense of environmental stewardship within communities.

Contributing factors: Social factors	Mean Score	Rank
Improved occupant health, comfort, and satisfaction	4.49	1
Increase of awareness in sustainability aspect	4.45	2
Facilitation of sustainable lifestyles	4.18	3
Commitment to social responsibility	4.13	4
Attract quality employees and reduce employee turnover	4.11	5

Table 4: Summary of the Social Factors of Green Building toward Sustainability

5. CONCLUSION

This study's aim is to successfully enhance knowledge and interest in green buildings among the public. Furthermore, this study had produced a valuable view of the Malaysian perspective on green building initiatives in Malaysia. Green buildings make a significant contribution toward sustainability by incorporating various green designs and features. This study indicates that nowadays people believe it is important to incorporate green building standards into project development. Even though this practice took more time to be implemented effectively, the impact of this approach on a nation is enormous. This study also revealed the widespread acceptance of green building's benefits among the public. Among the main factors contributing to the sustainability of green buildings in Malaysia are energy efficiency, an increase in building value over time, and improved occupant health, comfort, and satisfaction. The results reveal that there is a shared interest among all respondents in supporting the implementation of green buildings. This demonstrates that many Malaysians are interested in green building implementation. Most of them agreed that green buildings are a crucial strategy to achieve sustainable development. The public needs to demonstrate its ability to maintain this trend and improve its demand for green buildings to capitalise on the growing interest in sustainability at large and support the government in embracing sustainable development goals.

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REASONS FOR MALAYSIAN LIFE INSURANCE PENETRATION

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ABSTRACT

A low rate of insurance market penetration indicates a slower rate of economic expansion. Malaysia's life insurance penetration rate over the previous five years of 2020 was only 54 percent, which was low compared to other Asian countries. Malaysians will be exposed to more financial risk if the country's life insurance coverage rate is unfavourable. Based on the observation, people are always skeptical when talking about topics that are related to insurance. Most of the public have negative thoughts about insurance. Most people nowadays think that insurance is fraud either in terms of purchasing insurance or becoming an insurance agent. This is because they do not have enough knowledge about insurance as a whole. Therefore, based on the statement above, the objective of this study is to know the factors that may lead to the low penetration of life insurance in Malaysia. Service quality, awareness, and age are the factors related to the low penetration of life insurance. All the data were analysed by collecting the primary data with a questionnaire. The researchers distributed the questionnaire to the sample of 150 respondents in Temerloh, Pahang, Malaysia. The data collected were analysed using SPSS to come up with the research result. In this research, it was found that service quality, awareness and age are significant with low penetration of life insurance in Malaysia.

Keywords: *life insurance, market penetration, service quality, awareness, age.*

1. INTRODUCTION

People typically want security and the assurance that life will go on as one of their primary demands in human existence. The insurance products have the appeal to offer protection against the dangers of unanticipated occasions like accidents, serious illnesses, or unexpected death in this situation. People might use insurance as an option to safeguard themselves against the risk of losing their belongings. The risk of death and property damage can be reduced or shifted with the help of insurance. The practice of insurance has been in existence since the dawn of time because it is crucial to the economy and society due to the premiums it collects, the size of its investments on a global and regional scale, and most importantly, the crucial part it plays in covering individual and corporate risks (OECD, 2021).

Based on the Life Insurance Association of Malaysia (LIAM) in Malaysia, the local insurance marketplace is separated into two parts namely life insurance and general insurance. Life insurance serves to protect the insured family members, creditors, and other parties from losing their ability to earn in the case of death or serious injury. While general insurance, which is divided into many different forms, aims to safeguard those who are insured against losses due to partial or total loss of the covered property. It also covers losses resulting from damage to that property. Among the various insurance products, life insurance policies have become of special focus and interest due to the pandemic outbreak of COVID-19 (Descombes, 2021) and it is studied in this research. A financial product called life insurance has been used on a global scale. Whenever situations are not favourable, it serves the purpose of protecting one individual's wealth or the main source of income for the family (Budin et al., 2020). However, a lot of people continue refusing it and hesitate to purchase it even when they afford the chance. This is because insurance is somewhat a complicated product for them. Globally, including in Malaysia, it is difficult to achieve the full rate of life insurance penetration.

1.1 Problem Statement

According to Kamel (2020), the percentage of several Life Insurance Policies owned by Malaysian in the year 2020 for Malaysians is unfavourable and approximately one-third of Malaysians are covered with it. The penetration rate for 2020 during the previous five years was barely 54%. A total of 13.54 million Malaysians have insufficient life insurance, while 32.70 million Malaysians do not have any at all. It has significant potential for economic gain of the sector. For market opportunity, there are still 26.28 million Malaysians in this sector. Life Insurance Association Malaysia (LIAM) believes by the end of 2020, the life insurance sector in Malaysia is expected to have an overall penetration rate of 75%. However, the goal was unsuccessful based on past statistics. Now, Malaysia's sum assured per capita is still quite low, which results in underinsurance of life insurance in this country. Overall, life insurance density and penetration rate are generally lower in developing economies such as Malaysia compared to developed Asian nations.

The demand for life insurance is still not encouraged in Malaysia. In consideration of these issues, the researcher has investigated the causes and factors that have influenced Malaysians' penetration of life insurance. Based on the Life Insurance Association of Malaysia (LIAM), some people believe that because they are single and do not have any dependents, they do not require life insurance. The younger generation, those under 30 years old, is more interested in spending money on lifestyle items. Therefore, insurance is not seen as necessary to them. Other than that, it has been recognized that some of the main reasons for the low penetration of life insurance is due to the shortage of understanding of its advantages and a lack of awareness of life insurance, especially among suburban and rural areas, which has contributed to a low insurance penetration rate. In addition, further complaints have made about the behaviour of the agents. The low penetration of life insurance in Malaysia is a result of complaints such as delays in remitting premiums received from policy owners to insurers, misrepresentation of policy benefits and terms and conditions, failure of agents to clearly explain the benefits of the product sold and detail on the terms and conditions of the policy, and pressure selling tactics to customers in purchasing policies that are unsuitable to their particular requirements. The objective of this study is to identify the factors that lead to the low penetration rate of life insurance in Malaysia. The independent variables identified are service quality, awareness and age.

1.2 Research Hypothesis

Despite the current growth in life insurance product, this study intends to assess the following hypothesis in view of the previous literature:

H1. There is a relationship between service quality and life insurance penetration

Service quality depends to a large extent on the information-gathering and processing activities of the agents (Eckardt & Doppner, 2010). The quality of the agent' service and the strength of the relationship with the customer play a major role in customer purchasing of life insurance products.

H2. There is a relationship between awareness and life insurance penetration

According to Sang, Mohidin and Budin (2020), based on the afore mentioned facts, the expansion of the nation's life insurance and family takaful sectors is overall good. However, such data should not be the only criterion employed as the BNM targets family takaful and life insurance penetration rates of 75% by 2020, but as of 2017, Malaysia's penetration rate was only at 56%.

H3. There is relationship between age and life insurance penetration

The insurer's level of age significantly influences the insurance purchasing policy. Estevez (2021) demonstrated that the insurance premium is charged according to the time of purchase and duration of the insurance policy. This condition explains that the insurance premium will increase by about 8%-10% for every year of age. Thus, it is more expensive to purchase insurance when people get older.

2. LITERATURE REVIEW

2.1 Low Penetration of Life Insurance

The demand for life insurance has grown as a result of the present COVID-19 environment because of the need for security and protection of human life and health. The health insurance sector has been recognized as one of the main economic drivers, playing a critical role in mitigating personal and commercial risks in the event of unforeseen circumstances. However, the penetration rates of Family Takaful and Life Insurance in Malaysia at 54% and 19%, respectively, are well below the 75% objective set by Bank Negara Malaysia (BNM) in 2017. The penetration rate is measured as the ratio of premiums underwritten in a particular year to the GDP (Malaysia Takaful Dynamics, 2015). Over the past decade, as the general public becomes more educated and mindful of the importance of insurance, the amount of per capita insurance expenditure in Malaysia has improved by 128% from RM338 in 2000 to RM771 in 2010. According to Swiss Re's (2020)

statistics, developed market insurance penetration rates have suffered from persistent issues over the past ten years and have generally performed badly when compared to developed nations.

Health insurance literacy refers to a person's capacity, knowledge, and assurance in evaluating accurate information about a healthcare plan as well as their ability to choose the best plan based on their financial and physical well-being (Quincy, 2012; Williams et al., 2021). The likelihood of actually buying health insurance is considerably positively correlated to doing so (Al Mamun et al., 2021). The insurance sector must make significant investments in analytics, digital, AI, and robotics since everyone is using smartphones. Thus, there is a huge opportunity to invest in technology in order to reach every person in both rural and urban areas, which then increases insurance penetration over the worldwide average (Radhika & Satuluri, 2019).

Every government should prioritize boosting insurance activity while also ensuring insurance penetration and density via a study on the factors that contribute to its growth (Hristova, 2022). According to Cytonn Investments (2015) and IRA (2015), the expansion of the service offering, favourable demographics, various distribution channels, innovation, and a strong regulatory framework and industry-specific compliance requirements are the major factors for the development of insurance sector (Barasa, 2016). Some economists support the idea of an efficient market and contend that competition will often result in the best positive social effects (Damtew & Muraguri, 2021). The study found that using government subsidies, providing policy incentives, evaluating rules, and ensuring adherence to regulatory criteria will result in the supply of competitive insurance solutions and market trust that is necessary for better insurance penetration rates (Damtew & Muraguri, 2021).

Previous studies have found various factors that contribute towards insurance penetration in several regions and countries like India, Kenya, Bulgaria, etc. As such, this research investigates the factors that contribute towards the low rate of life insurance penetration, focusing on service quality, income level, knowledge, awareness, and age.

2.2 Service Quality

Consumer expectations and perceptions are compared to determine service quality (Bungatang, 2021) and as a starting point for assessing service quality, it considers the customer's expectations. Service quality is defined as "focusing on meeting the wants and needs of the customer and how good the service delivered meets the customers' expectations" (Paposa, Ukinkar & Paposa, 2019).

As consumers purchase items, they can evaluate the quality of the products by looking at several factors like design, durability, colour, feel, packaging, and so on. According to Siddique and Sharma (2010), service quality is measured based on six dimensions, namely assurance, competence, personalized financial planning, corporate image, tangibles and technology dimensions. It was found that the prior areas of service are assurance, competence, followed by personalized financial planning.

Service is an intangible component that is considerably more difficult to judge than products. Quality serves as the primary differentiator for both products and services. However, because services have so many diverse features and cannot be touched, clients find it difficult to evaluate the latter or handled like a product, but only dependent on the attitudes of the parties involved in the service transaction (staff and consumer) (Saha, 2019). How effectively the service given meets the customer's expectations is a measure of service quality.

According to Limna and Kraiwanit (2022), Khan and Fasih (2014), and Naeem et al. (2009), service quality has a significant impact on customer satisfaction, financial performance, customer retention, customer loyalty, and the effectiveness of marketing strategies. By focusing on service quality, firms may increase customer happiness, service quality, and maintain a competitive edge (Limna & Kraiwanit, 2022; Karim & Chowdhury, 2014; Wijetunge, 2016). Therefore, it is crucial to take service quality into account.

Since insurance is a service that is intangible, quality can be assessed according to the following parameters, namely tangibility, reliability, responsiveness, empathy, safety and technology (Paposa, Ukinkar & Paposa, 2019; Siddiqui & Sharma, 2010; Parasuraman et al., 1985). Tangibility refers to physical proof of the services being supplied that comprise a variety of aspects such as physical building, equipment, people, and materials. Reliability is the consistency in performance and trustworthiness that covers the elements like upholding commitments, addressing customer problems, providing service from the start, maintaining error-free records, and providing service on schedule. Responsiveness is employees' eagerness or preparedness to provide services that specifies the timeliness of the services provided and comprises aspects such as correctness, promptness, helpfulness, and speedy reaction. Safety refers to employees' courteousness, as well as their capacity to instill

trust in clients that encompasses aspects such as secrecy, safety, politeness, and knowledge. Empathy refers to the compassionate and personalized attention offered to clients in which the company has the ability to listen and comprehend the demands of its consumers and provide individual attention, accessible operation hours, personalized services, customer centricity, and customer need analysis. Technology includes the collection of different techniques, methods, and procedures employed in the provision of services.

2.3 Awareness

In Malaysia, 16 family life insurance and takaful firms are now in operation, according to the Life Insurance Association of Malaysia (LIAM, 2018) as of January 2020.

Knowledge is the result of one person's learning process. According to Aramiko, Zuhrinal and Yanti (2021), and Wulandari and Suyanto (2014), knowledge can be influenced by many factors which may come internally and externally that is available from the perspective of facilities and socio-cultural conditions. Meanwhile, the author also added awareness which is the individual's degree of vigilance on internal or external incentives of the surrounding situations (Aramiko, Zuhrinal & Yanti, 2021; Solso, 2007).

Most of the business's objective is to increase its sales as well as profits. The company will try to encourage customers towards its products and services for purchase and customer lifetime value which means steam of purchases over the lifetime period. Brand awareness means how to create interest of the current and potential customers towards the products and services (Gustafson & Chabot, 2007). The number of studies that investigated the understanding of insurance and takaful awareness is, however, limited (Salman, Rashid & Hassan, 2017).

Brand consideration is a must while deciding to purchase a product or service, because if there is nothing to be considered, the probability is that there is nothing to be chosen (Baker & Nedungadi, 1986). In India, a study showed that non-Muslim insurance policyholders are unaware that the insurance industry is subject to interest, uncertainty, and gambling. The same goes for Muslim policyholders, and most non-Muslims do not believe that insurance practices should be outlawed due to their respective faiths (Salman, Rashid & Hassan, 2017).

Insurance is the unique and most important financial instrument used to cover the risk in society. Therefore, insurance plays an important element in the sustainable growth of the economy. Despite the importance of insurance, unfortunately, insurance products are still not used widely. A study commissioned by the Life Insurance Association of Malaysia in 2013 investigated on people who have purchased life insurance which uncovered several important findings.

A greater understanding of the importance and advantages of having a life insurance policy for a family will promote its use in the community. However, the less favourable figures from BNM and LIAM on Malaysian citizenship in life policies, particularly those of the B40, may be seen as a sign that people's understanding of the value of life insurance or family takaful is still at a low level (Sang, Mohidin & Budin, 2020).

An individual will rely on their knowledge about the product, both inside and out, while making a purchase that they may then select the item that will benefit them and make the proper purchase (Keat, Zakaria & Mohdali, 2020). Product knowledge refers to a person's level of comprehension and awareness of facts about a product, such as its brand, quality, or price (Keat, Zakaria & Mohdali, 2020).

2.4 Age

Awareness can be defined in many ways. Nowadays people are required to have serious concerns about issues like health conditions, the environment, social life support and financial protection. An accident can happen as simply as we drive out to get some take-out food or when we are walking down the stairs at anytime and anywhere. It can happen to anybody regardless of age and health condition. Therefore, it is important to keep in mind to avoid the misconception that young and healthy people do not require financial protection when it comes to their health. More evidence has shown that health condition does not discriminate against people based on their age or personal background as negative condition can happen to everyone. Poan, Merizka and Komalasari (2021) believed that insurance is one of the social protection tools to minimize life risks which provides a shield against unforeseen circumstances and danger that can occur to anybody.

Apparently, Malaysia Medical and Health Insurance (MHI) started in the early 1970s with the major industry players being foreign-based insurers such as American International Assurance, AETNA, AIA Prudential and many more insurance providers (Rahman & Daud, 2010). Realizing the importance of having protection, the life insurance and family takaful sector is one of the major components of the current Malaysian financial market. Insurance protection is recognized as one of the personal commitments which should be listed as a priority for future protection. The government and non-

government institutions are now progressively providing information to increase public awareness of personal protection insurance. The Inland Revenue Board of Malaysia (Lembaga Hasil Dalam Negeri) through National Strategy for Financial Literacy 2019-2023 reported that one-third of people in Malaysia have limited personal financial knowledge and up to 92% of these people possess deposit products and are less likely to add high-risk investment products into their financial portfolio. This situation includes their preparation for unexpected life events, in which a staggering 52% of them find it hard to raise even RM1,000 as an emergency fund while only 24% have adequate funds to sustain their living expenses for 3 months or a longer time.

More importantly, the result also disclosed that less than 20% of the people have sufficient life insurance to protect them from any unexpected event or incident (Goh, 2022). On the other hand, data retrieved from the Life Insurance Association of Malaysia (LIAM, 2018) published that there are 16 family life insurance and takaful companies operating in Malaysia as of this writing. Lim, Mohidin and Budin (2020) also agreed that less than half of Malaysians are covered by life insurance or family takaful to protect themselves against the risk.

Despite the importance of having life insurance protection, there are some factors which contribute to people's commitment towards this. The factors include the level of income, education level, age, gender, number of dependents, existing policy's basic sum assured and level of personal debt (Min, 2008). Recognized by Affordable Care Act (ACA), it requires the insurer to cover any individual who intends to enroll and control the insurer on how they rated the premium according to the individual characteristic or background. This situation explains that insurers are not allowed to rate the premium according to varying health status and different gender. Premiums rated according to age are restricted to a proportion of three to one (which means the premiums for 64 years old is three times the premium for 21 years old).

Meanwhile, Lim and Tan (2019) stated that people in the age group of 20-29 years old have a lower likelihood to own life insurance as compared to the respondents in the age group of 30-39 years old and above. In addition, Abdul-Fatawu, AI Logubayom, and Abonongo (2019) found that age is statistically insignificant as it was found to be positively related to the demand for life insurance. Thus, this situation explains that as age increases, the demand for life insurance increases. This may be attributed to the need for individuals as they age to meet their basic needs and that of their dependents like shelter, higher education and saving for retirement purposes. Considering the age factor, Nidhiagrawal and Agrawal (2017), and Yadav and Tiwari (2012) emphasize that customers' decision regarding the purchase of life insurance is affected by many factors including gender, age and income of individuals which have a significant impact on buying decision of life insurance policies.

3. RESEARCH METHODOLOGY

The collection of quantitative data was part of this investigation. Primary data and secondary data were the two categories of data sources that the researchers concentrate on. Based on the preliminary data obtained from the sample's self-administered questionnaire, the primary data were acquired. Additionally, to assist this study, the researchers also consulted secondary data from sources including articles, the internet, and journals. The questionnaire was distributed at random to 150 respondents in Temerloh, Pahang, Malaysia to study the factors that influence the low penetration of life insurance, and all the responses were considered for analysis. The questionnaire for this study was divided into three sections: Section A is on demographics (gender, age, income, occupation, and marital status), Section B is on life insurance penetration, which is the research's dependent variable adopted from Case Study by Life Insurance Association of Malaysia & Universiti Kebangsaan Malaysia (2013), while Section C is on independent variables, including service quality (adopted from Singh, Sirohi & Chaudhary, 2014), awareness (developed by researchers), and age (adopted from Liebenberg, Carson & Hoyt, 2010; Savvides 2006). For gender, occupation, and marital status in Section A, the nominal scale was utilized, while the ordinal scale was used for age and income. In addition, the 5-point Likert scale was applied in Sections B and C. Non-probability sampling, often known as convenience sampling, was used for this study. The population's components do not have any probabilities associated with them being selected as sample subjects in a non-probability sampling method (Sekaran & Bougie, 2011). Because the information was gathered from respondents who were willing to participate and not yet covered by insurance, the researchers employed convenience sampling.

The list of respondents in Malaysia serves as the sample frame for this study. As a result, to accurately represent the size of the population, at least 150 respondents were recruited for this study. Altunışık et al. (2004) suggested that sample size greater than 30 and lower than 500

is suitable for the majority of the study. The Statistical Package for Social Science (SPSS) software version 26 was used to analyse all of the data gathered.

4. FINDING AND ANALYSIS

4.1 Demographic Respondents

About 54.7% of the respondents were men, and 45.3% were women, making men the majority in terms of gender. In contrast, the respondents between the ages of 26 and 35 contributed the most (33.3%), followed by those between the ages of 36 and 45 (30%), the respondents under the age of 25, the respondents between the ages of 46 and 55 (9.3%), and the respondents over the age of 56 (2.0%). There were 150 respondents in total. In terms of occupation, the non-government sector accounted for 45.3% of all respondents. Then, 40.0% of the respondents worked in the public sector, 11.3% were self-employed, and 3.3% were pensioners. Last but not least, a majority of the respondents (34.0%) have incomes between RM 1001 and RM 2000. The respondents with incomes between RM 2001 and RM 3000 came in second with 31.3%. Secondly, only 2.7% of all respondents made more than RM 4001. However, 8.0% of respondents had an income of between RM 3001 and RM 4000.

4.2 Reliability Test

The dependability statistics for all dependent and independent variables are displayed in Table 1. In terms of internal consistency and stability of each questionnaire item, the reliability statistics for the life insurance penetration, service quality, awareness and age were 0.841, 0.812, 0.789 and 0.702 respectively. All the values were good. Therefore, it can be said that the survey items were reliable and consistent in all circumstances.It can also be said that the survey items are reliable and consistent in all circumstances.

Table 1: Reliability Statistics of Variables

Variables	No of Items	Cronbach's Alpha	Strength
Life Insurance Penetration	5	0.841	Good
Service Quality	5	0.812	Good
Awareness	5	0.789	Good
Age	5	0.702	Good

4.3 Descriptive Analysis

Table 2 displays the descriptive statistics for all independent variables. To further clarify, age has the greatest mean value (4.36), followed by awareness (4.20). Service quality, with a mean score of 4.16, has the lowest overall score.

Variables	Mean	Rank
Service Quality	4.16	3
Awareness	4.20	2
Age	4.36	1

Table 2: Descriptive Statistics for Independent Variables

4.4 Correlation Analysis

The Pearson-product moment correlation coefficient was used to analyse the relationship between the independent and dependent variables. Table 3 can be used to establish how strong the association is. Firstly, the data showed a significant positive correlation between service quality and low life insurance penetration ($r = 0.927$, $p<0.01$), with bad service quality being linked to low insurance penetration. Next, there was a significant positive association ($r = 0.775$, $p<0.01$) between awareness and low life insurance penetration, with low awareness being related to low life insurance penetration. Finally, there was a significant positive connection between age and low life insurance penetration ($r = 0.749$, $p<0.01$). Age correlated with low life insurance penetration.

Variables		DV	IV1	IV2	IV3
Low Life Insurance Penetration	Pearson Correlation	1	.927**	.775**	.749**
	Sig. (2-tailed)		.000	.000	.000
	N	150	150	150	150
Service Quality	Pearson Correlation	.927**	1	.690**	.872**
	Sig. (2-tailed)	.000		.000	.000
	N	150	150	150	150
Awareness	Pearson Correlation	.775**	.690**	1	.559**
	Sig. (2-tailed)	.000	.000		.000
	N	150	150	150	150
Age	Pearson Correlation	.749**	.872**	.559**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	150	150	150	150

Table 3: Correlation Analysis

4.5 Multiple Regression Analysis

4.5.1 Model Summary of R-Square

According to Table 4, the value of R2 is good, which means the independent variables can account for 90.4% of the variation in the characteristics that may contribute to poor life insurance penetration and only 9.6% of the variation is unaccounted for. As a result, other factors that are not listed in the factors may account for 9.6% of the variables.

Model	R	R Square	Adjusted R Square	Std Error of the Estimation
1	.951[A]	.904	.902	.11596

Table 4: Model Summary

4.5.2 Anova

Table 5 depicts the F-statistic, P-value = 0.00, which is less than alpha value = 0.05. It means that all variables are significant.

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	18.459	4	4.615	343.173	.000[a]
	Residual	1.950	145	.013		
	Total	20.409	149			

Table 5: ANOVA

4.5.3 Regression Coefficient

The default indicator for regression analysis at the 95% confidence level is shown in Table 6. If the P-value is less than 0.05, it is deemed as significant; if it is greater than 0.05, it is deemed as not significant.

P-value Sig	Result
Less than 0.05 (<0.05)	Significant
More than 0.05 (>0.05)	Not significant

Table 6: Rule of Thumb of Regression Analysis at 95%

Based on the result in Table 7, the regression for the hypotheses that analyse the low penetration of life insurance can be derived as below:

Y = Constant + Bx1+ Bx2 – Bx3

= 0.453 + 1.069x1 + 0.232x2 – 0.270x3

Where Y = Low life insurance penetration

X1 = Service Quality

X2 = Awareness

X3 = Age default indicator for regression

According to Table 7 and the established equation, any 1-unit increase in the independent variables of service quality resulted in 1.069 units of improvement and 0.232 units of awareness. On the other hand, the age-independent variable decreased by 0.270 units.

Model	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
	B	Std. Error			
(Constant)	.453	.177		2.553	.012
Service Quality	1.069	.121	1.026	8.814	.000
Awareness	.232	.042	.225	5.565	.000
Age	-.270	.070	-.205	-3.876	.000

Table 7: Coefficients

4.6 Summary of Hypothesis Testing

Age, service quality, awareness are three significant independent factors which show that the result is consistent with or supported by other research. Researchers have summarized the findings of their regression study .

Based on Table 8, H1, H2, and H3 are the three hypotheses that can be accepted following the multiple regression analysis. Additionally, for Hypothesis 1, it can be asserted that low penetration of life insurance is caused by an insurance company's unsatisfactory service quality, showing that service quality is a predictor of the factor. In addition, it can be deduced from Hypothesis 2 that low life insurance penetration is caused by respondents' ignorance and lack of awareness. It suggests that life insurance awareness plays a significant role in the penetration of the market. Nevertheless, for Hypothesis 3, it can be concluded age does not affect respondents to buy life insurance premiums as referred to the P- value = 0.000.

Hypothesis	Result	Decision
H1: There is a relationship between service quality and life insurance penetration.	$p = 0.000$ ($p < 0.05$)	Accepted
H2: There is a relationship between awareness and life insurance penetration.	$p = 0.000$ ($p < 0.05$)	Accepted
H3: There is a relationship between age and life insurance penetration.	$p = 0.000$ ($p < 0.05$)	Accepted

Table 8: Summary of Hypothesis Testing

5. DISCUSSION AND RECOMMENDATION

Over the years, the individual life insurance industry has experienced a slow growth in the face of economic headwinds and low customer demand. This negative trend illustrates a low demand of people's public awareness on the need of protection which requires an increase to help them in mitigating the individual and family potential risk. Undeniable life insurance can equip and prepare people for any potential risk that could happen in the future in terms of financial aspects.

Nidhiagrawal and Agrawal (2017) agreed that life insurance companies should provide potential customers with innovative ideal products of high-risk cover, more attractive returns and affordable or inexpensive rates of insurance premiums to attract a greater number of customers. This premium coverage is recommended to be broadened into a different variable of demographic, premium lifetime, and social support system.

The next strategy to encourage people subscription to the life insurance package is by educating these people on the importance of protecting themselves from any hazards. In addition, this process appears to be one of the significant ways that can stimulate people's acceptance in Malaysia. The information on life insurance is expected to generate a better understanding in terms of the future financial system in assisting the insurer to invest more efficiently. Therefore, people will have greater perspective on the purpose of life insurance and recognize the various types of insurance products available which at the same time would increase a greater demand for life insurance packages.

In addition, life insurance premium is recommended to be equipped with saving package. Lim et al. (2020) emphasized that people should be educated to understand the importance of life insurance products and the long-term saving package. This initiative can help the people with low financial knowledge especially the B40 and younger generation. Meanwhile, the life insurance provider should effectively explain the package with accurate information which is delivered in the language and context that are easily understood by all walks of life. This will have a better impact in increasing the understanding and knowledge of life insurance products. In addition, the package coverage may also increase the health care access such as including outpatient care for certain hazard behaviour either from the insurer or the insurance providers (Bakar, 2016). People are more likely to be influenced in having a package which can protect them from measurable loss, injury, liability, loss, or external or internal weaknesses that can be prevented by active actions (Abdul-Fatawu, Logubayom, & Abonongo, 2019).

Chung (2020) provided evidence by stating that Malaysia's life insurance industry has shown a remarkable 14.9% growth of new business in 2019. This progressive performance is the result of the increase in awareness or knowledge among consumers on life insurance protection which has raised their confidence and intention to buy the insurance. Because of this positive trend, the life insurance provider should take the opportunity to raise the people's confidence and intention to purchase insurance policy. A professional advice and well-trained consultants can significantly influence their buying decision. This action can also improve people's perception about insurance companies.

6. CONCLUSION

This study has gone a long way in filling the gaps in assessing the factors to determine people's acceptance of life insurance products. The findings significantly demonstrate that the research variables of service quality, knowledge and awareness, and age significantly influence insurance penetration at $p=0.00$ ($p<0.05$). The result clearly explains that all the factors are positively significant to encourage people in protecting and mitigating themselves from any risk in the future. The potential policyholder should equip themselves with all the information as well as the insurance coverage, consumer protection and regulatory information to enhance their understanding as the policyholder. On top of that, the life insurance providers are responsible to provide relevant information in order to educate the households on the coverage of risk exposure as well as their understanding

and knowledge of insurance products and markets.

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BUSINESS STRATEGY FOR JHON'S PARDEDE INTERNASIONAL HOTEL AFTER COVID 19 PANDEMIC IN BUILDING A SUSTAINABLE BUSINESS

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ABSTRACT

Central Jakarta the location of this hotel is also a densely populated area and is a business center. Covid 19 forced the hotel to close operations in March 2020. The occupancy rate of Jhon's Pardede International Hotel has decreased. Qualitative research approaches the ways used to collect, analyze, and interpret data. The study used in-depth interviews and observations. The cost leader strategy in cost savings and low pricing and the hotel is in a defensive strategy position, the partnership strategy can be a strong choice for hotels to compete in the industry. Jhon's Pardede International Hotel can immediately implement GCG and Develop KPIs. Researchers gave some suggestions on hotels according to the results of Jhon's research Pardede International Hotel can immediately plan investment in Phase 1 Renovation. The goal is to improve the quality of hotel services and customer satisfaction so that hotels can plan for greater profits in the future.

Keywords: *Business Strategy, Hospitality Business*

1. INTRODUCTION

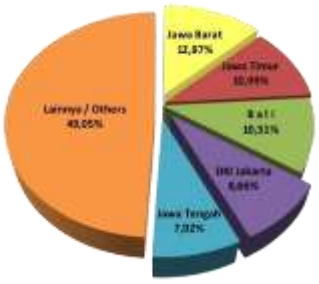

Figure 1: Distribution of the Number of Accommodation Business Rooms by Province in 2022

The hotel industry is an industry engaged in accommodation or lodging services. This industry includes businesses that provide lodging services such as hotels, motels, resorts, apartments, and the like. The hotel industry focuses on providing lodging facilities and services related to guest needs, such as food and drinks, meetings and events, cleanliness, comfort, and security (Statistics Center, 2022).

Of the total hotel and accommodation businesses in Indonesia, the province of Bali has 3,528 businesses (11.86%), West Java has 3,353 businesses (11.86%), Central Java has 2,124 businesses (11.86%) and D.I Yogyakarta has 1,709 businesses (5.75%)). In 2022 the number of hotel rooms and other accommodations in Indonesia will be 788,982 rooms. 5 Provinces The number of hotel rooms and other accommodations is West Java 12.87%, East Java 10.99%, Bali 10.51%, DKI Jakarta 8.66% and Central Java 7.92%, while other provinces are 49.09 % (BPS, 2022).

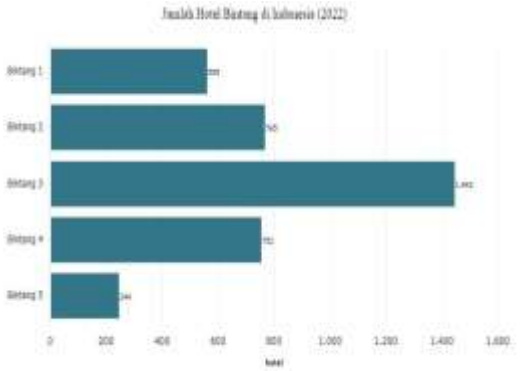

Figure 2: Graph of the Number of Star Hotels in Indonesia (2022)

1.1 Covid 19 Pandemic in Indonesia in 2020-2022

The COVID-19 outbreak in 2020-2022 has had a significant impact on the Indonesian economy, which forced the government to respond with various economic policies. Impact on the Tourism Sector: The tourism sector is one of the sectors most affected by the COVID-19 pandemic, as international and national travel restrictions and restrictions on social activities discourage tourists from traveling. The government has taken steps to support the tourism sector, such as allocating special stimulus funds, providing tax incentives, and relaxing visa policies (Iksan, 2018).

Impact on the Employment Sector: The COVID-19 pandemic has also had an impact on the employment sector, including increased unemployment, decreased income, and job loss. To overcome this, the government has issued pre-employment card programs, social assistance programs, and skills training (Vebby et al., 2021).

COVID-19 has had a significant impact on the hotel business in the world in general and in Jakarta in particular, as it has in other major cities in Indonesia and around the world. Travel restrictions and lockdowns imposed by the government to control the spread of the virus have reduced the number of tourists and business travelers which has affected hotel occupancy rates in Jakarta. The decline in hotel occupancy rates also had an impact on hotel revenues. Many hotels in Jakarta have experienced a significant drop in revenue during the COVID-19 pandemic (Gusriza et al., 2023).

Many large events and gatherings in Jakarta have been canceled or postponed due to the pandemic, which has reduced the revenue generated by hotels. Many hotels in Jakarta have reduced staff numbers to reduce operational costs and maintain business continuity. Several hotels in Jakarta have changed their business model, for example by focusing on room service and food and beverage delivery to the room, in response to.

The occupancy rate or the occupancy rate at a hotel is the average percentage of rooms occupied by guests over a certain period of time, usually calculated per day or per month, changes in consumer behavior during a pandemic (Srimulyani et al., 2021).

$$\frac{\text{Number of rooms sold}}{\text{Number of rooms available}} \times 100\%$$

Figure 3: Formula 0—1 Occupancy rate

In the hospitality industry, *occupancy rate* used as one of the main indicators to measure hotel performance. The higher it occupancy *rate*, the better the hotel's performance because it shows that more guests are staying at the hotel. However, occupancy rates that are too high can also be a problem because they can lead to limited room availability and increased room prices. Therefore, the optimal target occupancy *rate* usually varies depending on factors such as the location of the hotel, time of year, and the type of guests being targeted (The Impact of Covid on the Occupancy of the Jb Marriot Hotel, 2020).

During occupancy rate sufficient variable costs and contribute to covering fixed costs (wages, salaries, asset depreciation, rent, electricity, and other costs), On the other hand, if the demand for hotel services exceeds hotel capacity, this means that the occupancy rate of the hotel reaches a level maximum.

1.2 After the Covid 19 Pandemic in Indonesia in 2022

Post COVID-19, hotel businesses in Jakarta must be able to adapt to changes in consumer behavior and stricter safety and hygiene requirements. Consumers may prefer to travel domestically rather than internationally and may pay more attention to cleanliness and safety when selecting hotels. Therefore, hotels in Jakarta must pay attention to the needs and preferences of consumers and adapt their services and facilities to meet these requirements Baiq Febri Izzati Isnaini et al., 2023).

Technological developments will continue to influence the hotel business in Jakarta. For example, advanced technologies such as online booking, digital services, and artificial intelligence technologies can help hotels improve efficiency and the consumer experience.

More stringent hygiene and safety requirements will continue to apply, so hotels in Jakarta must continually update their cleaning and safety protocols to ensure the safety and health of guests and staff. Health and fitness are becoming more important to consumers, so hotels in Jakarta have to adapt their services by offering facilities such as gyms, spas, and healthy food and drinks.

The hotel business model may change after COVID-19, with a focus on room service and food and beverage delivery to rooms, as well as attractive holiday or staycation package offers. In the long run, hotel businesses in Jakarta must be able to continuously adapt to changing trends and consumer needs, as well as take proactive steps to increase efficiency, reduce costs, and improve the quality of their services to maintain, develop and win business competition in the hotel industry. Following the COVID-19 pandemic, many hotels have had to adapt their marketing strategies to

cope with changes in consumer behavior and changing markets (Bisnis et al., 2018).

The lack of quality human resources, the condition of hotel buildings and facilities which are 60%, the world economic conditions which are experiencing a recession, the hotel's not good financial balance, and the tight competition of competitors did not weaken the owner's decision to continue to run his hotel business again. This decision motivated researchers to make research materials (Rafliani, 2023).

As the researchers have described in the background. The formulation of the problem that the researcher wants to examine is:

1. What business model is right for Jhon's Pardede International Hotel to carry out its business decisions?
2. What marketing strategy is Jhon's Pardede International Hotel to win the competition?
3. How can Jhon's Pardede International Hotel develop a sustainable business?

2. RESEARCH METHODS

This research method is used to understand social phenomena or human behavior through the collection and analysis of descriptive data. Qualitative research methods include data collection techniques such as interviews, observation, documentation, focus groups, and case studies. This research method is used to understand the meaning given by individuals to their life experiences through data collection through in-depth interviews (Creswell 2015).

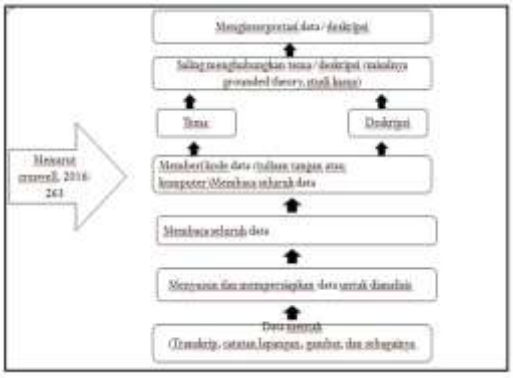

Figure 4: Data Analysis in Qualitative Research John W. Creswell

The qualitative research approach refers to the methods used to collect, analyze, and interpret data in qualitative research. The qualitative research approach used depends on the objectives and research problems to be answered.

Qualitative research approaches used by researchers in the thesis are interviews, observation, and documentation. The reason is that researchers have a close relationship with hotel stakeholders and marketing partners at the hotel, so the research approach chosen has a great chance to be implemented (Wijaya, 2018).

2.1 Research Locations

Research Location Data:

1. Company name: Jhon's Pardede International Hotel
2. Address: Jl.Raden Saleh I No.9-11 Central Jakarta, Menteng, Jakarta, Indonesia, 10430

Figure 5: Research Locations

Some things to consider in choosing a research location include:

1. Accessibility: Research locations are easily accessible and reachable by researchers and research participants.
2. Compatibility with research objectives: The research location is in accordance with the objectives and focus of the research to be carried out.
3. Social context: The research location represents the social context associated with the phenomenon being studied. This can enrich the understanding and interpretation of research results.

Safety: The research location is safe for researchers and research participants.

2.2 Research Time

Qualitative research time can take place in a short period of time or in a longer period of time. Short qualitative research is usually done over a few weeks or months, while longer qualitative research can take up to several years.(Creswell 2015.)

Activity	February	March	April	May	June
Proposal Making					

Seminar Proposal				
Proposal Revision				
Field data collection				
Data processing				
Data verification				
Post Field Guidance				
Research session				

Table 1: Research Roadmap

2.3 Research Data Sources

Here are some research data sources that researchers used:

1. Interviews: The primary data source used in this research is interviews. Interviews are conducted in person or over the phone and the types of interviews can be conducted, such as structured, semi-structured or unstructured interviews.
2. Observation: The next source of primary data is obtained by observing, involving the researcher's direct observation of the behavior or phenomenon being studied. Observations are carried out in a participatory or non-participatory manner and last for a short period of time.
3. Documents: Documents are an important secondary source of data in this research, such as reports, letters, journals or business records. and quantitative. Secondary Data: Secondary data is data that has been collected by others and is available for research use. This secondary data can come from public sources such as the government, statistical agencies, or research institutions, or from private sources such as companies or non-profit organizations.
4. Digital techniques: Digital techniques are also used by researchers in research, such as digital data analysis, text analysis, or analysis of social networks owned by hotels (Creswell 2015).

2.4 Profile of Sources

The researcher has determined the criteria for interviewees to be interviewed. The criteria are based on the characteristics of the participants that are relevant to the research question. The number of informants who were successful in participating in the study was 15 people who were stakeholders from Jhon's Pardede International Hotel. The number of sources is sufficient to produce the data needed for the analysis (Wijaya, 2018).

No	No	Gender	Age	Last Education	Narrator's Description
1	ev. John Pardede	LK	70 Thn	S1	Owner
2	Jonathan Horsede	LK	41 Thn	S1	Owner
3	Hamza	LK	47 Thn	S2	GM
4	Henri Sitorus	LK	49 Thn	D3	Manager
5	Yeve Deception	LK	42 Thn	S1	Legal Officer
6	Rulli Manik	LK	45 Thn	D1	F&B Officer
7	Madong br Sitorus	Pr	26 Thn	SMK	Front Office
8	Burhan	LK	50 Thn	SMK	Technician
9	Sugiarto	LK	47 Thn	SMA	Securities
10	Alam Samual	LK	50 Thn	S2	Hotel guests
11	Well	Pr	46 Thn	S1	Hotel guests
12	dr. Tres	Pr	65 Thn	Sp. Skin	Mitra
13	Let go	Pr	38 Thn	S1	Mitra
14	Adit	LK	34 Thn	S1	Supplier
15	Fadli	LK	42 Thn	S2	Industry Member

Table 2: Resource Person Jhon's Pardede International Hotel

2.5 Data Analysis Techniques

The following are the steps taken by researchers in data analysis techniques (Wijaya, 2018):

1. Data preparation: The first step is for researchers to prepare data to be analyzed. This involves transcription of interviews, collection, and organization of documents, or pre-coding if needed.
2. Thematic analysis or pattern search: After preparation is complete, the researcher starts looking for patterns, themes, or concepts that emerge from the data. This involves reading and

comparing processed data to identify emerging relationships and linkages.

3. Interpretation of findings: This step involves interpreting the findings of the analysis. The researcher analyzes and gives meaning to the emerging themes or patterns, and relates them to relevant theoretical frameworks or literature.
4. Writing a report: Finally, the researcher writes a research report that describes in detail the analytical findings, interpretations, and conclusions of the qualitative research.

2.6 Data Validity Test

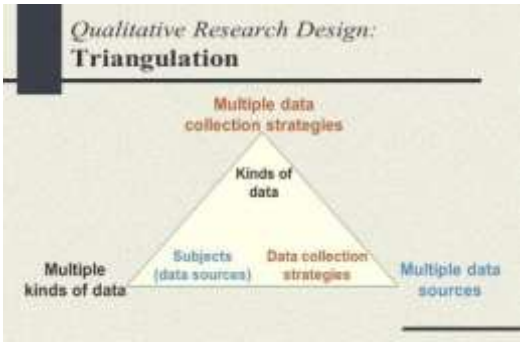

Figure 6: UHI Data Triangulation Method

The steps in the triangulation data test are as follows (Dzwigol, 2020):

1. The triangulation validity test involves collecting data from several sources or methods and then comparing the results from these sources or methods to evaluate the validity of the data. In the triangulation validity test, data collection can be done using interviews, observation, questionnaires, or other methods.
2. After the data is collected, the researcher then compares the results from each data source to ensure suitability and compatibility between the data. If the results from each data source are in line and produce similar findings, then the validity of the data is considered high and can add to the researcher's confidence in the research findings. Conversely, if the results from each data source are different, the researcher must evaluate whether there are errors or biases in data collection and implement strategies to correct them. (ASHOUR, 2018)

3. RESULTS AND DISCUSSION

3.1 Company Profile

No	Data	Amount	Information
1	Hotel Name	1 head office	- Jhon's Pardede International Hotel - Don't have branch yet
2	Address and telephone		- Jln. Raden Saleh I No.9-11, Central Jakarta, Menteng, Jakarta, Indonesia, 10430. - (021) 3146270 - Operational hours: 24 hours
3	Owner		ev. Jhoni Pardede
4	Land & Building Size, Electricity	- Lt 3000m2 - Lb 30.000m2 - 40,000 Watts	- Industrial Land and Building Tax Scale - Electric power scale for industry
5	Number of Floors	6 Floor	- Ground floor: *Penthouse*, meeting hall, and laundry *Office* - 1st floor: *Font Office*, *Lobby*, *Cafe* Medan Coffee, *Restaurant & Kitchen*, *Drug Store & Souvenir*, *Management Office*, *Safety Box*, prayer room, toilets, *Junior Suite Room*, *President Suite Room* - 2nd floor: 23 guest rooms, *Housekeeping room* - 3rd floor: 25 guest rooms, *Housekeeping room* - 4th floor: 22 guest rooms, *Housekeeping* - 5th Floor: Employee Mess, Warehouse, Elevator, and electrical machine control room - Lntai 6:*Rooftop Lounge & Bar*, Mini *Swimming pool*
6	Number of rooms	73 *Room*	Divided into 7 types of rooms: 1. *Standard Room* (room area 16 m) 2. *Deluxe Twin Room* (Luas kamar 20 m2)

			3. *Deluxe Double Room* (Luas kamar 20 m2) 4. *Penthouse* (Room area 276 m2, 3 bedrooms and 2 bathrooms) 5. *Junior Suite Room* (Luas kamar 30 m2) 6. *President Suite Room* (Room area 45 m2, 2 bedrooms)
7	Room Facilities		3-star hotel room facilities: - Bathroom (*Shower/bathtub*, hot and cold water, sink, towels, toiletries) - Bed*size king,* pillows, blankets, and blankets -. Sofa, table, wardrobe, luggage compartment, refrigerator, air conditioning, LCD TV, water heater, decorative glass, luggage and shoe storage, decorative lighting, windows, hairdryer and hotel sandals, free wifi and 2 bottles of mineral water
8	Hotel facility		1. Parking lot for cars and motorbikes, security post. Has a pick-up and drop-off service from the airport 2. Theresia Restaurant (Western, local, and Arabic food and beverage menu) 3. Medan Coffee Cafe (western, local, and Arabic food and beverage menu) 4. *Rooftop Lounge and Bar, Mini Swimming pool* 5. 24-hour front desk, luggage storage, service concierge, and Language services (Arabic, English, and Indonesian) 6. *Drug Store and Souvenir* 7. *Laundry/dry cleaning, Daily housekeeping* 8. Mosque 9. *Business Center* 10. Meeting Hall
			11. CCTV, *Safety Box*, *Lift,* nonsmoking floor and smoking floor 12 Free WIFI
9	Average Occupancy	- 20%-30% - 80%	From the number of rooms on a normal day From the number of rooms on holidays NB: Conditions Post Covid 19
10	Total Management	4 People	Consist of 1. Commissioner 2. Director 3. General Manager 4. Manager
11	Number of employees	12 People	Consist of: 1. Front Office :2orang 2. F&B :1 orang 3. House Keeping :2orang 4. Technicians: 3 people 5. Marketing : 1orang 6. Security: 3 people
12	Hotel Legality		Have legality: 1. 3 Star Hotel Permit 2. Hotel Restaurant Permit 3. PERDA PERDA PEMPROV DKI
13	Affiliate		T.D Pardede Family Business
14	*Marketplace*		1. Traveloka.com 2. Tiket.com 3. Pegipegi.com 4. Google Partner
15	*Social Media*		1. Instagram 2. Facebook
16	Web address	Landing page	https://jhons-pardede-international-hotel.business.site/
17	Customers	60% Middle Eastern tourists	- Middle Eastern tourists, the majority of whom are Jordanian and Yemeni nationals - The average guest occupation is businessmen and office workers.
18	Hotel Policy		- *Check-in*: starting at 13.00, no later than 18.00 - *Check out*: before 12:00. - Access method: *Staffed Front desk* - It is forbidden to bring pets - Prohibited from Carrying Drugs

			- Payment methods: Cash, Transfer, *Credit Card* - Comply with the Covid 19 Health Protocol
19	*Room Rate* and Meeting House		- Starting from Rp. 250,000 – Rp. 1,300,000/ night - Medium meeting hall Rp. 400,000/hour (building rental only) - Small meeting hall IDR 300,000/hour (Building Rent only)

Table 3: Profile of Jhon's Pardede International Hotel

3.2 SWOT Analysis

Key Success Factors (KSF)	Resource Interview Results
Strength	1. The shares, land, and building of the hotel are owned by Mr. Jhon Pardede and his family. 2. The hotel has been established and operating since 1994 (29 years) 3. Do not have bank debt and other parties. 4. Do not have legal problems 5. The hotel has facilities: Consisting of 6 floors with 70 bedrooms, there are restaurant facilities complete with kitchen and equipment, have complete laundry and housekeeping equipment, have a Medan coffee cafe, lounge and bar in rooftop, 2 meeting halls and ample parking
Weaknesses	1. The building is old and needs to be renovated a lot 2. Furniture and AC that are old and need to be replaced upgrade 3. Operational systems still rely on conventional methods and are not yet computerized or digital. 4. HR performs multiple tasks and there are no KPIs 5. Organizationally there is no implementation of GCG in management
Opportunities	1. Strategic location in Central Jakarta and close to offices and shopping centers 2. Revocation of PPKM restrictions due to Covid 19 which has decreased. 3. Economic and governmental activities have started to return to normal 4. The increase in the number of foreign tourists from the Middle East by 47,000 people. 5. Complete hotel facilities that can provide opportunities for collaboration and holding events
Threats	1. Many new 3-star hotels have sprung up in Central Jakarta. 2. Policies that are still gray from the government regarding Covid 19

	3. Hijacking human resources from competitors 4. The paradigm of society that believes more hotel chains 5. The development of information technology is increasingly fast and disruptive

Table 4: SWOT Analysis

3.3 Canva's Models Business

Business Model Canvas	*Designed for* Jhon's Pardede International Hotel	*Designed by:*	*Date:*	*Version:*

Key Partners	**Key Activities**	**Value Propositions**	**Customer Relationships**	**Customer Segments**
1. F&B supplier 2. Supplier s*Chemical* adtoilPetries 3. Mitra Lounge ad Bar Rooftop 4. Mitra Laundry 5. Partners of the Church Meeting house Tenants 6. Mitra Marketing Agency	1. *Quality Control* 2. Holding Promos and Events 3. Building Web Portals and Digital Marketing	1. Providing Arabic and English-speaking staff services 2. Has Arabic TV programs and Arabic food menu 3. Has 5 types of rooms: Standard, Superior, Deluxe, Suite and Pent House 4. Has Restaurant Facilities, Wifi, Rooftop Lounge and Bar, Medan Coffee, Laundry, a parking lot, and a small and medium-capacity meeting hall. 5. Our hotel has a prayer room, drugstore, souvenir shop, and business center	1. Give a discount on room rates to guests who stay long term 2. Giving F&B Vouchers to guests who rent more than one room	1. Foreign tourists from the Middle East 2. Office workers 3. Members of the Church
	Key Resources 1. HR who are experts in Arabic and masterr hospitality 2. Supplier of choice for F&B and Chemical		**Channels** 1. Market Place: Tiket.com, Traveloka and Pegipegi.com 2. Social media: Instagram, WhatsApp and Facebook. 3. Email Marketing 4. Marketng Agency 5. Google Business	
	3. Own Building and Land			
Cost Structure 1. Labor Costs 2. Cost of electricity and maintenance 3. Cost of purchasing F&B 4. Other Operational Costs 5. Promotion and marketing expenses		**Revenue Streams** 1. Room Rental Prices 2. F&B revenue from Medan Coffee 3. Price of meeting hall rental 4. Rental cooperation and profit sharing from restaurant, laundry, and Lounge and Bar partners		

Table 5: BMC

3.4 Model Change 7s McKinsey

	Structure	Strategy	System	Skill	Shared value	Style	Staff
Before the Change	The structure is simple, the number of employees is too large and the leadership is only in the hands of a director.	The company's old strategy is to use a survival strategy.	Does not have a performance appraisal system and recruitment system according to industry stan	Not everyone understands digital work.	Build efforts to advance the family.	Leadership is limited and not situational	Rewards to staff are less strategic

			dards.				
Action change?	KPIs adopted require re-evaluation and streamlining and implementing human resource development strategies	Digital transformation in all organizational divisions including implementing a KPI system and fair work.	Investment in an integrated hotel operational system and implementation of KPI applications.	The desktop KPI application requires that the entire organization is trained to work digitally and according to SOPs.	Develop new corporate values which are Professional, best service quality, and integrity	System KPIs require situational leadership and transformation.	Set rules to comply with the KPI system and reward exemplary employees.
Expected outcome of the change?	Developed structure with two top management compositions and a balanced and productive staff.	The organization has a growing business strategy, and is able to be competitive in the industry	Corporate governance is getting better and right.	Work becomes faster, controlled, and organized.	Work culture becomes faster, obeys rules, and serves professionally	Organizations that are led are more democratic, scalable, and trustworthy	All staf build good cooperation to achieve the company's target of profit.

Table 6: KPI Change Minor

4. CONCLUSION

No	Variable	Conclusion
1	Marketing Strategy	-. Cost leader on the results of the analysis five forces is a competitive strategy. (Goyal & Goyal, 2020) - ST – WT is a strategy resulting from the results of the SWOT analysis in quadrant IV, namely survival (Puyt et al., 2020) - The Alternative Strategy from the results of the SWOT Analysis isTurn Around Strategy (Sony Tambunan, 2020) - StrategyFocus in the old market segment extend market in STP Analysis (Gusriza et al., 2023) - In Kotler's 7P marketing mix analysis, you can get a pricing strategy that takes the lower middle segment or cheap price (Larréché, n.d.) - According to PESTEL Analysis results. Strategy analysis for focus on Threats and Opportunities on the influence of Technology
2	Business Models	The business model found from the research results is that 14.3% of hotels implement a partnership strategy, where the benefits of operating costs can be shared and strengthened performance finance (Zou et al., 2021)
3	Sustainable Strategy	- deepAgile analysis management found the need for competent human resources and the

		company must be able to change the work culture with designing KPIs. (Fernandez & Fernandez, 2008) - OnStakeholder Engagement in conclusion the company must have informal and Collaborative strategy with customers or clients (Rasnacis & Berzisa, 2016) - Planning Phase 1 Renovation with an estimated time of 39 days and 5 critical activities (Slack & Brandon-Jones, n.d.)

Table 7: Conclusion

Covid 19 is over, and changes in consumer behavior and the business world have occurred and require an appropriate strategy in responding to the challenges of the changes that have occurred. The growth of the accommodation business in the city of Jakarta in particular has made the competition increasingly fierce.

Jhon's Pardede International Hotel has a long experience in the world of hospitality. By studying past management mistakes or deficiencies, during the pandemic the owner and top management evaluated and formulated the right strategy in dealing with change.

Jhon's Pardede International Hotel with existing resources to decide on a strategy cost leader and business strategy partnership. These two strategies form the basis of a business model to deal with changes and competition in the industry. The financial structure is becoming healthier and most of the variable costs are the responsibility of cooperation partners.

A more streamlined organization makes the hotel a hotel category independent It has more agile space and more flexibility in developing and innovating in its business scope.

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GREEN SCHOOL CONCEPT IN A SCHOOL BASED ON THE TEACHINGS OF THE CATHOLIC CHURCH

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ABSTRACT

Green schools, also known as eco-friendly schools or adiwiyata schools, focus on environmental awareness and sustainable practices. This research aims to provide a more in-depth understanding of the implementation and impact of green schools in schools. Adiwiyata schools encourage an active and sustainable environmental awareness movement. A unique aspect of this research is the exploration of Pope Francis' encyclical, Laudato Si, which highlights how schools, as part of the education system, contribute to the preservation and maintenance of God's creation. This research uses a qualitative approach with the theory of competitive advantage and refers to previous research related to green schools and adiwiyata schools. A green school implemented in a school that is systematically included in the school curriculum and run programmatically will make this school a school that has a competitive advantage. The character and culture of caring for the environment has been embedded in students and all school members, increasing the competitive advantage for schools that implement it. So that the sustainability of the school will occur along with the concept of hij au school applied in schools based on the teachings of the Catholic church.

Keywords: *environmental care movement, Laudato Si, Green school, Adiwiyata school*

1. INTRODUCTION

The environment is the place where organisms and all of God's creations grow, live and develop, and maintain their lives. Living organisms need an environment that is directly or indirectly related and mutually beneficial. Just like other living things, humans play the most important role in the existence and sustainability of theenvironment. Humans also have the responsibility to maintain and preserve the environment so that it remains sustainable and maintained, and allows for a better and more pleasant life. Emil Salim defines the environment as objects, circumstances, conditions, and influences contained in the space where we live and interact with living things, including humans. It is evident that humans have a huge influence on the maintenance and survival and existence of the environment itself.

The earth is currently experiencingclimate change and causing various impactson all living things. It is caused by the deliberate factor by humans, establishing industries that use a lot of fossil natural resources. On the other hand, these industries cause air, land and water pollution. Another effect is the increase of carbon in the air so that the atmospheric layer is getting thinner, global warming is increasingly felt by all living things. Forestsare being intentionally burned and reduced for the furniture, paper and other wood-based products industries.

Sustainable development launched by the world invites us to do small things tosave ourselves from the many negative impacts that occur on the environment today. Thus, sustainable development programs have begun to be implemented in companies, the world of education, state- owned enterprises, government organizations, non-governmental organizations (private) and individuals, which in 2060 the ultimate goal is zero carbon.

In the field of education, schools are the most powerful means to socialize and implement environmental conservation efforts. Many schools from kindergarten to high school have implemented "Green Schools" or what is called Adiwiyata Schools. Adiwiyata School is a school that aims to encourage and form schools thatcare and have an environmental perspective. The purpose of this research is to find out the attitude of environmental care in students and to find out the implementation of character education for environmental care attitudes in Adiwiyata schools. which is adjusted to the Vision andMission of the school based on Catholicreligious teachings. One of the 3rd missionsof Strada school which is in line with this research is "Increasing concern for others, appreciating diversity, and

fighting for the preservation of the environment." And in accordance with the teachings of the Catholic church through Pope Francis' encyclical on Laudato Si, namely maintaining and caring for the integrity of God's creation. Based on data obtained from Strada as a Catholic school, currently only 10 adiwiyata awards have been won at the city, provincial and national levels. In detail, the following is the data of Strada schools that have been adiwiyata. Some problem formulations that can be taken from the above phenomenon are

1. How can the adiwiyata concept be applied in a Catholic-based school?
2. How is the relationship between the concept of adiwiyata and Catholic religious teachings in the context of environmental education?
3. How does the concept of adiwiyata contribute to shaping students' environmental awareness and responsibility in the context of Catholic faith-based schools?

From the formulation of existing problems, this research has several objectives, including:

1. Understand the concept of adiwiyata applied in Catholic faith-based schools.
2. Gain insight into the attachment between the concept of adiwiyata and Catholic religious teachings in the context of environmental education.
3. Can the concept of adiwiyata contribute to shaping students' environmental awareness and responsibility in the context of Catholic faith-based schools?

Research in the Concept of GreenSchool Based on Catholic Religion in order to gain benefits:

1. For Schools:
   Schools and all stakeholders are increasingly playing an active role in maintaining, caring for the integrity of God's creation by carrying out an environmental care and culturemovement. Other movements that can be done are electricity conservation and water conservation. Sorting and selecting waste according to its type, recycling what can be recycledand makingobjects around the school become valuable even from waste. Students and all stakeholders in the school start to reduce the use of plastic and sterofoam, always bring drinking bottles and food containers and have the habit of finishing food. So that sustainable development can start from elementary school age so that in the future it becomes a generation that cares and has an environmental culture. And the most important thing is the increasing number of schools that apply the green school concept to and mobilize environmental awareness and culture.
2. For Parents and Fellow Alumni:
   Green school includes aspects of air cleanliness, water quality, environmental cleanliness, environmentally friendly, loving the environment and also loving others. So that by loving the environment and others, negative things that have a negative impact on the environment can be reduced. For example, the culture of littering, saying dirty words, acting dirty, wasting electrical energy, wasting water, wasting food, bullying changesinto better things such as sorting andselecting garbage, saying good words that are comfortable to listen to and respond to, conserving electrical energy,carrying out energy saving movements andculturally spending food brought fromhome, and loving others by saying and acting well that leads to the integrity of creation.
3. For the Strada Association and for other school foundations:
   Through adiwiyataschools, the Foundation has a more positive image because it is an institution that cares and has an environmental culture and also implements sustainable development through adiwiyata schools. Other long-term benefits are reducing operational costs, reducing adverse impacts on the environment, instilling a culture of preserving the environment and creating a clean, healthy and cheerful environment. And especially attracting prospective parents of studentswho will join one of the schools in the Foundation because it has promoted the environmental care and culture movement. (Rahmadiani et al., 2019).

2. RESEARCH METHODS

According to Michael Porter (Porter, Competitive advantage) in this theory the most appropriate to this research is the theory of differentiation. This theory shows that an organization can achieve competitive advantage by differentiating itself from competitors, namely schools from other foundations and also state schools and other public schools by fering unique or different products or services. The differentiator is the concept of a school that implements a green school, namely a school that implements love for the environment, preserves and maintains the integrity of creation. So it is hoped that students will become more caring and environmentally cultured. And also have a soft heart for all of God's creations, so that they can speak well, act commendably and prioritize the teachings of love. So that bullying no longer exists. Awareness of the urgency of the cultural and ecological crisis must be transformed into a new habit. Many people know that our success today is only in the form of not simply accumulating goods or enjoying them gives meaning and joy to the human heart, but they cannot resist what the market offers them. In countries that have to make the most important changes in consumption habits, young people have a new ecological feeling and generous spirit and some of them take admirable steps to protect the living environment; but they grow up in a very consumptive and very rich environment, which

makes it difficult for them to develop other habits. Adiwiyata follows an agreement (2005) between the Ministry of Environment and the Ministry of Education announced on February 21, 2006. 02. 2009. This program is a government award to formal educational institutions that are considered beneficial to the development of environmental education (Ministry of Environment and Kemdikbud, 2011: 3).

Environmental protection is a necessity that cannot be delayed and is not only the responsibility of the government or state leaders, but of every person on earth. Everyone should try to save the environment according totheir abilities. No matter how small the contribution we make, it is very useful to realize a livable earth for future generations.

3. RESULTS AND DISCUSSION

The general description of the research object in this study is Strada Wiyatasana elementary school, which has now become a national level adiwiyata school. In the beginning, the school wanted to instill the values of caring and environmental culture not to get an award from the city, province and the Ministry of Environment. If we get the award, we consider it as a bonus. And still carry out several stages to become an independent adiwiyata school. By fostering 2 to 4 schools to make them into adwiyata schools at the city level. Coaching can be done by providing assistance, providing training on how to become an adiwiyata school. In line with the mandatory Ministry of Environment and Forestry through the Regulation of the Minister of Environment and Forestry Number 52 of 2019 concerning the environmental care and culture movement in schools and the Regulation of the Minister of EnvironmentandForestryNumber 53 of 2019 concerning the awarding of adiwiyata schools, SD Strada Wiyatastana continues to implement the environmental care and culture movement.

According to the teachings of the Catholic Church in Pope Francis' encyclical Laudato Si in 2015, it is emphasized that the fundamental concern for the environment has been damaged. The Pope as the supreme leader of the world's Catholics wants to greet everyone and talk to everyone. In Chapter II, the Pope provides a biblical basis. According to the book of Genesis, human beings are called to rule over the earth, not destroy it. In St. Paul's Letter to the Colossians, Jesus is the Savior of the entire universe. The fullness of redemption encompasses the universe. Encyclical Laudato si Chapter VI on Ecological Education and Spirituality is very suitable to be applied in the world of education. According to Chapter VI of Pope Laudato Si's encyclical, education and awareness are needed until a change in behavior occurs. As part of the earth, humans must participate in the care of God's creation. Respect for the environment. Green schooling refers to ecological conversion, a change in behavior, initially exploitative, selfish, violent, followed by a path of love, kindness, smiles, care for the environment, for each other and for all of God's creation. Sort and sort waste, turn waste into blessings, save water, save electricity, reduce carbon emissions as much as possible. So that our earth becomes a better place to live in and future generations can still enjoy the condition of the earth even better.

And here is the list of questions that were asked to the interviewees. These questions include:

1. What is the natural phenomenon of the environment today?
2. How to respond to natural phenomena that occur?
3. What is an adiwiyata school or commonly referred to as a green school?
4. How do green schools relate to the teachings of the Catholic Church?
5. For the Sub-Department and the Ministry of Environment, which government regulations are the references in the environmental care and culture movement in schools?
6. How is the green school concept implemented at school?
7. What obstacles are faced in implementing the green school concept and how to find solutions?
8. Messages for schools that are not yet Adiwiyata and special messages for Catholic schools.
9. The significance of attending a Catholic-based green school.

Below are verbatim excerpts grouped into themes taken from video to text transcripts that illustrate interesting perspectives, observations, and thoughts related to the topic of green school concepts in Catholic faith-based schools. Looking at chapter I regarding the purpose of the research, themes were created to make it easier to understand this research more easily. These themes are:

1. An understanding of the adiwiyata concept applied in Catholic faith-based schools.

   Titik Daryani Concordia, S.Pd, Gr. Adiwiyata schools are schools that implement an environmentally friendly culture with reference to the Pope's encyclical in Laudato Si Schools should contribute to environmental sustainability so that they can pass on a healthy and better living environment.

   The PBLHS movement is carried out in a sustainable manner, namely the habituation of caring and environmental culture, which over time if done continuously will make the character care and environmental culture. The goal is to preserve the environment as a form of caring for the integrity of creation.

   Waste reduction can also be done by bringing a water bottle, bringing lunch in a safe place to eat. Another movement is the hand washing movement. To see the behavior of children using water in order to conserve water, namely using enough water and then turning off the tap.

   Another movement that can be done is

energy conservation by turning off the electricity when the sun is getting hot. Any appliance that uses electricity when it has finished being used must be turned off and unplugged from the power source, namely the socket.

As God's creation, we are grateful by preserving and caring for God's creation sincerely with patience and with full awareness. Over time the character of caring and environmental culture will be embedded slowly in students.

Agapitus Triwibowo, S.Pd, Gr. The school has implemented the introduction of environmentally friendly schools. Drinking water is brought from home if it is not enough to take from the gallon water provided by the school. Cleaning the school environment with a picket culture. After completing activities at school, the culture of cleaning the classroom is instilled. Trash is placed in the appropriate place. Introducing children to environmental seminars to strengthen the culture of caring and environmental culture. Commemorating environmental days and doing something useful for plants, animals and the environment around the school.

Paula Rulliyati Puji Lestari, M.Pd. God has created the universe, the universe was created for humans. The book of Genesis 1:1 - 31 states that everything is organized and interrelated and dependent. So God trusts humans to have dominion over creation but not to dominate arbitrarily, so humans are obliged to protect the rest of creation and lead its growth.

This is also reflected in Jesus' message before ascending to his disciples to preach the gospel to all creation.

Pope Francis, through his encyclical Laudato Si, loves all creatures that we as humans eliminate the throwaway culture, with an environmentally friendly lifestyle, not hedonism and consumerism. The value of JPIC (Justice Peace Wholeness of Creation) and the church applies JPIC as well.

Adiwiyata schools are very important for elementary schools because they shape the character of environmental care so that they have a soft heart and love the environment and become the next generation who take care of our earth. Because this earth is a trust, not an inheritance. It must be returned just as we received it.

2. Another Catholic school became an environmental culture school first. Adiwiyata school is a means to build character. Maintaining the integrity of creation and protecting the earth as our home.

   Angela Nining Yulianingsih Pope Francis' teaching on Laudato Si that we must move quickly and together in saving the earth because the earth is our home so we must protect and care for our earth as the integrity of creation.

   FX Erlian Cahyadi, S.Pd., MM. Children have begun to realize and play an active role in protecting and caring for the natural environment with small things such as planting trees, caring for trees, and there is a living pharmacy as a means of protecting and caring for the environment.

   Antonius Warsito, S.Pd. The school has established itself as an environmental friendly school following the concept of Laudato Si is an effort to maintain and care for the integrity of creation. We are given the power to care for and maintain the integrity of creation.

   The love for others and all living beings implements JPIC, which means justice peace and wholeness of creation. By being developed in environmental care and culture movements.

   Drs. Yoseph Otto Pandin The Pope is a follower of Christ, and our first Pope was St. Peter who was also a fisherman, the food at that time was two loaves of wheat and fish. We must maintain the message of salvation through the Pope which we must implement in educational activities. We again intervened in the environmental workshop, recycling waste, planting plants, caring for nature, Citra Octalia, SE of the School who taught her children to love the environment. Teaching activities about reduce, reuse and recycle, paperless through Google Classroom platform and Learning Management System in replay to reduce the use of paper.

   Ir. Joni Chandra, ST For waste problems we must start learning to sort and choose waste according to its type, organic and inorganic waste is put together first then sorted and choose what can be recycled, reuse will be very useful in reducing waste instead of creating new waste.

   Yulia Yeti Widyani, SE A green school is a school that helps the natural cycle, making nature our friend. When we are friends with nature, nature should be in a better condition. So it is hoped that global warming or the effects of pasnas that we feel can be reduced. Green schools are recognized by schools with lots of trees, or similar to nature schools.

   Roasana Fatimah, SE The adiwiyata program from the Ministry of Environment is a movement of caring and environmental culture that is sustainable and becomes a culture in maintaining and caring for the natural environment. CSR (Corporate Social Responsilbility) helps to support schools to become adiwiyata schools. CSR is a company that as part of its profits to support social activities and other activities that are preserving and preserving nature that can directly to the community and schools.

Susi Andriani, ST, M.si, Citra Apriyanti, S.Sos, SE, MM, Ria Lantasih, ST Adiwiyata schools are schools that have successfully implemented the environmental care and culture movement at school (GPBLHS). GPBLHS is a conscious, voluntary, tiered, networked and sustainable collective action carried out by schools in implementing environmentally friendly behavior (PRLH).

The Adiwiyata School Program is a derivative program from the Ministry of Environment and Forestry referring to the environmental care and culture movement 450 schools have become Adiwiyata schools at the city, provincial, national and independent levels. So that the school plays a role in environmental sustainability. Not only on academic achievement, but also early habituation to preserve the environment for future generations.

Hapsah, Yanik Ministry of LH and Forestry Adiwiyata is indeed one of the awards given by the government to schools that have successfully implemented the PBLHS Program. The hope is that we encourage a voluntary and sustainable movement.

Father Dr. Budi Purnomo Pr The movement to care for the environment as our home is driven in all communities including the education community. This movement grows in the context of education, involving schools means involving children who are future generations because they bear the consequences of the ecological crisis, in the context of concern for the universe. In Gaudium et spes it is said that the world is our joy and hope and the sorrow of the earth is our common sorrow.

Romo Dr. Ferry Sutrisna Widjaja Pr Environmentally friendly schools care for those who are left out, poor and eliminated, because environmental culture is not only for the natural environment but for all God's creatures where we must take care of maintaining the integrity of creation. Humans, plants, animals, we must take care by taking good care of the contents of this earth and minimizing the creation of CO2 levels in the air that can damage clean air.

3. Insight into the attachment between the concept of adiwiyata and Catholic religious teachings in the context of environmental education.
   a. According to Titik Daryanti Concordia, "The spirituality of Laudato Si that is lived by children is to have an awareness that all things in this world are God's creation. We should take care of our environment to prevent further destruction of nature. As God's creation, we are grateful by preserving and caring for God's creation sincerely with patience and with full awareness."
   b. Paula Rulliyati Puji Lestari God has created the universe, the universe was created for humans. The Book of Genesis (1:1-31) states that everything is organized and interrelated. So God trusts humans to have dominion over creation but not to dominate arbitrarily so humans are obliged to take care of the rest of creation and lead its growth.
   c. Angela Nining Yulianingsih Pope Francis' teachings on Laudato Si Move quickly and together in saving the earth because the earth is our home so we must protect and care for our earth as the integrity of creation.
   d. According to Antonius Warsito, "The school has established itself as an environmental friendly school following the concept of Laudato Si, which is an effort to maintain and care for the integrity of creation. We are given the power to care for and maintain the integrity of creation".
   e. According to Joseph Otto Pandin, "The Pope is a follower of Christ, and our first Pope was St. Peter who was also a fisherman, the food at that time was two loaves of wheat and fish. We must maintain the message of salvation through the teachings of the Pope which we must implement in educational activities".
   f. According to Citra Octalia, SE, "this school teaches about love for others and the environment:.
   g. According to Father Dr. Aloysius Budi Purnomo, Pr. "Pope Francis' 2015 encyclical Laudato Si is related to the environment. Basic concern for the environment that has been damaged. I want to greet everyone and dialogue with everyone. In chapter II the pope gives a biblical basis. In the book of Genesis, humans are asked to manage the earth, not destroy it. In St. Paul's letter to the people in Colossae Jesus is the savior of the whole universe. The whole fullness of redemption encompasses the universe."
   h. According to Father Dr. Ferry Sutrisna, Pr "Humans are given the responsibility to care for the earth in the book of Genesis chapter 2: 15 may use the earth and also take care of this earth. Saint Francis Assisi and Saint John Paul II made us aware of ecological conversion, Pope Benedictus is known as the green pope and asked the Vatican to use solar panels. Pope Francis launched Laudato Si in 2021 to mobilize the issue of climate change and global warming."
4. How can the concept of adiwiyata contribute to shaping students' environmental awareness and responsibility in the context of Catholic faith-based schools?
   a. According to Titik Daryani Condordia, "The PBLHS movement is carried out in a sustainable manner, namely the habituation of caring and environmental culture, which over time if done continuously will make the

character care and environmental culture. The goal is to preserve the environment as a form of caring for the integrity of creation."

b. AgapitusTriwibawa said "Cleaning the school environment with a picket culture. After finishing school activities, we instill a culture of cleaning the classroom. Trash is placed in the appropriate place. Introducing children to attend environmental seminars to further strengthen the culture of caring and environmental culture."
c. According to Paula Rulliyati Puji Lestari, "Implementing 7 (seven) habituation movements can contribute to protecting and caring for the environment, such as abstinence from plastic and sterofoam, honesty gallons in each class, waste management, sorting, processing waste, environmental love movement, anti-smoking and drugs, love culture movement, environmental science project.
d. According to Angela Nining Yulianingsih, "From environmental day commemoration programs, making recycled products from used materials or waste, caring for and watering plants will certainly bring children to awareness in processing existing waste into something more valuable."
e. According to FX Erlian Cahyadi, "Children have begun to realize and play an active role in protecting and caring for the natural environment with small things such as planting trees, caring for trees, and there is a living pharmacy as a means of protecting and caring for the environment. There are also apple trees in front of the school, red shoots, and plants around the school to make the school look green and comfortable."
f. According to Antonius Warsito, "There are 3 greens implemented at school, namely green waste, if there is garbage, how is it sought so that it does not become garbage. Green water where the school seeks to also respect water resources, for example AC water is collected and continued to water plants, from rainwater is collected and infiltration wells are made. Green energy, namely saving electrical energy, for example, the new air conditioner is turned on at 8am instead of 7am so that there is savings in electricity costs.
g. According to Yosef Otto Pandin, "More back to nature programs, scouting skills, love of nature and love for fellow humans. Our intuition our conscience our reason combined with our physicality. And we must go to the field as real activists. If we return to nature, it will continue as long as we still interact with nature, we still need nature as our place of life."
h. According to Citra Octalia, SE, "Waste reduction by disposing of waste in its place, avoiding throwing garbage in any place. Use something that can be reused, for example cardboard, reprocessed before use, stored first if there is an assignment can be reused if the school gives a recycle task and teaches children to always finish the food that has been taken. Take an adequate portion of food and finish it.
i. According to Ir. Joni Chandra, ST. "The children always bring drinking bottles and food in safe and clean eating places. So reducing plastic waste from bottled water bought from supermarkets and generating minimal waste is a message for children that has always been done.
j. According to Yulia Yeti Widyani, "Students learn to take care of and preserve nature well, not to waste energy, not to spend everything that has been created today"
k. According to the South Jakarta LH Sub-Department, "The LH Sub- Department feels helped in sorting organic and inorganic waste along with its processing. Organic waste becomes various kinds of fertilizers and composters, inorganic waste becomes recycled materials so that waste becomes a blessing because it produces something of economic value."

4. CONCLUSIONS

4.1 How can the adiwiyata concept be applied in a Catholic school?

That schools based on the teachings of the Catholic church have been active in implementing an environmentally friendly culture and becoming a friendly school to the environment. They contribute to environmental conservation through socialization, workshops, and training aimed at raising awareness and instilling the values of protecting and caring for the environment to students. The school also implements the environmental care and culture movement in a sustainable manner, by adopting waste reduction practices, using drinking bottles or tumblers, and avoiding the use of plastic and styrofoam. All of this reflects the school's commitment to integrating environmental principles into the daily life of the school, as well as forming students who have awareness and responsibility for environmental sustainability. Internalization in the implementation at SD Strada Wiyatasana that has been carried out are:

1. Bring a water bottle and food container. This means heat-safe water bottles and standardized food containers to reduce plastic waste at school. The new thing is:
   - The school provides healthy bottled refillable drinking water by filling money into a can

with the name honesty gallon. The characters instilled are honesty, queuing culture, being more patient.
- Teaching the culture of queuing, the character of patience in taking a drink after exercise for example.
- Practice being honest when putting the honesty gallon money in the cans provided.
- Train the culture to communicate to the school helper when the gallon water runs out and want to take it from the first, second or third floor.

2. In school activities there are crafts using used materials. For example, cardboard boxes, used drinking bottles, papers. To be made into more valuable items.
   The new thing is:
   - The school curriculum in fine arts subjects can maximize the use of used goods so that they become valuable student works.
   - Natural science lessons can utilize used items as teaching media and also as student work.
   - In natural science lessons, students learn to care for plants and animals, monitor the development and growth of plants and animals. So when green school is integrated into the school curriculum, the school becomes more marketable because it educates the character of students to be concerned about the care and maintenance of God's creation.
3. Commemorating environmental days. For example, to commemorate tree day, students are expected to bring rice washing water and when they arrive at school there is a joint movement to water the plants using the rice washing water. When commemorating World Ozone Day, students learn to plant trees to increase oxygen production at school. In addition, they also distributed plants to road users so that they could plant them in their yards.
   The new thing is:
   - The character of caring for plants is increasing, increasingly aware of the importance of caring for plants because they produce oxygen.
   - Invite others such as road users to have an awareness of planting plants.
   - Instill an awareness of love for the environment.
4. Entrepreneurship can also be done on existing land, for example hydroponics and green houses for growing vegetables, vegetables grown are red chili peppers, mustard greens, kale with easy seeding and a fast harvest period. Students take turns watering the plants, the plants grow and are then harvested, after being harvested they are sold to the parents of the students, and the proceeds from the sale are turned back to buy fertilizer and re-seeding.
   New things gained:
   - Students and the entire school population are familiar with sustainable development.
   - Students learn to be entrepreneurs and have an entrepreneurial spirit from an early age. Likewise for adults.
5. The PBLHS movement (Pembiasaan Peduli dan Berbudaya Lingkungan Hidup Sekolah) is adopted on an ongoing basis to shape the character of students who care about the environment and care for the integrity of creation.

   The new things that the school has done are:
   - The school teaches the right way to handle waste, implements the seven habituation movement, have an awareness of protecting and caring for the environment.
   - Implementing the 3 G principle (Green Waste, Green Water, Green Energy). This shows the school's commitment in developing awareness and sustainable actions to maintain the sustainability of nature and the environment.

4.2 What strategies are effective to integrate the concept of adiwiyata into the existing curriculum and school activities in Catholic faith-based schools?

The school uses cleaning competitions as a habit to increase students' concern for the environment, with these activities integrated in the school curriculum. The Adiwiyata program is integrated into the school curriculum to promote environmental awareness and sustainability.

New things happening at school include:
- The school has programmed activities that involve intracurricular, extracurricular and co-curricular aspects.
- In addition, there are efforts in integrating the learning curriculum and habituation of environmental care, as well as providing appreciation for student talents and teaching love of nature and compassion for fellow humans through extracurricular Scouting.

4.3 What is the impact of the implementation of the adiwiyata concept in Catholic church-based schools on students, teachers, and the surrounding environment?

The school has succeeded in creating an environment that is more environmentally friendly, fun for students, and fosters environmental awareness. Good habits at school have a positive impact on the earth and our environment.

The novelty in the school is as follows:
- The school also emphasizes the teachings of love
- Creating calmness in the school. The calmness in

question is an effort to keep students doing better activities. Socrates (469-399 BC) said that self-discipline does not mean giving up something, only exchanging it for a better one. Activities carried out programmatically at school are, for example, by implementing reading books when arriving at school, and when having free time is used for positive activities and increasing knowledge, developing talents and interests so as to avoid doing something deviant.

- eliminate bullying,and replace it with a culture of love.

4.4 How to overcome obstacles in implementing the adiwiyata concept in the context of Catholic faith-based schools?

A culture of recycling waste and innovation in waste management can turn waste into something valuable. Schools need to constantly sensitize students on the importance of protecting and caring for the environment. Existing novelty:

- Providing facts and evidence of the benefits of environmental habits is also important. Schools need to expand their networks with environmental communities and become role models in environmental care behavior.
- Teaching ethics and cooperation between schools and related parties are also needed.
- Schools based on the teachings of the Catholic Church that implement Adiwiyata must love others, prioritize love, and create prosperitythrough environmental care and culture.

The following are recommendations or suggestions on what can be done in the present, medium and long term.

The correlation between the concept of Laudato Si is that the following three things occur: ethical violations of integral ecology, cultural violations and spirituality of modernity.

1. Ethical violations of integral ecology are: Ethical violations in this concept occur when human actions damage natural ecosystems and society, ignore the complex relationship between humans and nature, and fail to consider the long-term consequences of our actions on the environment.
2. Cultural transgression means that humans have control over nature and use unlimited natural resources. This type of argument can lead to overexploitation of land, water and forests, as well as damage to natural ecosystems. In Laudato Si, it is stated that humans have the power to care for and protect, not just control and exploit.
3. Modern-day spirituality often leads to a separation between humans and nature. Technological development and urbanization can lead to the separation of humans from nature, making care for the natural environment less of a priority. In "Laudato Si'", Pope Francis emphasizes the importance of recognizing the relationship between humans and nature and overcoming this separation. He invites Catholics and humanity in general to think about how humans can coexist harmoniously with nature, within an integral ecological framework.

Therefore, when applying the concept of "Laudato Si'", it is important to consider the relationship between human culture and nature, as well as how cultural attitudes and values can contribute to the preservation, sustainability and protection of the natural environment. This will contribute to creating a more sustainable world in line with the principle of inclusive ecology taught by "Laudato Si'".

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WHAT DO STUDENTS NEED TO CHOOSE A SCHOOL?

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ABSTRACT

High competition between schools occurs in Tangerang City. The number of junior high school students in the last 10 years has shown an increase, while those at the vocational school level have decreased. Strada Daan Mogot Vocational School in 2013-2023 shows a downward trend of -3.50%. Based on the survey results, consumers do not choose Strada Daan Mogot Vocational School because of the high costs. The factors that influence students to choose a school are achievements and facilities. The population in the study was 295 students of Strada Daan Mogot Vocational School. The analytical method used is the Structural Equation Modeling-Partial Least Square (SEM-PLS). The results showed that Price Sensitivity and Student Perception had a positive and significant influence on the decision to choose a school. Student achievement has not been able to moderate the effect of Price Sensitivity and Student Perception on the decision to choose a school. School facilities can moderate the influence of Price Sensitivity and Student Perception on decision-making in prospective students. Prospective students tend to have a more positive perception of schools with complete, modern, and well-maintained facilities.

Keywords: *Price Sensitivity, Student Perception, Student Achievement, School Facility Decision to Choose a School.*

1. INTRODUCTION

Schools are educational service institutions that provide education and educate every individual as regulated by Law (Law) of the Republic of Indonesia No. 20 of 2003 concerning the National Education System. Tangerang City has around 1,659 public and private schools ranging from Kindergarten (TK) to Senior High School or Vocational High School (SMK) level. In the 2022-2023 Academic Year (TA), the Vocational High School (SMK) level consists of 125 schools with details of 9 State Vocational Schools and 116 Private Vocational Schools (Tangerang City School Data – Dapodikdasmen). The large number of schools in Tangerang City shows the high level of competition between schools and each other to reach the capacity of each existing educational unit. In the last 10 years, the number of junior high school students has increased but the number of students at vocational school level has decreased.

Figure 1. Data on the Development of the Number of Middle School & Vocational School Students in Tangerang City (Source: Data Sekolah Kota Tangerang - Dapodikdasmen, n.d.)

The development of the number of schools and the number of vocational students in Tangerang City was carried out by researchers based on the annual publication "Tangerang City in Figures" in the last 10 years. The data used in this publication is data obtained by BPS (Central Bureau of Statistics) for the City of Tangerang, both primary and secondary data.

Figure 2. Number of Vocational High Schools (SMK) in Tangerang City (2013-2023).
Source: Results of 2023 Research Data Processing, Based on Tangerang City Publications in Figures

The figure above shows that in the last 10 years the number of Vocational High Schools in Tangerang City has increased by 2.08%.

Figure 3. Number of Vocational High School (SMK) students in Tangerang City (2013-2023).
Source: Results of 2023 Research Data Processing, Based on Tangerang City Publications in Figures

Meanwhile, the number of Vocational School Students in Tangerang City in the last 10 years has decreased by -3.07%.

The development of the number of new student admissions at Strada Daan Mogot Vocational School in the last 10 years starting from 2013-2023 also shows a trend a significant decrease of -3.50% as shown in figure 4 below.

Figure 4. Data on Student Admission Development at Strada Daan Mogot Vocational School for 2013-2023
Source: Results of 2023 Researcher Data Processing, Based on Administration of New Student Admissions at Strada Daan Mogot Vocational School TP 2013-2023

If this is left without any change or improvement, the possibility that what will happen is that the school become empty of registrants.

Researchers conducted a survey of SMK students in Tangerang City who did not decide to attend SMK Strada Daan Mogot. Respondents who were successfully obtained by researchers amounted to 46 respondents from 19 schools spread across the city of Tangerang. Diagram 1.5 below presents the results of a survey on the reasons for not choosing Strada Daan Mogot Vocational School.

Figure 5. Research Survey Results, 2023

The results of a survey conducted by researchers showed that the biggest reason for consumers not choosing Strada Daan Mogot Vocational School was due to high costs 26.1% of respondents and long distances 23.9% of respondents.

The research question is How Price Perception influence the decision to choose a school, what are the factors of Price Perception?

Figure 6. Researcher Survey Results, 2023

Figure 6 above shows that achievement is a factor that influences students in choosing a school, namely 41.3%. Tangible components (physical evidence) are also factors that influence the decision of prospective consumers in choosing a school. It can also be seen in the diagram above showing that apart from achievement, facilities that support learning are also one of the factors that influence students in choosing a school, namely 30.4 %.

The research question is whether student achievement and facilities strengthen or weaken prices and student perceptions to choose SMK Strada Daan Mogot.

2. RESEARCH METHODS

The research approach used in this research is a quantitative approach using descriptive methods. Descriptive analysis in this research is used to provide information about the number, characteristics, or characteristics of the research variables. The analytical method used is the Structural Equation Modeling-Partial Least Square (SEM-PLS) structural equation model. The data source was obtained from the results of distributing a questionnaire using Google Forms containing Price Sensitivity, Student Perception, School Facilities, and Student Achievement, towards Student Decisions in Choosing a School. The population in this study was 295 students at Strada Daan Mogot Vocational School.

3. RESULTS AND DISCUSSION

Provide sufficient details to allow the work to be reproduced by an independent researcher. Methods that are already published should be summarized and indicated by a reference. If quoting directly from a previously published method, use quotation marks and cite the source. Any modifications to existing methods should also be described.

3.1 Description of Research Respondents

The research came from two groups, so the proportionate random sampling technique was used, namely the determination of the sample randomly but the number remained proportional. Determining the number of samples was carried out using the Slovin formula with a precision level of 5%, the reason why researchers use a 5% precision level is the middle number between 1% - 10%, and many social studies use a 5% precision level. so that the sample is obtained as follows. The sample used was 170 students who were divided into two groups, namely the 2022/2023 academic year with 65 students and the 2023/2024 academic year with 105 Students. Description of characteristics students who are the subjects of this study are presented in the following figures :

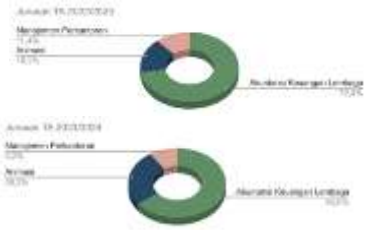

Figure 7. Respondents by Selection of Majors
Source: Research Data Processed, 2023

The diagram above shows that the majority of respondents chose the Financial and Institutional Accounting (AKL) major. Strada Daan Mogot Vocational School at every level (Classes X, XI, and XII) has 4 classes for the AKL major, 1 class for the MP major, and 2 classes for the AN major.

Figure 8. Respondents by Gender
Source: Research Data Processed, 2023

Most of the students who were the subjects of this research have also been confirmed to be women. The number of female students for FY 2022-2023 is 57.1% and the number of female students for FY 2023-2024 is 70.8%. The data above shows that students at Strada Daan Mogot Vocational School are dominated by women.

Figure 9. Respondents by Age
Source: Research Data Processed, 2023

The students who were respondents in this study were aged between 13 years and 16 years, with the largest number being 15 years old.

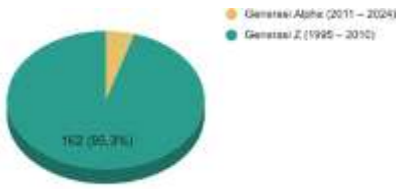

Figure 10. Respondents by Generation
Source: Research Data Processed, 2023

Classification of generations based on age, the respondents of this study are generation Z.

4. DISCUSSION

4.1 The Effect of Price Sensitivity on Student Decisions

The results of hypothesis testing with statistical tests stated that H1 was accepted, meaning that Price Sensitivity had a significant influence on student decisions. This finding is reinforced by a positive coefficient value, increasing Price Sensitivity will have a significant impact on increasing students' decisions to attend SMK Strada Daan Mogot.

4.2 The Effect of Student Perception on Student Decisions

The results of the hypothesis test with the t-statistical test stated that H2 was accepted, meaning that Student Perception had a significant influence on student decisions. This finding is strengthened by the positive coefficient value, the increasing Student Perception will have a significant impact in increasing students' decisions to attend SMK Strada Daan Mogot.

4.3 The Effect of Student Achievement as a Moderating Variable of Price Sensitivity on Student Decisions

The results of hypothesis testing with the t-statistical test stated that H3 was rejected, meaning that student achievement was not able to moderate the influence of Price Sensitivity on student decisions. This finding explains that the student achievement variable does not play a moderating role in the interaction between Price Sensitivity and students' decisions to attend SMK Strada Daan Mogot.

4.4 The Influence of Student Achievement as a Moderating Variable of Student Perception on Student Decisions

The results of the hypothesis test with the t-statistical test stated that H4 was rejected, meaning that student achievement had not been able to moderate the effect of Student Perception on student decisions. This finding explains that student achievement variables do not act as a moderator in the interaction between Student Perception and students' decisions to attend SMK Strada Daan Mogot.

4.5 The Influence of School Facilities as a Moderating Variable of Price Sensitivity on Student Decisions

The results of hypothesis testing with the t-statistical test stated that H4 was accepted when applied to prospective students, meaning that student achievement was able to moderate the influence of Price Sensitivity on students' decisions to choose a school, but this did not apply when applied to students who had already made the decision to study at Strada Daan Mogot Vocational School.

4.6 The Influence of School Facilities as a Moderating Variable of Student Perception and Student Decisions.

The results of the hypothesis test with the t-statistical test stated that H5 was accepted when applied to prospective new students, meaning that student achievement was able to moderate the influence of Student Perception on students' decisions to choose a school, but this did not apply when applied to students who had made the decision to attend school at SMK Strada Daan Mogot.

5. CONCLUSION

Based on the results of data analysis and the discussion described in the previous section, it can be concluded that:

- Price Sensitivity has a positive and significant influence on decision-making for both prospective new students and class X students at SMK Strada Daan Mogot.
- Student Perception has a positive and significant influence on good decision-making in prospective new students as well as class X students at SMK Strada Daan Mogot.
- Student achievement has not been able to moderate the influence of Price Sensitivity on decision-making for both prospective new students and class X students at SMK Strada Daan Mogot.
- Student achievement has not been able to moderate the influence of Student Perception on decision-making for both prospective new students and class X students at SMK Strada Daan Mogot.
- School facilities are able to moderate the influence of Price Sensitivity on decision making for prospective new students, but school facilities have not been able to moderate the influence of

Price Sensitivity on decision-making for class X students at SMK Strada Daan Mogot.

- School facilities are able to moderate the influence of Student Perception on decision-making for prospective new students, school facilities have not been able to moderate the influence of Student Perception on decision-making for class X students at SMK Strada Daan Mogot.

6. MANAGERIAL IMPLICATIONS AND THEORETICAL IMPLICATIONS

6.1 Managerial Implications

Based on the research findings, there are several implications for the management of SMK Strada Daan Mogot.

6.1.1 Short term advice

a. Specific

Increase students' perceptions of transparency of school fees by providing clear and detailed information on tuition fees, surcharges, and payment policies.

b. Measure

Measuring the percentage of students' understanding of the cost information provided by the school.

c. *Achievable*

Providing more effective communication media through channels that already exist in schools, such as the school's website and social media, or socializing the learning process, and what benefits students of Strada Daan Mogot Vocational School get to their parents. Conduct alumni tracking (Work, Study, Work and Study, Entrepreneurship) to increase student quality perceptions of graduates of Strada Daan Mogot Vocational School.

d. *Relevant*

Providing high added value both in terms of services and student learning facilities with relevant costs so that they can focus on increasing student perceptions of the benefits and advantages of education that are obtained with fees paid.

e. Limited Time

Improved perceptions of school prices and fees within three months.

6.1.2 Medium term advice

a. Specific

Developing and improving student learning facilities, one of which is optimizing Wi-fi/hotspot facilities in the school area to increase student interest in learning. Add extracurricular fields that match the interests and talents of students as well as maintain integrity and add to the achievements that can be achieved by SMK Strada Daan Mogot within 6 months.

b. Measure

Measuring consumer satisfaction, the level of student and teacher satisfaction with school facilities, or increasing student involvement in the learning process.

c. Achievable

Ensure schools have competent teams and adequate resources to manage learning and develop schools. Make an approach to junior high school teachers to ensure that junior high school teachers understand and know Strada Daan Mogot Vocational School well and deeply.

d. Relevant

Increasing learning accessibility and interaction between students and teachers through technology related to learning media to facilitate collaboration and communication between students and teachers.

e. Limited Time

Providing training to educators and education personnel to improve the quality of educators and education personnel as well as providing learning support to improve learning achievement for students in order to maintain integrity and improve quality education at Strada Daan Mogot Vocational School within 6 months.

7. THEORETICAL IMPLICATIONS

Based on the findings of this research, theoretical implications can be as follows.

7.1 Price Sensitivity has a positive and significant influence on decision-making.

Students who have a high level of price sensitivity tend to be more sensitive to price changes which can influence their decisions.

They will be more likely to consider price as a determining factor in decision-making. The level of sensitivity to price can affect the perceived value of a product or service. Individuals who are price-sensitive tend to compare price with the benefits or qualities they expect to receive. If the price is too high, they may perceive the value of the product or service as low and choose a more affordable alternative.

7.2 Student Perception has a positive and significant influence on decision-making

The positive and significant influence of Student Perception on decision-making indicates that the perceived value of a good education can be an important factor in influencing students to choose a school. Students will tend to choose

schools that they consider to have high-quality education and provide the expected benefits. Student Perception is positive and significant indicating that students believe that the school they choose will meet their needs and expectations. This suggests that factors such as educational programs, academic support, extracurricular opportunities, and a conducive learning environment play an important role in student decision-making.

7.3 Student achievement has not been able to moderate the effect of Price Sensitivity on decision-making

Even though a student may have high academic achievement, that does not automatically reduce his or her price sensitivity in choosing a school. The effect of Price Sensitivity, which is not moderated by student achievement, indicates that price is still the dominant factor in making decisions about choosing a school. This shows that even though students have high achievement, they still tend to consider price as a significant factor in choosing a school.

7.4 Student achievement has not been able to moderate the influence of Student Perception on decision-making

Student achievement is an important indicator in evaluating their academic success, it seems that student achievement does not have a significant impact in moderating the effect of Student Perception on the decision to choose a school. This suggests that non-academic factors, such as students' perceptions of the quality of education, facilities, school environment, and social factors, may be more dominant in

student decision-making. Even though a student has high academic achievement, it does not automatically change the perception of the value and benefits of education felt by students. That is, students can have positive perceptions about a school even though their achievements are not very high.

7.5 School facilities are able to moderate the influence of Price Sensitivity on decision-making for prospective new students

Good school facilities can provide added value for prospective new students in choosing a school. When prospective students see complete and quality facilities, they tend to consider the benefits and satisfaction obtained from these facilities as important factors in decision-making. Adequate facilities can reduce their sensitivity to price and make them more motivated to choose the school. Good facilities can be a competitive differentiator for schools in the competition for prospective new students. When a school has better facilities than its competitors, prospective students will tend to choose that school as their choice, even if the tuition fees are slightly higher. Adequate facilities can reduce the influence of price sensitivity on prospective students and make them more likely to choose a school based on the additional value it offers.

7.6 School facilities are able to moderate the influence of Student Perception on decision-making for prospective new students.

Good school facilities can increase prospective students' perceptions of the value of the education provided by the school. When prospective students see adequate facilities, they tend to perceive that the school is able to provide a better and quality educational experience. This can influence prospective students' decisions to choose that school as their choice. Good school facilities can reflect a positive image and reputation of the school. Prospective students tend to have a more positive perception of schools that have complete, modern, and well-maintained facilities. This positive image can moderate the influence of students' perceptions of the school and increase the possibility of prospective students choosing that school.

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TRACK 4:

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THE INFLUENCE OF PARASOCIAL INTERACTION ON PURCHASE INTENTION USING HEDONISTIC AND UTILITARIAN BEHAVIORS

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ABSTRACT

This study investigates the effects of parasocial interaction on hedonistic behavior, utilitarian behavior, and purchase intentions among TikTok users. A descriptive quantitative research approach was employed, and data from 182 respondents were collected through a questionnaire. The data were analyzed using the partial least squares (SEM-PLS) method. The findings demonstrate that parasocial interactions positively influence transparency, credibility, informativeness, and purchase intention. Specifically, parasocial interactions enhance the transparency of hedonistic values in social media marketing, leading to stronger consumer relationships. Additionally, parasocial interaction positively affects the credibility of utilitarian values, fostering consumer trust in influencers. The dimensions of credibility and informativeness in utilitarian behavior mediate the impact of parasocial interaction on purchase intention. These results highlight the significance of parasocial interaction in shaping consumer behaviors and intentions within the context of TikTok.

Keywords: *Parasocial interaction, TikTok,Hedonistic behavior, Utilitarianistic behavior, Purchase intention, SEM-PLS.*

1. BACKGROUND

Sustainable advertising communication strategies are crucial in today's era of hypercompetition to influence consumer behavior and drive product purchases (Montag et al., 2021; Honka, Hortaçsu, & Vitorino, 2017). Utilizing celebrity endorsers on social media platforms like TikTok has emerged as an effective approach to capturing consumer attention (Paul & Bhakar, 2018; Um & Lee, 2015). TikTok, a widely popular social media platform among the Millennial and Gen Z generations in Indonesia, has gained significant traction (Firamadhina & Krisnani,2020).

Influencers on TikTok wield substantial influence over their followers, impacting their purchasing decisions for promoted products (McCormick, 2016). TikTok leverages algorithms to recommend content to users based on their interests and preferences (Shotwell, 2019). The phenomenon of "TikTok Poison" has emerged, where influencers recommend products to their followers, influencing user purchasing decisions (Maurencia & Wahyoedi, 2021).

Marketing through TikTok offers Opportunities to reach the elusive younger generation that is challenging to engage through conventional media (Haenlein et al., 2020). Indonesian TikTok users demonstrate a pronounced interest in content categories encompassing dance, comedy, music, sports, and fashion (Haenlein et al., 2020). Despite the relatively scant research on product endorsement through TikTok in Indonesia, this phenomenon underscores substantial potential for marketing towards the youth demographic (Barta et al., 2023).

In summation, influencer marketing via TikTok exerts a significant impact on consumer behavior and spurs product purchases. TikTok, as a social media platform, possesses unique and compelling attributes that resonate with the young user base, rendering it an effective channel for influencer marketing campaigns.

This study aims to investigate the influence of parasocial interaction between TikTok users and influencers on Hedonistic and Utilitarian behaviors, as well as purchase intention. Additionally, the research will analyze the characteristics of TikTok usage in Indonesia, encompassing the frequency of video viewing, time duration spent, preferred categories of endorsed videos, and thefrequency of product purchases based on endorser recommendations. The study is conducted in Jakarta, chosen as a representative sample of TikTok users in urban areas of Indonesia. The research model and hypotheses employed in this study are delineated in Figure 1.

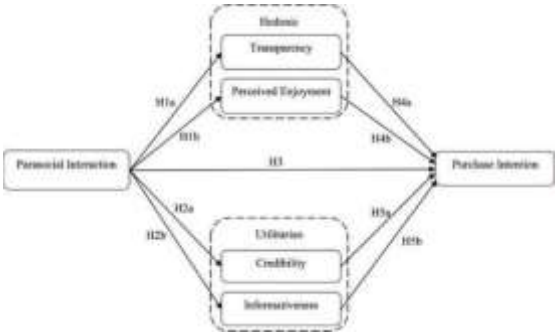

Figure 1. Research Model and Hypotheses

2. METHOD

The research conducted in this study adopts a quantitative descriptive research design. Descriptive research with a quantitative approach aims to elucidate the functions and characteristics of markets or other entities.

2.1 Population and Sample

The population of this study comprises TikTok users in Jakarta falling within the age range of Generation Z (born between 1996 and 2012) and Millennials (born between1981 and 1995) (Malhotra et al., 2017).The sample for this research consists of Generation Z individuals aged 17 to 27 years and Millennial individuals aged 25 to 40years.

2.2 Sample Size

The minimum sample size will be determined by multiplying the number ofobserved variables in the study by five, following Lenth's recommendation (2001). After undergoing validity and reliability testing during the pre-test or pilot survey, the observed variables in this study amount to 21, multiplied by 5, resulting in a sample size of 105 respondents.

2.3 Measurement Scale

The measurement scale for the scaled response questions in this study employs a Likert scale. A five-point Likert scale is utilized, as depicted in Figure 2.

Sangat tidak setuju	Tidak setuju	Netral	Setuju	Sangat Setuju
1	2	3	4	5

Figure 2. Skala Likert

2.4 Validity and Reliability Test

Validity and reliability testing are integral to ensuring the statistical soundness of all measurement instruments throughout both the pre-survey and main survey phases of the research. During the pre-survey stage, a sample of 30 respondents will be used to assess instrument validity through IBMSPSS 26, considering metrics such as KaiserMeyer-Olkin Measure of Sampling Adequacy, Bartlett's Test of Sphericity, AntiImage Matrices, Total Variance Explained, and Factor Loading of Component Matrix. Reliability assessment will take into account the Cronbach's alpha value. In the main survey phase, validity and reliability will be tested on a minimum of 105 respondents using the Partial Least Squares StructuralEquation Modeling (PLS-SEM) technique and PLS SEM software. Convergent validity and discriminant validity will be examined for validity, while composite reliability and Cronbach's alpha values will be observed forreliability.

2.5 Model and Hypotheses Test Using Structural Equation Modeling (SEM)

The primary data collected from thequestionnaire administered during the main survey (following the pre-test) were subsequently processed using SmartPLS, a Structural Equation Modeling (SEM) software, in accordance with the methodologies employed in prior research studies. This phase encompassed various SEM tests, including the Coefficient of Determination (R2) test, Predictive Relevance (Q2) test, Goodness of Fit (GoF) test, and path coefficient test (to assess hypotheses).

3. RESULTS AND DISCUSSION

3.1 Results

The initial stage of this study involved a pre-test conducted with 30 respondents. Validity testing demonstrated that all measurement instruments (questionnaireitems) for the variables of Parasocial Interaction, Transparency, Perceived Enjoyment, Credibility, Informativeness, and Purchase Intention met the criteria and could be deemed valid, as they exhibited satisfactory factor loadings. Reliability testing also indicated that all measurement instruments (questionnaire items) for the aforementioned variables exceeded thestandard Cronbach's Alpha threshold of >0.70. These results affirm that the questionnaire administered to respondents yields consistent, reliable, and pertinent outcomes.

Subsequently, the study progressed to the main survey phase, which involved a minimum of 105 respondents. Due to the high enthusiasm of the survey participants, a total of 185 responses were successfully obtained, well exceeding the minimum requirement. In this phase, a series of tests were conducted using the Partial Least Squares Structural Equation Modeling (PLS SEM) technique, wherein all validity and reliability tests yielded valid and reliable outcomes.

The final step of this research encompassed conducting path coefficient tests to assess the

hypotheses. The results of the path coefficient tests are presented inTable 1.

Table 1. Path Coefficient Test Results

	Path Coefficient (β)	T Statistics (|O/STDEV|)	P Values	Ket
Parasocial Interaction -> Transparency (Hedonisme)	0,285	3,873	0,000	Diterima
Parasocial Interaction -> Perceived Enjoyment (Hedonisme)	0,157	1,437	0,151	Ditolak
Parasocial Interaction -> Credibility (Utilitarian)	0,327	3,157	0,002	Diterima
Parasocial Interaction -> Informativeness (Utilitarian)	0,332	4,460	0,000	Diterima
Parasocial Interaction -> Purchase Intention	0,160	2,168	0,030	Diterima
Transparency -> Purchase Intention (Hedonisme)	0,052	0,558	0,591	Ditolak
Perceived Enjoyment -> Purchase Intention (Hedonisme)	0,078	0,920	0,358	Ditolak
Credibility -> Purchase Intention (Utilitarian)	0,222	2,574	0,010	Diterima
Informativeness -> Purchase Intention (Utilitarian)	0,288	3,157	0,002	Diterima

Sumber: Olah data SmartPLS 3.2.9

Based on Table 1, the following final conclusions can be drawn from this study, elucidating the interrelationships among the variables in the research model:

Hypothesis 1a (H1a) testing reveals that parasocial interaction is a positive predictor, with a coefficient of 0.285. The result for hypothesis 1ais significant as the t-statistic is greater than 1.96 and the p-value is less than 0.05. This indicates a significant influence of parasocial interactions on transparency.

Hypothesis 1b (H1b) testing indicates that parasocial interaction is a positive predictor, with a coefficient of 0.157. However, the result for hypothesis 1b is not significant as the t-statistic is lessthan 1.96 and the p-value is greater than 0.05. This suggests that parasocial interactions do not significantly impact perceivedenjoyment.

Hypothesis 2a (H2a) testing demonstrates that parasocial interaction is a positive predictor, with a coefficient of 0.327. The result for hypothesis 2a is significantas the t-statistic is greater than 1.96 and the p-value is less than 0.05. This signifies a significant influence of parasocial interactions on credibility.

Hypothesis 2b (H2b) testing reveals that parasocial interaction is a positive predictor, with a coefficient of 0.332. The result for hypothesis 2b is significant as the t-statistic is greater than 1.96 and the p-value is less than 0.05. This indicates a significant influence of parasocial interactions on informativeness.

Hypothesis 3 (H3) testing indicates that parasocial interaction is a positive predictor, with a coefficient of 0.160. The result for hypothesis 3is significant as the t-statistic is greater than 1.96 and the p-value is less than 0.05. This demonstrates a significant influence of parasocial interactions on purchase intention.

Hypothesis 4a (H4a) testing suggests that transparency is a positive predictor, with a coefficient of 0.052. However, the result for hypothesis 4a is not significant as the t-statistic is less than 1.96 and the p-value is greater than 0.05. This implies that transparency does not significantly impact purchase intention.

Hypothesis 4b (H4b) testing reveals that enjoyment is a positive predictor, with a coefficient of 0.078. Nonetheless, the result for hypothesis 4b is not significant as thet-statistic is less than 1.96 and the p- value is greater than 0.05. This suggests that perceived enjoymentdoes not significantly influence purchase intention.

Hypothesis 5a (H5a) testing demonstrates that credibility is a positive predictor, with a coefficient of 0.222. The result for hypothesis 5ais significant as the t-statistic is greater than 1.96 and the p-value is less than 0.05. This signifies asignificant influence of credibility onpurchase intention.

Hypothesis 5b (H5b) testing indicates that informativeness is a positive predictor, with a coefficientof 0.288. The result for hypothesis 5b is significant as the t-statistic is greater than 1.96 and the p-value is less than 0.05. This highlights a significant influence of informativeness on purchase intention.berpengaruh signifikanterhadap purchase intention.

4. DISCUSSION

4.1 Parasocial Interaction and Transparency Dimension of Hedonism Behavior

The results of the data analysis reveal a t-statistic value of 3.873 with a significance probability of 0.000. Notably, the p-value is less than 0.05, indicating that H1a is accepted, signifying a significant influence of Parasocial Interaction on the transparency dimension of Hedonistic value. Consequently, the hypothesis proposed in this study (Hypothesis H1a) is supported.These findings are consistent with prior research conducted by Lin and Wang (2012), Lim and Chai (2018), Liu et al. (2019), as well as Liang and Li (2021), all of which identified a positive association between parasocial interaction and transparency, i.e., the perceived level of clarity in information about public figures, celebrities, content creators, or the consumed products.

This contribution aligns consistently with prior research, reinforcing the understanding of the significant relationship between parasocial interaction and the transparency dimension of hedonic value. The implications suggest that companies and advertisers could consider

employing influencers or celebrities in their marketing strategies, emphasizing product transparencyand credibility. In the context of social media marketing, maintaining transparency in parasocial interactions impacts consumers and enhances the hedonic value they perceive while consuming presented products orcontent.

Overall, the derived data analysis resultsalign with previous research, providing strong empirical support for this concept andpractical guidance for companies and advertisers in utilizing parasocial interactions to enhance consumerexperiences. This observation is also evident from the Parasocial Interaction having a PathCoefficient value of 0.285, indicating that Parasocial Interaction and the Transparency dimension as indirect variables have a more significant influence than parasocial interaction as a direct variable, which has a value of 0.160. This underscores that theprovision of clear information influences hedonistic behavior.

4.2 Parasocial Interaction and Perceived Enjoyment Dimension of Hedonism Behavior

The data analysis results yield a t-statisticvalue of 1.437 with a significance probabilityof 0.151. As the p-value is greater than 0.05, H1b is rejected, implying that Parasocial Interaction and Perceived Enjoyment do not significantly influence Hedonistic behavior. Perceived enjoyment refers to the satisfaction derived by consumers from the experience of consuming a product or content. It is related to emotional satisfaction and the positive experience perceived by consumers when using or enjoying the product or content. However, parasocial interaction towards perceived enjoyment from the value of Hedonism does not exhibit a significant impact in this research. Based on the literature review, particularly the study conducted by Lin and Chen (2019), focusing on the YouTube platform, the researcher suggests several possible reasons for the lack of significant influence in the Perceived Enjoyment dimension. These reasons include the lack of substantial influence on hedonistic behavior regarding feelings of pleasure, enthusiasm, and productreview experience emerging while watching TikTok product reviews. Additionally, the demographic characteristics of respondents, mainly dominated by students with monthly expenses of less than IDR 3,000,000, serve as a key factor that does not intervene in hedonistic behavior.

This finding is also corroborated by the Path Coefficient value of 0.157 between Parasocial Interaction and the Perceived Enjoyment dimension of Hedonistic behavior, indicating that Perceived Enjoyment as an indirect variable does not have a greater influence than parasocial interaction as a direct variable, which has a value of 0.160. This suggests that thepleasure imparted by influencers as endorsers does not correlate directly withhedonistic behavior. This indicates that the direct influence of parasocial interaction on Perceived Enjoyment is not significant or does not have a greater influence compared to the influence of the Perceived Enjoyment dimension on hedonistic behavior.

Several factors can explain why parasocial interaction does not significantly influence Perceived Enjoyment in the context of viewing product reviews from favorite TikTokers. One possible factor is thequality of content presented by TikTokers. While parasocial interaction influences the connection between users and their favorite TikTokers, if the content presented is uninteresting, uninformed, or notentertaining, the experience of watching product reviews may not yield high levels ofsatisfaction.

Furthermore, personal preferences can play a significant role in altering the level of Perceived Enjoyment. Each individual possesses distinct preferences regarding content, presentation style, or characteristicsof TikTokers. If personal preferences do not align with what is presented by favorite TikTokers, the level of satisfaction or enjoyment experienced while viewing product reviews may decrease.

Moreover, influencer reputation can also affect Perceived Enjoyment. If an influencer has a poor reputation, such as being involvedin controversies or having previous negativereviews, it could diminish user trust and satisfaction when viewing product reviews from that TikToker. In this context, the finding that parasocial interaction does not significantly influence Perceived Enjoyment underscores the complexity that needs consideration in comprehending the factors influencing user experience when viewing product reviews from favorite TikTokers.

4.3 Parasocial Interaction and Credibility Dimension of Utilitarianism Behavior

The data analysis results reveal a t-statistic value of 3.157 with a significance probability of 0.002. As the p-value is less than 0.05, H2a is accepted, indicating a significant influence of Parasocial Interaction on the credibility dimension of Utilitarian behavior. The research findings demonstrate that parasocial interaction can enhance the credibility of content creators, which in turn can increase trust and the intention to use products recommended by these content creators. This can be observed from the data collected, suggesting that a comprehensive understanding of the products reviewed by influencers and the quality of the described products can enhance consumer confidence in purchasing the products endorsed by the influencers.

This finding is consistent with research

conducted by Jin and Park (2015), Sung et al. (2018), and Koo et al. (2021), which discovered that parasocial interaction can enhance the credibility of fictional characters, content creators, or celebrities. This highlights that parasocial interaction can be an effective marketing strategy in building consumer trust.

Furthermore, this finding is supported by the Credibility dimension having a Path Coefficient value of 0.222, indicating that Credibility as an indirect variable has a greater influence on Utilitarian behavior and purchase intention compared to parasocial interaction as a direct variable, which has a value of 0.160. This underscores that thetrustworthiness of information conveyed by consumers' favorite TikTokers when reviewing a product significantly influences both Utilitarian behavior and consumers' purchase intentions.

4.4 Parasocial Interaction and Informativeness Dimension of Utilitarianism Behavior

The data analysis results indicate a t-statistic value of 4.460 with a significance probability of 0.000. As the p-value is less than 0.05, H2b is accepted, signifying a significant influence of Parasocial Interaction on the informativeness dimension of Utilitarian behavior. Informativeness refers to the usefulness of the information provided by influencers on social media for consumers. This study aligns with the research conducted by Li and Liang (2020), demonstrating that parasocial interaction with content creators on live streaming platforms can enhance the utilitarian value of consumer experiences. This research further strengthens prior studies, such as Koo et al. (2019), which found that parasocial interaction with celebrities on social media positivelyinfluences the intention to purchase products endorsed by those celebrities. This can be observed from the collected data, where respondents on average agree with the physical appearance of products reviewed on the TikTok platform and can clearly discern product quality from the product reviews presented by their favorite TikTokers.

4.5 The Effect of Parasocial Interaction on Purchase Intention

The data analysis results reveal a t- statistic value of 2.168 with a significance probability of 0.030. As the p-value is less than 0.05, H3 is accepted, indicating a significant influence of Parasocial Interaction on the consumer purchase intention dimension. Purchase intention is a consumer behavior that occurs when consumers are stimulated by external factorsand make purchasing decisions based on their personal characteristics and decision- making processes (Kotler, 2000). This is consistent with research conducted by Sung et al. (2018), showing a positive relationship between parasocial interaction and consumer purchase intention.

Similarly, research conducted by Koo et al. (2021) also found similar results in the context of parasocial interaction with celebrities on social media. In that study, researchers found that parasocial interaction with celebrities can enhance trust and the intention to purchase products endorsed by those celebrities.

The effectiveness of parasocial interaction as a marketing strategy can enhance consumer purchase intention andproduct sales success. By building a strong relationship between consumers and relevant parasocial figures, companies can enhance consumer trust in the brand and productsoffered. Furthermore, the increase in positive attitudes towards the brand through parasocial interaction also contributes to an increase in consumer purchase intention.

4.6 The Effect of Transparency (Hedonism Behavior) As Intervening Variable on Purchase Intention

The data analysis results indicate a t-statistic value of 0.538 with a significance probability of 0.591. As the p-value is greaterthan 0.05, H4a is rejected, meaning that the Transparency dimension of HedonisticBehavior does not have a significant intervening effect on Purchase Intention. The adjusted R2 value for the transparencyvariable is 0.076, which means that the transparency variable can be explained by parasocial interaction to the extent of 7.6%. Therefore, the Transparency dimension does not appear to have a significant influence as an intervening factor for Purchase Intention.This finding diverges from prior research byKim and Ko (2012) and Lee et al. (2021), which demonstrated a positive relationship between the transparency dimension of hedonic value and purchaseintention.

The Path Coefficients for the transparency dimension is 0.052, suggestingthat transparency as an indirect variable doesnot have a greater influence on Hedonistic Behavior and purchase intention compared to the direct variable of parasocial interaction, which has a value of 0.160. This implies that even if favorite TikTokers provide clear and straightforward product reviews, this might not play a crucial role in purchase decision- making.

Several other factors could explain the lack of significant influence of the transparency dimension on purchase intention in the context of product reviews byfavorite TikTokers. First, pricing could be a primary consideration for consumers. Despite the transparent reviews by favorite TikTokers, a

price that is too high or beyond consumers' affordability might reduce the motivation to make a purchase. This aligns with the findings of Kotler and Keller (2016) . In their book "Marketing Management," they state that pricing significantly affects consumer purchase intention. Lower prices tend to enhance consumers' interest and inclination to buy a product or service. They also mention that consumers' perception of the value derived from a product or service relative to the pricepaid can be a determining factor in purchasedecisions.

Furthermore, product quality is another important factor in purchase decision- making. Even if favorite TikTokers provide transparent reviews, consumer trust in product quality is influenced by other factors such as brand reputation, other user reviews, or testimonials unrelated to favorite TikTokers. If product quality is in doubt,consumers might hesitate to make a purchase, even if the information provided istransparent. Aaker, Kumar, and Day (2007) explain that product quality plays a significant role in consumer purchase decisions. Good and reliable quality tends to enhance consumers' interest and trust in the product. Consumers are more likely tochoose products with a reputation for high quality, as this is perceived to add value andsatisfaction in product usage.

Moreover, trust and personal relationships could also influence purchase intention. While transparency from favorite TikTokers is important, consumers also tend to consider the personal relationship theyhave with the brand or seller. If consumers have a strong relationship or have built trust with a specific brand, purchase intention is not solely dependent on the transparency of information provided by favorite TikTokers.Moorman, Zaltman, and Deshpande (1992) state that trust is a key factor influencing consumer purchase decisions. Consumers who trust a brand or company are more motivated to buy their products. Additionally, personal relationships established between consumers and service providers can also influence purchase intention. Consumers who feel emotionally connected or have a good relationship with aservice provider are more likely to choose their products over competitors'.

Lastly, promotional factors and special offers can also impact purchase intention. Even if favorite TikTokers provide transparent reviews, attractive promotions, price discounts, rewards, or other special offers can more strongly influence consumer purchase intention. These factors can capture consumers' attention and sway their decisions to make a purchase, even if the transparency of information provided by favorite TikTokers is high. This is consistentwith Hoyer and MacInnis's (2010) research, which asserts that effective promotions such as discounts, sales, or loyalty programs can motivate consumers tomake purchases.

4.7 The Effect of Perceived Enjoyment (Hedonism Behavior) as InterveningVariable on Purchase Intention

The analysis of the data, with a t-statisticvalue of 0.920 and a significance probabilityof 0.358, reveals that the p-value is greater than 0.05. Consequently, H4b is rejected, indicating that the Perceived Enjoyment dimension of Hedonistic Behavior does not have a significant intervening effect on Purchase Intention. This finding contradicts prior research by Algharabat et al. (2020), which demonstrated a positive relationship between the Perceived Enjoyment dimension (the experienced enjoyment) of hedonistic behavior and purchase intention. In conclusion, the enjoyment experienced by consumers in hedonistic behavior, such as watching TikTok reviews, live streaming, or making purchases through online shopping carts, does not significantly influence Hedonistic Behavior and Purchase Intention. Based on the research results, the influence of Perceived Enjoyment has a Path Coefficient value of 0.078. This implies that Perceived Enjoyment as an indirect variable does not have a greater influence on HedonisticBehavior and purchase intention compared to the direct variable of parasocial interaction, which has a value of 0.160. Therefore, the feeling of pleasure when watching favorite TikTokers' reviews does not significantly affect consumers' purchase intentions.

Two key factors might explain this lack of significant influence. First, the diversity of influencing factors could be at play. While Perceived Enjoyment provides satisfaction and pleasure to consumers, other factors such as price, product quality, promotions, and trust might have more significant influences on Purchase Intention. These other factors could be more dominant in shaping purchasedecisions.

Second, context and rational considerations could also play a pivotal role.Even though Perceived Enjoyment offers subjective pleasure to consumers, purchase decisions are often influenced by rational considerations, such as needs, product utility,and the value obtained from the purchase. Consumers might tend to make purchase decisions based on more objective and rational factors, where elements like price, quality, promotions, and trust carry more weight than the level of satisfaction or pleasure experienced.

These factors align with research conducted by Engel et al. (2014), which explains that consumers don't solely consider emotional or hedonic aspects when making product purchases. They also take into account factors like price, quality, promotions, and benefits obtained. Consumers tend to adopt a rational approachand think logically to maximize the value oftheir purchases.

4.8 The Effect of Credibility (Utilitarianism

Behavior) as Intervening Variable on Purchase Intention

The data analysis results indicate a t-statistic value of 2.574 with a significance probability of 0.010. Given that the p-value is less than 0.05, H5a is accepted, implying that the Credibility dimension of Utilitarian Behavior has a significant intervening effect on Purchase Intention. This finding is supported by previous research with similar results, as studied by Huang et al. (2015)in the context of online travel. In this study, it was shown that utilitarian behavior has a positive and significant influence on consumers' purchase intentions.

Based on the hypothesis results and hypothesis testing conducted, it can be concluded that the credibility dimension of utilitarian behavior significantly influences purchase intention. This finding suggests thatconsumers tend to use TikTok as a means togather information about products or servicesthey need before making a purchase. This indicates that utilitarian behavior when usingTikTok plays a crucial role in shaping consumers' purchase intentions.

This finding is also supported by the Credibility dimension having a Path Coefficient value of 0.222. This implies thatCredibility as an indirect variable has a greater influence on Utilitarian Behavior and purchase intention compared to the directvariable of parasocial interaction, which has a value of 0.160. Therefore, the trustworthiness of information conveyed by consumers' favorite TikTokers in reviewing a product significantly affects both Utilitarian Behavior and consumers' purchase intentions.

4.9 The Effect of Informativeness (Utilitarianism Behavior) as Intervening Variable on Purchase Intention

The data analysis results reveal a t- statistic value of 3.157 with a significance probability of 0.002. Since the p-value is lessthan 0.05, H5b is accepted, indicating that the Informativeness dimension of Utilitarian Behavior has a significant intervening effect on Purchase Intention. This finding is supported by previous research with similar results, as studied by Lee et al. (2014), where the quality of information conveyed by producers or sellers influences consumer perceptions about products and affects their purchase intentions.

Based on the results of the hypotheses and hypothesis testing conducted, it can be concluded that the Informativeness dimension of utilitarian behavior significantly influences purchase intention. This finding suggests that informative and relevant information conveyed by TikTok influencers can also influence consumers' purchase intentions. When content providersand creators deliver relevant information, it can lead to utilitarian behavior and consumers' purchase intentions through the content they produce.

This finding is further supported by the Informativeness dimension having a Path Coefficient value of 0.288. This implies that Informativeness as an indirect variable has agreater influence on Utilitarian Behavior and purchase intention compared to the direct variable of parasocial interaction, which has a value of 0.160. Therefore, the clear presentation of product information and the functions conveyed by TikTokers significantly influence Utilitarian Behavior and consumers' purchase intentions.

5. CONCLUSIONS

5.1 Research Conclusion

Based on the presented analysis and discussion, the following conclusions can be drawn:

5.1.1 Parasocial Interaction and Transparency in Hedonism

Parasocial interaction significantly influences the transparency dimension of hedonism values. In the context of marketing through social media, maintaining transparency in parasocial interactions can strengthen the consumer relationship and enhance the hedonic value they experience when consuming the presented products or content. However, parasocial interaction does not significantly affect the perceived enjoyment dimension. This finding is related to the emotional satisfaction andexperiences consumers have while using or enjoying the products or content.

5.1.2 Parasocial Interaction and Credibility in Utilitarianism

Parasocialinteraction has a significant impact on the credibility dimension ofutilitarianism values. The study reveals that higher levels of parasocial interaction experienced by the audience lead to increased trust in the information provided by influencers. This suggests that consumers are more likely to trust information provided by influencers they admire or have a positive opinion of.

5.1.3 Transparency and Perceived Enjoyment in Hedonism

Thetransparency dimension of hedonism behavior does not mediate the influence of parasocial interaction on purchase intention, and the perceived enjoyment dimension also does not mediate the influence of parasocial interaction on purchase intention. Marketers are advised to provide information in a more easily understandable manner to ensure that the intended message is clear and

targeted to consumers.

5.1.4 Credibility Dimension inUtilitarianism as an Intervening Factor

The credibility dimension of utilitarian behavior serves as an intervening factor between parasocial interaction and purchase intention. This finding indicates that consumers tend to use TikTok as a means to seek informationabout products or services they need before making a purchase. It suggests that utilitarian behavior on TikTok plays a crucial role in shapingconsumer purchase intentions.

5.1.5 Informativeness Dimension in Utilitarianism as an Intervening Factor: The informativeness dimension of utilitarian behavior also acts as an intervening factor between parasocial interaction and purchase intention. This finding highlights that information provided by informative and relevant TikTok influencers can impact consumer purchase intentions. When content providers and creators present accurate and relevant information, itcan trigger utilitarian behavior and influence consumer purchase intentionsthrough the content they produce.These conclusions provide insights into how parasocial interaction, transparency, credibility, and informativeness in hedonism and utilitarianism behaviors on the TikTok platform can influence consumer purchase intentions.Marketers can leverage these findings to design more effective marketing strategies, focusing on aspects that have the potential to influence consumerbehaviors and purchase decisions.

6. MANAGERIAL IMPLICATIONS

Based on the findings of this research, the researchers offer the following managerial recommendations:

6.1 Enhancing Transparency

TikTok shouldcontinuously uphold and enhance transparency across all operational aspects. Providing clear, detailed, andaccurate information about the products or services offered will foster consumer trust in the platform. The company can openly communicate pricing policies to corporate partners, content authenticity, and user data management to ensure improved transparency.

6.2 Creating Engaging and Informative Content

TikTok should strive to continually improve content that is captivating, creative, and relevant to create a more enjoyable user experience.Ensure that presented content holds highinformational value by providing verified and useful facts for users. Collaborate with credible partners and official content providers to offer reliable and informative information to TikTok users.

6.3 Leveraging TikTok for Marketing

Marketers or companies selling products on TikTok can harness the platform to create captivating, creative, and relevant content. Ensure that the content and messages conveyed hold high credibility by collaborating with renowned media partners or experts in the relevant field. Regularly monitor and evaluate consumer purchase intention levels tounderstand trends and changing consumer preferences, optimizingproduct marketing strategies on TikTok.

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UNDERSTANDING CONSUMERS INTENTION TO PURCHASE GREEN VEHICLE: A LITERATURE REVIEW

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ABSTRACT

Global warming is one of the main issues discuss by nations leaders. It is a crucial problem that needs to be address immediately. One of the solutions to global warming is green vehicles. Hybrids and electric vehicles are not new products in the automobile market. Unfortunately, the sales percentage for both types of green vehicles are still behind the petrol engine vehicles. Regardless of the world leaders' dream to fill the street with green vehicles by 2035 in developed countries, the dream is still far from reality. As for developing countries, the people are more familiar with hybrid vehicles compare to electric vehicles. Other than that, the consumer perceptions regarding green vehicles are not all in positive aspect. Green vehicles are more associated as luxury goods in consumer perspective. There are also critics on the reliability and durability of the green vehicles as consumers find trouble to believe that green vehicles could compete with petrol engine vehicles. This paper identifies factors that could influence consumer to purchase green vehicles. Thus, providing a better insight in promoting green vehicles to consumers.

Keywords: *Consumer preference, electric vehicle, green vehicle, hybrid vehicle, intention to purchase*

1. INTRODUCTION

The world is concerned about global warming and world leaders are taking a more proactive approach in tackling the issue. United Nation had organized a conference UN Climate Change Conference in Glasgow (COP26) to gather nation leaders all over the world to sit together and discuss on best resolutions that could be implemented in short and long term for the good of our planet. One of the aspects that have been discussed is green vehicles. The developing countries are targeting to produce only zero-emission vehicles by 2035 and a global target is set by 2040. Private finance to support green vehicles research and production globally is one of the outcomes from COP26 in Glasgow. TOYOTA lates claimed new breakthrough technology for green vehicles battery will accelerating the momentum for green vehicles.

Unfortunately, these good news on zero-emission vehicles did not reflect on the current sales of vehicles especially in developing countries. The consumers are still doubtful and more skeptical regarding green vehicles. While consumers are generally more open to purchase hybrid vehicles nowadays, electric vehicles are not on the same level. There are hesitations to purchase electric vehicles, especially on charging facilities and the battery coverage range. As of now, Tesla Model Y, the best-selling model from Tesla offers a battery coverage range of 530 km in one charge. The charging takes 12 hours to 36 hours to full charge depending on the charging method. This is not an attractive offer as petrol engine vehicles will take less than 5 minutes to be fully refilled and will cover further distance.

Meanwhile, TOYOTA latest breakthrough in electric battery claimed that they have created a new battery at a cheaper price, longer distance coverage and just 10 minutes for full charge. This is a major step up from Tesla Supercharge Network that offered 15 minutes charge for 321km coverage. Nevertheless, all this super charging method is not available everywhere and anywhere. The special charging method is limited to certain areas and definitely not exist yet in less developing countries. This is another roadblock that green vehicles manufacturers need to overcome.

2. LITERATURE REVIEW AND METHODOLOGY

2.1 Review Stage

There are five articles published in Google Scholar that had been reviews in this study. All five studies chosen in this literature review are the latest study in the year 2023 and specifically written for green vehicles. The reason behind the use of Google Scholar instead of Web of Science or Scopus is the unavailability of specific articles on green vehicles that were published in 2023 from both publishers.

The articles use in this literature reviews are (Bee, Jin and Lee, 2023; Ong et al.,2023; Mombeuil and Diunugala, 2023; Suprihartini, Herdiansyah and Fahrizal, 2023; Guo and You, 2023; Ong et al.,2023). All five articles reviewed in this study are specifically written on green car, either as electric or hybrid vehicles.

2.2 General Overview

There are many theories being used to test the relationship of various determinants of intention to purchase green vehicles. Each of the theories has its own strength and weakness. The common theories used in previous studies are Theory of Reason Action (TRA), Theory of Planned Behavior (TPB), Value Orientation Model, Norm Activation Theory, The Hunt-Vitell Model, The Consumption Value Theory, Cognitive-Affect-Behavior, Value-Lifestyle-Behavior Hierarchy, Choice-Behavior Model and Diffusion of Innovation Theory.

Of the five chosen articles, three of them used Theory of Planned Behavior (TPB) and two of the articles used Sustainability Theory of Planned Behavior (STPB). TPB is a common theory usually used to discuss the relationship between determinants with intention to purchase while STPB is an extension of TPB model that focuses on the sustainability domain of the TPB framework. The four domains of sustainability are human, social, economic, and environmental. The sustainability domain used in both studies discussed are economic sustainability domain.

2.3 Theory of Planned Behavior

The Theory of Planned Behavior (TPB) posits that the stronger one's intention is towards a specific behavior, the more likely they are to engage in that desired behavior (Ajzen, 1991). In the context of consumer behavior, predicting consumer purchase intention is a crucial method (Newberry et al., 2003). Through TPB, multiple researchers have established a significant link between purchase intention and behavior (Ajzen & Fishbein, 2005; Lai & Cheng, 2016; Liobikiene et al., 2017; Minbashrazgah et al., 2017).

Kanchanapibul et al. (2014) have asserted that the intention to make environmentally conscious purchases frequently influences buying behavior due to concerns for human health and the environment. Scholars like Wiederhold and Martinez (2018), Arli et al. (2018), and Albayrak et al. (2013) propose that the components of TPB—attitudes, perceived behavioral control, and subjective norms—act as predictors of Green Purchase Behavior (GPB). However, previous studies (He & Zhan, 2018; Liu et al., 2012; Zhang et al., 2018) indicate that the Norm Activation Model (NAM) and TPB are insufficient in explaining consumers' intentions to engage in environmentally friendly purchases, as these intentions are often driven more by self-interest and social approval.

2.4 Sustainability Domains

The sustainability domain encompasses various aspects of human, social, economic, and environmental factors that influence an individual's intention to purchase.

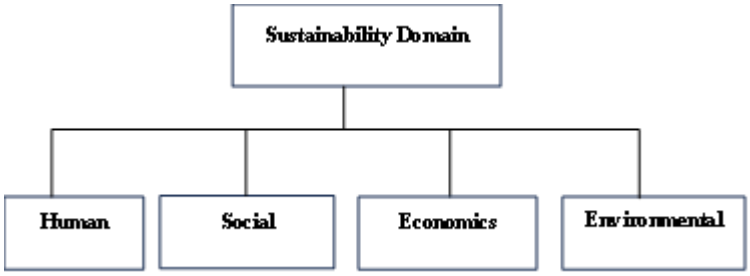

Figure 2.1. Sustainability Domain

Human Influence: Human factors pertain to personal beliefs, values, and motivations. People who are personally invested in sustainable practices and have a strong environmental conscience are more likely to intend to purchase products that align with their values (Leng et al., 2020). This could be due to concerns for their own health, the well-being of their families, or a sense of responsibility towards the planet.

Social Influence: Social factors involve the impact of the people around an individual on their purchasing intentions. Social norms, peer pressure, and community expectations play a role here (Park & Lim, 2020). If sustainable consumption is considered fashionable or socially desirable within a person's social circles, they might be more inclined to purchase products that reflect this behavior.

Economic influence: Economic factors refer to the financial aspects of sustainable purchases.

While some sustainable products might initially have higher price points, the long-term cost-effectiveness, and potential savings (e.g., energy-efficient appliances) can influence purchase intentions (Jouzdani & Govindan, 2021). Additionally, availability of financial incentives, such as tax breaks or subsidies for eco-friendly products, can sway consumers' decisions.

Environmental influence: Environmental factors relate to the impact of a product's production, usage, and disposal on the environment. Products that are environmentally friendly, have lower carbon footprints, use renewable resources, or promote recycling can attract consumers who are concerned about the planet's well-being (United Nation, 2023). Environmental education and awareness campaigns can also increase consumers' understanding of the consequences of their purchases.

3. RESEARCH CONTEXT

The data collected in the chosen articles were collected in Asian countries which are Sri Langka, Indonesia, China, and Philippines. The data were gathered using a questionnaire developed by the authors.

Authors	Countries	Method
Mombeuil & Diunugala (2023)	Sri Langka	Physical Questionnaire
Suprihartini, Herdiansyah, & Fahrizal, (2023).	Indonesia	Physical Questionnaire
Guo & You (2023)	China	Physical Questionnaire
Ong et al. (2023A)	Indonesia & Philippines	Online Questionnaire
Ong et al. (2023B)	Indonesia & Philippines	Online Questionnaire

4. DETERMINANTS

There are multiple determinants studied by previous researcher. Some of the determinants discussed in the chosen articles are highlighted below.

4.1 Green Brand Awareness

Brand awareness refers to a consumer's capacity to promptly identify and remember a brand (Aaker, 1996; Hoeffler and Keller, 2002), or the "degree of a brand's presence in consumers' consciousness" (Pappu et al., 2005). In a similar vein, green brand awareness pertains to a consumer's ability to "identify and recollect that a brand is ecologically conscious" (Tseng and Hung, 2013; Chen and Chang, 2012). Utilizing the conventional branding approach, empirical research has discovered that brand awareness has a positive impact on market performance or the intention to purchase (e.g., Chi et al., 2009; Malik et al., 2013; Shamsudin et al., 2020), as well as on brand trust (e.g., Deka et al., 2020; Bernarto et al., 2020).

4.2 Green Brand Association

Brand associations encompass the underlying information that customers hold in their minds about a brand, whether it leans towards negative or positive perceptions. These associations are interconnected with specific nodes in the brain's memory (Emari et al., 2012; Aaker, 1991). Consequently, these brand associations serve as tools for collecting information that aid in achieving brand distinctiveness (Van Osselaer and Janiszewski, 2001). Similarly, green brand associations can be established by highlighting green product attributes (Hartmann and Ibáñez, 2006) to achieve differentiation as an environmentally conscious brand. Building upon this premise, Chen and Chang (2016) define green brand associations as the degree to which consumers are knowledgeable about green brands, and their emotional reactions and evaluations of these environmentally friendly brands.

4.3 Green Perceived Quality

Green Perceived Quality (GPQ) is a concept in the field of sustainability and environmental management that assesses the quality of a product or service from a green or environmentally friendly perspective. It refers to how consumers perceive the environmental attributes and sustainability aspects of a product or service (Zhang et al., 2018).

In essence, GPQ focuses on the extent to which a product or service aligns with ecological concerns and sustainability values. It considers factors such as the product's environmental impact, resource efficiency, recyclability, energy efficiency, and overall contribution to environmental conservation. Brands (Wiranto & Adialita, 2020).

4.4 Green Trust

Trust is a cornerstone for enduring relationships, built upon confidence in a partner's reliability and integrity (Morgan and Hunt, 1994).

It encompasses dimensions like competency, trustworthiness, and benevolence (Gurviez and Korchia, 2002; Frisou, 2000; Rempel et al., 1985). In the context of environmentally conscious business, "green trust" emerges as the willingness to rely on a product or brand due to its environmental credibility, benevolence, and capability (Chen, 2010). This concept gains significance in consumer decisions regarding eco-friendly purchases, especially amidst concerns about greenwashing. Multiple studies establish a strong link between green trust and intention to purchase green products (Gil and Jacob, 2018; Chinomona and Chivhungwa, 2019; Cheung et al., 2015; Wasaya et al., 2021). Nonetheless, Tarabieh's research (2021) found no significant impact of green trust on green purchase intention.

4.5 Green Product Knowledge

Numerous researchers have delved into the realm of green product knowledge. Notably, Nobel Prize laureate Kristian Tripandoyo Tampubolon's work indicates a direct and substantial impact of green product knowledge on purchase intention (Tampubolon, 2021). In contrast, the research of Agung Wiranto Setyabudi and Tania Adilita suggests that the influence of green product knowledge on green purchase intention is contingent upon its mediation by green trust (Wiranto, A., & Adialita, 2020).

4.6 Perceived Price

A perceived price refers to the perception that consumers have regarding the cost of a product or service. It is their subjective evaluation of how much they believe a product is worth in terms of its price. Intention to purchase signifies the inclination or plan that consumers must buy a particular product or service.

When considering perceived price intention to purchase, it indicates that consumers' perception of the price of a product plays a role in shaping their intention to buy it (Chen & Chang, 2012). In essence, how consumers view the price of a product influences their decision or willingness to purchase it. This concept underscores the significance of consumers' beliefs about the cost of a product in their overall decision-making process.

4.7 Government Policy

In 2019, the government introduced Presidential Regulation No. 55 of 2019, focusing on expediting the Battery-Based Electric Motorized Vehicle (KBL) program, encompassing two-wheeled, three-wheeled, and four-wheeled or more vehicles. Although the regulation provided incentives, it did nott explicitly outline the incentive targets. Hence, there is a necessity for preliminary stages prior to entering the Electric-Based Vehicle industry (Mali et al., 2022). These stages involve establishing guidelines for Hybrid motor utilization (Pindoriya, R. M., Rajpurohit, B. S., Kumar, R., & Srivastava, 2018).

4.8 Behavioral Attitude

Behavioral attitude refers to an individual's mental and emotional outlook regarding a specific behavior. It encompasses thoughts, emotions, and evaluations that determine whether they are inclined to engage in or avoid that behavior (Hu et al., 2021). This attitude is shaped by personal experiences, values, and social influences. It greatly influences decision-making and can be positive, negative, or neutral, impacting behavior outcomes (Fan et al., 2020). Understanding behavioral attitudes is vital for predicting and influencing behaviors in fields such as psychology, marketing, and public health, leading to more effective strategies for behavior change.

4.9 Subjective Norm

Subjective norm refers to an individual's perception of social pressure or expectations from others regarding a specific behavior. It encompasses the perceived beliefs and opinions of significant people or groups in the individual's life (Li et al., 2021). This subjective norm plays a crucial role in shaping an individual's intention to engage in or avoid a behavior. It reflects the influence of social factors on decision-making and behavior outcomes (Ma, Xia & Chang, 2022). In essence, subjective norm indicates how much an individual feels compelled or motivated to conform to others' expectations regarding a particular action.

4.10 Perceived Behavioral Control

Perceived behavioral control refers to an individual's perception of their ability to perform a specific behavior (White & Sintov, 2017). It involves the person's belief in their capacity to successfully carry out the behavior, considering both internal factors (such as skills and resources) and external factors (such as obstacles and environmental conditions). This perception of control strongly influences an individual's intention to engage in or avoid the behavior. In essence, perceived behavioral control reflects how confident someone feels about their ability to

execute a particular action, even in challenging circumstances.

4.11 Habit

Habit refers to repetitive and automatic behaviors that individuals perform in certain situations without much conscious thought (German et al., 2022). It becomes a routine or ingrained pattern of action. When discussing the impact of habit on behavioral intentions, it means that the habits people have developed can directly and significantly influence their intentions to engage in certain behaviors.

4.12 Price Value

When we perceive that what we are paying for something aligns well with its worth or benefits, our likelihood of intending to engage in a behavior, such as making a purchase, is higher (Gunawan et al., 2022). In simpler terms, if we believe the price matches what we're getting, we are more inclined to go ahead with the action. This is because the perceived value we associate with the price directly impacts how motivated we are to follow through with our intentions.

4.13 Hedonic Motivation

Hedonic motivation, which is driven by seeking pleasure, enjoyment, or emotional satisfaction, directly and significantly impacts our intentions to take certain actions. When we are motivated by the pleasure or emotional gratification we expect to gain from an activity, it directly influences our intention to engage in that behavior (Zhao et al., 2021). In simpler terms, if we believe that doing something will bring us joy or positive emotions, we are more likely to intend to do it. This is because the anticipation of a pleasurable experience directly shapes how strongly we want to follow through with our intentions.

4.14 Performance Expectancy

Performance expectancy exerts a direct and significant impact on behavioral intentions. The degree to which we believe that a specific action will yield positive results or contribute to our goals significantly shapes our intention to engage in that behavior (Hassan et al, 2021). If we perceive that a behavior will lead to favorable outcomes, our likelihood of intending to perform that action is heightened. This anticipation of positive results directly influences the strength of our motivation to act on our intentions.

4.15 Effort Expectancy

The perception of how easy or challenging a specific behavior is believed to be directly affects the intention to engage in that behavior (Saif et al., 2022). When a behavior is perceived as requiring minimal effort, the likelihood of intending to perform that action increases. Conversely, if a behavior is seen as demanding significant effort, the intention to carry it out might diminish. Essentially, the anticipation of the ease or difficulty of a behavior directly shapes the motivation to follow through with intentions.

4.16 Facilitating Conditions

The presence of necessary resources, support, and opportunities directly influences the likelihood of intending to engage in a particular behavior (Ong, 2022). When the conditions are favorable and conducive to carrying out the behavior, the intention to perform that action is strengthened. In contrast, if the conditions are not conducive, the intention to engage in the behavior may weaken. In essence, the availability of resources and supportive conditions directly shapes the motivation to follow through with intentions to perform a specific behavior.

4.17 Perceived Environmental Concern

Perceived environmental concern involves how much an individual values and cares about the environment. It is about recognizing environmental issues and how dedicated someone is to address them. When people hold a strong concern for the environment, they tend to engage in actions that support its well-being, such as recycling or conserving energy (German et al., 2022). On the other hand, if this concern is lower, such actions might not be as important. This concept helps us grasp how individuals' feelings towards the environment influence their behaviors and decisions. It's essential for creating strategies and policies to safeguard the environment's health.

4.18 Perceived Economic Concern

Perceived economic concern refers to how much importance an individual places on economic factors or financial matters (Li et al., 2021). It involves recognizing the impact of economic conditions on one's life and decision-making. When someone perceives economic concerns as significant, they are more likely to consider financial aspects when making choices. Conversely, if economic concerns are deemed less important, financial considerations might have less influence.

4.19 Perceived Authority Support

Perceived authority support entails the level

of significance attributed to approval from influential figures or institutions. It involves recognizing the endorsement or encouragement from respected sources. When a strong sense of authority support is perceived, individuals tend to lean more towards aligning their actions with that support (Li et al., 2021). Conversely, if the perceived authority support is weak, its impact on actions might be diminished. This concept provides insight into how individuals' perspectives on support from respected sources influence their behaviors and decisions. It holds importance in crafting strategies and policies that duly consider the role of authoritative endorsement.

5. RESULTS

The tables below summarize the relationship between determinants influencing intention to purchase with intention to purchase green vehicles for each study.

Table 5.1. Result for Mombeuil & Diunugala (2023)

Determinants	Significant
Green brand awareness	Yes
Green brand association	Yes
Perceived quality	Yes
Green trust	Yes

Table 5.2. Suprihartini, Herdiansyah & Fahrizal (2023)

Determinants	Significant
Green product knowledge	Yes
Perceived price	No
Government policy	Yes

Table 5.3. Guo & You (2023)

Determinants	Significant
Behavioral Attitude	Yes
Subjective Norm	Yes
Perceived Behavioral Control	Yes

Table 5.4. Ong et al. (2023A)

Determinants	Significant
Habit	Yes
Price value	Yes
Hedonic Motivation	Yes
Performance Expectancy	Yes
Effort Expectancy	Yes
Facilitating Conditions	Yes

Table 5.5. Ong et al. (2023B)

Determinants	Significant
Perceived Environmental Concern	Yes
Perceived Economic Concern	Yes
Perceived Authority Support	Yes

6. DISCUSSION

There are similar determinants discussed in the articles with different results. This could be due to different perception or understanding of the questionnaires. Some of the questions in the questionnaire are written in technical language that could lead to different interpretation from the respondents. Overall, there are many determinants that could influence consumer intention to purchase green vehicles. However, the numbers of sales for green vehicles are still way behind fuel power vehicles. Therefore, more research needs to be conducted to tackle this issue.

7. CONCLUSION

While there are many significant determinants that influence purchase intention of green vehicles, there are more aspects that is still not fully coverer such as the influence of culture, tradition, belief and religion effect on consumer intention to purchase. Most of the research conducted used respondents from the same ethnicity and religion. The result could be different in multiracial country likes Malaysia. Thus, future research could focus on these aspects in the future.

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UNDERSTANDING GREEN MARKETING STRATEGIES IN SOCIAL ENTERPRISES AND RESPONSIBLE PURCHASE BEHAVIOUR: A LITERATURE REVIEW

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ABSTRACT

This study seeks to provide literature on the different green marketing strategies that social enterprises use to attract responsible purchase behaviour based on a Literature Review. The study extracted data (articles) from three prominent databases (Scopus, Web of Science and Google Scholar) subscribed by UiTM. Reviews are carried out by reading and analysing 21 journal articles and summarized in a table, namely journal articles and authors and they are put under their own heading based on article categorization such as social enterprises, green marketing strategy, and responsible consumer purchase behavior. A few determinants of green marketing strategies are identified, namely, creating eco conscious brand image, fostering positive customer environmental attitudes, innovating eco-friendly packaging, networking with other green enterprises and a general category of other influential factors. The results indicate that green marketing strategies in social enterprises are proven effective to attract responsible purchase behaviour. The findings contribute to social entrepreneurship and green marketing literature in terms of effectiveness to attract responsible purchase behaviour. Future research suggestions are provided based on the findings.

Keywords: *Social enterprise, green marketing, consumer behaviour, green purchase behaviour.*

1. INTRODUCTION

Social entrepreneurship is booming nowadays as the after-effect of the pandemic (G.P. et al., 2022). Most businesses are stepping up their game and being more aggressive in developing their business to maximize profit. However, the rise of social enterprises is balancing out the competition to focus on being social-oriented instead of profit-oriented (Islam & Habib, 2022). The pandemic underscored the importance of social and environmental issues, potentially leading to heightened awareness and support for social enterprises' missions.

Social enterprises and sustainability are closely intertwined concepts that share a common focus on addressing social and environmental challenges. Just as sustainability involves finding a balance between economic, environmental, and social considerations, social enterprises aim to strike a balance between generating revenue and achieving meaningful impact (Hoang Tien et al., 2020). They demonstrate that financial sustainability and positive impact can coexist.

Green marketing encompasses a range of initiatives that extend beyond meeting customers' current requirements and also take into account the satisfaction of customers and public concerns by offering eco-friendly and environmentally responsible business activities (Zhang & Berhe, 2022). Additionally, green marketing strives to minimize waste through the utilization of environmentally friendly products, the conservation of energy, and the promotion of environmental well-being and sustainability.

Green marketing strategies implemented by social enterprises focus on promoting environmentally responsible products and services while aligning with their social missions (Hernandez et al., 2023). These strategies aim to appeal to eco-conscious consumers, enhance the organization's impact on sustainability, and communicate their commitment to both environmental and social goals. In essence, green marketing strategies in social enterprises go beyond promoting products; they communicate a holistic commitment to both social impact and environmental responsibility (Firdiansyah et al., 2021). These strategies help social enterprises differentiate themselves, attract like-minded consumers, and achieve meaningful change through their business

operations.

Green brand image and customer views on the environment are some of the factors that positively affect the effectiveness green marketing which will then give significant impact on consumer green purchase behaviour (Majeed et al., 2022a). This have led to the emphasis of factors such as eco-labelling, green packaging and branding, and green products, premium, and pricing that have been proven to encourage favourable green purchase behaviour.

2. LITERATURE REVIEW

2.1 Social Enterprises

Social Enterprises (SEs) face the challenge of sustaining their business with limited resources such as limited marketing approaches, lack of funds, conflicting stakeholder needs, and indifferent attitude toward marketing (Bandyopadhyay & Ray, 2020). However, Bandyopadhyay & Ray (2020) also found that the correct marketing mix can help social enterprises to design the ideal responsible marketing to solve issues and challenges faced by social enterprises. The development of innovative products/services, pricing strategies, and business models aimed at enhancing the well-being of diverse social segments is a common objective. Nevertheless, social enterprises exhibit differences in their approach, mindset, and execution of marketing strategies.

The nature of SEs is geared towards the dependence on sponsors and donations which is a challenge because they would have to rely more on selling products and services to sustain financially. Therefore, many social entrepreneurs survive through cost-effective strategies to sustain themselves (Cheah et al., 2018). The core objective of social enterprises is to generate a meaningful social impact. Nevertheless, these dual-purpose entities necessitate financial viability to ensure their lasting societal contributions. By harnessing the entrepreneurial mindset and the socially conscious stance of the entrepreneurs through effective business planning strategies, both their financial and societal outcomes can be elevated. Furthermore, the extent of these effects can be amplified by the specific socioeconomic environment within which these enterprises operate.

Cheah et al., (2018) used the Resource Based View (RBV) theory that developed the research model consisting of four key factors: entrepreneurial orientation, social relevance, business planning practices, and socioeconomic context. These factors were found to enhance the understanding of factors affecting the performance of social enterprises.

In addition, with the unique strategy of SEs to maintain sustainability, they also compete in the market through innovation and the application of technology. Innovation and the application of technology in social enterprises are pivotal in driving positive social and environmental impact (Calderini et al., 2023). These elements enable social enterprises to create more efficient, scalable, and sustainable solutions to complex societal challenges.

Calderini et al., (2023) found 4 key dimensions of social enterprises' transformative innovation potential which are directionality which involves social goals as the purpose of innovation; social and geographical inclusiveness which involves the inclusion of marginalized areas and individuals in the provision of goods or services; reflexivity in terms of participatory governance and monitoring the achievement of goals; and experimental character in[1]terms of establishing partnerships with heterogeneous actors. These dimensions incorporate policies that holds the potential to offer comprehensive answers to socio-environmental complexities. Within this context, social enterprises can assume the role of catalysts for driving transformative innovation, particularly for communities that are both geographically and socially marginalized. Consequently, the integration of social enterprises into policies centered on transformative innovation can serve to counterbalance the adverse repercussions often associated with growth driven by innovation. This inclusion of social enterprises in policy frameworks not only bolsters the societal inclusiveness of such measures but also extends their geographic reach.

The progression of sustainable social entrepreneurship development holds the potential to lead enterprises towards more robust and enduring positions over the long term. Both commercial and social entrepreneurship realms will converge and complement each other, blurring the boundaries between them. This convergence reveals the comprehensive nature of entrepreneurship, encompassing all facets, dimensions, and aspects of sustainable development (Hoang Tien et al., 2020). However, in contrast to the skill set of commercial entrepreneurships, the skill set required for social entrepreneurship is intricate, multifaceted, and intricately linked to sustainable development and its associated challenges. Hong Tien et al., (2020) discovered that corporate sustainability draws inspiration from three interconnected

concepts: sustainable development, which takes a broader societal perspective; corporate social responsibility (CSR); and stakeholder theory, emphasizing consideration for the interests of all involved parties, not just shareholders, in decision-making, promoting a more comprehensive approach to responsibility and sustainability. On another perspective, social enterprises are established with a significant mission: bridging the gaps left by commercial enterprises and, to some extent, assuming the roles and responsibilities that local governments might have.

The emphasis on outcomes in SEs The Netherlands encompasses both social priorities and organizational sustainability (Backer, 2020). Additionally, there is considerable diversity in the types of activities undertaken, given that social enterprises operate across a broad spectrum of impact areas and economic sectors. Due to lack of governmental support, most social enterprises are relatively autonomous, and rely to a considerable extent on commercial revenues for their income. Nonetheless, the majority of SEs have not yet reached a sufficient level of maturity to be expected to be completely autonomous, and consequently rely on a large and diverse private support base.

Furthermore, according to Backer (2020), the case study from The Netherlands and the Macro Institutional Social Enterprise (MISE) framework adds to the knowledge of how the institutional environment affects social enterprises. It also suggests a need to focus more on political commitment within the MISE framework. For those supporting social enterprises in The Netherlands, like policymakers, this research can help them better understand current developments in the field and improve their efforts to advocate for policies that help social enterprises grow.

Table 1: List of Previous Studies on Social Enteprises

No.	Article Name	Author
1.	Responsible Marketing: Can Social Enterprises Show the Way?	(Bandyopadhyay & Ray, 2019)
2.	Internal Oriented Resources and Social Enterprises' Performance: How Can Social Enterprises Help Themselves Before Helping Others?	(Cheah et al., 2018)
3	Organizing for transformative innovation policies: The role of social enterprises. Theoretical insights and evidence from Italy	(Calderini et al., 2023)
4	Social entrepreneurship and corporate sustainable development. Evidence from Vietnam	(Hoang Tien et al., 2020)
5	Understanding social enterprise in The Netherlands: An application of the macro institutional social enterprise framework to identify the institutional characteristics of social enterprise in The Netherlands	(Backer, 2020)

2.2 Green Marketing Strategy

The definition of green marketing has evolved since 1976 (Dangelico & Vocalelli, 2017). In 2013, the American Marketing Association defined green marketing as “Eco-marketing is a component of the new marketing approaches which refocus, amend and improve existing marketing philosophy and practice, offering a considerably dissimilar perspective. Eco marketing belongs to an assembly of approaches which try to make reconciliation between the lack of fit between marketing as it is presently practiced and the ecological and social realities.” The increasing popularity of green marketing shows that more and more people are interested in it. This proves that environmental sustainability is not just a temporary trend but an important factor when creating and promoting new products. Understanding green marketing, its basics, how to create a strategy, and the tools to use is useful for managers, scholars, and students alike.

A green marketing strategy in social enterprises involves incorporating environmentally responsible practices and messages into the organization's marketing efforts. This approach not only aligns with the social enterprise's mission to create positive societal impact but also contributes to sustainable business practices. It was proven that there is a substantial connection between the elements of green marketing and factors such as brand image, consumer behavior, brand equity, purchase intention, and purchase decisions (Firdiansyah et al., 2021). The impact of green marketing on brand image notably affects how

consumers behave and make purchasing choices.

Moreover, according Firdiansyah et al. (2021), the effective use of green marketing strategies has a favorable impact on how appealing geo-cultural products are in terms of marketing performance. The appeal of these products acts as an intermediate factor within the Green Marketing model, influencing marketing performance. In theory, this addresses the existing research gap related to understanding the link between green marketing strategies and marketing performance.

Green marketing strategies have a notable and favorable impact on customers' inclinations to engage in ecologically conscious purchases (Majeed et al., 2022b). The linkage between green marketing methods and green purchase intentions is significantly influenced by both the eco-friendly brand image and customers' environmental attitudes. This signifies a positive societal response to green marketing practices. When studying consumers' proclivity for environmentally friendly purchases, acknowledging the significance and role of the eco-conscious brand image and customer environmental attitudes becomes imperative. Packaging should prioritize eco-friendliness, minimizing excessive paper and plastic materials. Businesses ought to utilize the ecological attributes of their products to enhance their branding efforts.

In addition, Majeed et al. (2022) underpinned the "Theory of Reasoned Action (TRA)" that suggested that an individual's thoughts and attitudes influence their behavior. While the subjective norm is a significant predictor of behavioral intention, attitude is the most influential factor. People's behavior can largely be anticipated based on their intentions. Their attitudes toward environmental conservation were shaped by their beliefs about how their actions would impact it. Therefore, the beliefs that customers hold about the environment play a substantial role in mediating the connection between green products, premium pricing, and the intention to make green purchases. Furthermore, Majeed et al. (2022) explained as indicated by the social cognitive theory, individuals often conform to socially accepted behavior and are attracted to things that have already gained recognition. To elaborate, people's attitudes and perceptions of a brand have a pivotal influence on their purchase decisions, post-purchase behavior, and overall treatment of the brand.

For proprietors or managers of environmentally conscious small and medium sized enterprises (SMEs), it is essential to concentrate on enhancing and upholding processes related to environmental sustainability. This involves directing attention toward Green Supply Chain Management and taking proactive measures for energy conservation (Rajadurai et al., 2021). In theory, discovered by Rajadurai et al. (2021), customer satisfaction was positively influenced only by Greening The Process (GTP), Green Supply Chain Management (GSCM), and Proactive Energy Conservation (PEC). However, Green Strategic Policy Initiative (GSPI) and Green Promotion (GP) did not exhibit a significant effect on Customer Satisfaction. Recognizing these factors that impact customer satisfaction, owners or managers of Green Small and Medium Enterprises (GSMEs) can concentrate on enhancing the significant variables to enhance customer satisfaction. Furthermore, adopting a Green Marketing Orientation (GMO) provides managers with valuable insights into how their businesses foster environmentally friendly practices and how such practices impact business outcomes. This can contribute to improved performance for GSMEs. Moreover, GMO and its components can support further theoretical advancements by evaluating its influence on various internal variables and encouraging greater engagement from government agencies and academic marketing experts. These efforts are aimed at fostering higher customer satisfaction, aligning with the objectives set forth by the United Nations Sustainable Development Goals. Implementation of green marketing efforts by GSMEs can serve as a guidance for social enterprises given the nature and the scale of their businesses are similar.

Transition towards Green Economy will facilitate economic growth and investment while simultaneously improving environmental quality and fostering social inclusivity (D'Amato & Korhonen, 2021). This was supported using the Framework for Strategic Sustainable Development (FSSD), including five interdependent levels of analysis, planning and management. The well-established FSSD, also referred to as 'The Natural Step Framework,' has been designed to provide clarity and promote progress amid the multitude of sustainability concepts, approaches, tools, and indicators. It emphasizes that existing sustainability knowledge, encompassing concepts, approaches, and tools, should guide strategic action toward sustainability, without substituting or competing. The FSSD comprises five interrelated levels of analysis, planning, and management ranging from the most abstract to the most practical: 1. focus system; 2. goal; 3. strategies; 4. actions; and 5. tools and indicators. Within this framework, green entrepreneurship assumes a significant role. FSSD and green marketing are interconnected in their efforts to promote

sustainability. FSSD provides the strategic foundation for sustainability within an organization, while green marketing helps communicate and reinforce these sustainable practices to consumers, thereby creating a more comprehensive and impactful sustainability strategy.

Green enterprises achieve a blend of social, economic, and environmental impacts through their operations, including waste reduction, job creation, and the introduction of eco-friendly alternatives to the market (Jayasinghe et al., 2021). SWOT analysis and a Triple bottom line (TBL) Impact assessment were used to construct a comprehensive framework that helps in comprehending the factors that facilitate, impede, and the effects they generate.

In theory suggested by Jayasinghe et al. (2021), strengths and opportunities (SO) are considered enablers, while weaknesses and threats (WT) are seen as obstacles within the realm of eco-enterprises. These enablers and barriers are then associated with the effects these eco-enterprises produce. Enablers enhance the sustainability of these enterprises, thus contributing to the creation of a sustainable waste management system. In contrast, barriers impede the sustainability of eco-enterprises and do not support the establishment of a sustainable waste management system. The framework highlights that enablers positively influence the development of Triple Bottom Line (TBL) impacts, whereas barriers hinder the system. The conceptual model demonstrates how effectively addressing these barriers and supporting enablers will lead to the establishment of sustainable eco enterprises. By addressing these barriers and leveraging enabling factors, social enterprises can create a more sustainable and impactful presence within their respective communities or sectors. The Triple Bottom Line (TBL) framework, encompassing social, environmental, and economic dimensions, can be particularly relevant in assessing and enhancing the social impact and sustainability of these enterprises.

However, green enterprises encounter a range of challenges in maintaining their growth and expanding their operations. These challenges encompass limited access to financial resources, a shortage of business and marketing expertise, and difficulties in accessing suitable markets. To support green enterprises in overcoming these hurdles, it is essential to offer networking opportunities and establish platforms for constructive dialogue. Such initiatives can enable green enterprises to connect with like minded organizations, build partnerships, foster innovation, enhance productivity, and unlock fresh market opportunities.

Green entrepreneurship has a specific mission to foster both the local community and environmental sustainability (Hoang Tien et al., 2022). Green entrepreneurship is on the rise aligned with the principles of sustainable development. Today, large cities are often faced with overcrowded social infrastructure, leading to environmental pollution. Additionally, limited living space is a significant challenge due to dense population. The recent surge in green entrepreneurship offers a unique value proposition to enhance the quality of life for city residents.

Nowadays, more young generation specifically Gen Z are likely well-informed consumers. It is a trend to support green movements in all aspects of life. Eco-labels are deemed important in green marketing strategy because they can efficiently convey the environmental appeal of a product to the young adult consumer (Song et al., 2020a). In accordance with generational theory, it has been observed that Generation Z exhibits a greater inclination toward active social and economic engagement in society compared to Generation Y. Specifically, Generation Z, a concept applicable to both Eastern and Western cultures, pertains to the demographic cohort succeeding millennials and preceding Generation Alpha. What sets them apart from other advertising methods is that Generation Z consumers tend to view eco-labels as a unique appeal linked to how the product is made and processed with environmental sustainability in mind. Given the fact that this study is analyzing green marketing strategy in social enterprises, this supports the idea of social enterprise that supports the Sustainable Development Goals that cater for environment, economy and society to achieve successful circular economy.

It is imperative that social enterprises portray a kind and responsible image given the good cause behind their business. According to Wu et al. (2022), the concept of corporate social responsibility is proven to be a strong driving force of repurchasing social enterprise products. Utilitarian advantages have a positive influence on brand identity and brand trust, subsequently enhancing the intention to repurchase. Consequently, utilitarian benefits emerge as a secondary driver behind the repurchasing of social enterprise products. Hence, it is imperative for social enterprises to effectively implement corporate social responsibility to instill a strong sense of brand trust in consumers' minds. CSR initiatives equip social marketers with the readiness required for product launches and promotions. Moreover, social enterprises can discern consumer preferences for differentiation. By adeptly understanding consumer perceptions, social marketers can

transform passive consumers into active ones and capitalize on marketing opportunities by aligning brand identity and trust with the design of marketing programs.

In green marketing, there's an issue of "greenwashing" that affect consumers' trust when the green marketing claims do not reflect the actual environmental conduct (Szabo & Webster, 2021a). Aside from ethical harm, greenwashing may affect company performance and reputation. In addition, drawing upon cognitive load theory, it is proposed that greenwashing hampers consumers' cognitive capacity to process information, leading to confusion and increased uncertainty regarding green products. Thus, greenwashing can harm green marketing efforts in social enterprises. It leads to a loss of trust, disillusionment among consumers, and legal risks. Genuine sustainability efforts may get overshadowed, and opportunities to connect with environmentally conscious consumers are missed. To maintain credibility and succeed in green marketing, social enterprises should prioritize honesty and transparency in their sustainability practices and communications.

Table 2: List of Previous Studies on Green Marketing Strategy

No.	Article Name	Author
1.	"Green Marketing": An analysis of definitions, strategy steps, and tools through a systematic review of the literature	(Dangelico & Vocalelli, 2017)
2.	A Review of Green Marketing Strategy Literature: Mini-Review Approach	(Firdiansyah et al., 2021)
3.	Green Marketing Approaches and Their Impact on Green Purchase Intentions: Mediating Role of Green Brand Image and Consumer Beliefs towards the Environment	(Majeed et al., 2022b)
4.	Investigating Green Marketing Orientation Practices among Green Small and Medium Enterprises	(Rajadurai et al., 2021)
5.	Integrating the green economy, circular economy and bioeconomy in a strategic sustainability framework	(D'Amato & Korhonen, 2021
6.	Sustainable waste management through eco-entrepreneurship: an empirical study of waste upcycling eco enterprises in Sri Lanka	(Jayasinghe et al., 2021)
7.	Green Entrepreneurship Understanding in Vietnam	(Hoang Tien et al., 2022)
8.	Green Marketing to Gen Z Consumers in China: Examining the Mediating Factors of an Eco-Label–Informed Purchase	(Song et al., 2020a)
9.	Driving forces of repurchasing social enterprise products	(Wu et al., 2022)
10.	Perceived Greenwashing: The Effects of Green Marketing on Environmental and Product Perceptions	(Szabo & Webster, 2021b)

2.3 Responsible Consumer Purchase Behaviour

Consumers nowadays are becoming more informed and that have led them to become more conscious and responsible in their purchasing behavior (Gierszewska & Seretny, 2019) . In the theory of sustainability, pivotal concepts include the idea of fundamental necessities, the notion of restricted choices, and the resilience of the global ecological system. With the trending sustainable development goals that companies are striving for, the competition is increasing to provide the best product and services that caters for sustainability towards circular economy that will benefit the environment as well as mankind.

Responsible consumer behavior is driven by the recognition that individual choices can collectively lead to positive societal and environmental impacts. Yoon et al., (2020) claimed that two inherent consumer traits, namely self-esteem and a desire for social status, impact consumer choices regarding CSR (Corporate Social Responsibility) products through the mediation of two factors: brand image and self-enhancement. These effects occur separately within two distinct CSR domains: social and environmental. Both the pursuit of social status and self-esteem are positively associated with the intention to purchase, although this relationship is indirect. Consequently, identifying the optimal target consumers involves focusing on individuals with elevated self-esteem and a penchant for seeking status. For some consumers, the purchase of

CSR products is driven by the aspiration to enhance their self-image. While Social Enterprise and Corporate Social Responsibility occupy distinct positions in the business-society landscape, there is indeed a convergence between the two (Palakshappa & Grant, 2018). The creation of value, be it social, collaborative, or strategic, emerges as a common thread linking these two concepts.

However, it's important to note that while responsible consumer behavior is a valuable approach, it's not always accessible to everyone due to factors such as affordability, availability of options, and cultural considerations (Zhuang et al., 2021). Additionally, responsible consumer behavior is just one piece of the puzzle; broader systemic changes in business practices, policies, and regulations are also necessary to create a more sustainable and ethical marketplace.

Consumers are increasingly seeking out products that are environmentally friendly, energy-efficient, and made from sustainable materials (Song et al., 2020a). They look for products with certifications like Energy Star, USDA Organic, Fair Trade, and more.

A company's commitment to sustainability can significantly influence consumers' perceptions of the brand (Bachnik & Nowacki, 2018). Brands that are seen as environmentally responsible often enjoy enhanced brand loyalty and positive reputation. Furthermore, younger generations, particularly millennials and Generation Z, tend to place a higher emphasis on sustainability and ethical considerations in their purchasing choices. They are more likely to support brands aligned with their values. Millennials' intention is primarily shaped by their perceived price and attitude, with social norms having a moderate influence, while knowledge about social enterprises exerts a significant but relatively weak impact.

Looking ahead, social enterprises could place greater emphasis on generating value through their pricing strategies. Additionally, they should promote knowledge dissemination and foster positive attitudes toward social enterprises to bolster consumer purchase intentions (Andika et al., 2023). Ewe & Tjiptono (2023) integrate self congruity theory and regulatory focus theory in their research. The theories are employed to offer additional empirical support regarding the influence of brand familiarity on consumer purchasing patterns when considering eco friendly and non-eco-friendly products. Furthermore, this research reveals an interesting implication: consumer green consciousness is linked to a willingness to pay a premium for eco friendly products, with the extent of this willingness being contingent on the degree of brand familiarity.

This study not only provides insights into the consumer behavior particularly targeting millennials and Gen Z but also offers valuable guidance to social enterprises seeking to ensure the longevity of their businesses and make a lasting impact on societal and environmental causes.

Companies must be prepared to handle controversial issues of environmental position of SEs to present their transparent environmental efforts to the public. In order to do so, SEs face the challenge of ethically applying green marketing strategies to help gain competitive advantage that can effectively attract the Gen Zs who are mostly well-informed consumers (Song et al., 2020b). These consumers are ecologically conscious.

Table 3: List of Previous Studies on Responsible Consumer Purchase Behaviour.

No.	Article Name	Author
1	Sustainable Behavior-The Need of Change in Consumer and Business Attitudes and Behavior	(Gierszewska & Seretny, 2019)
2.	Inner-self vs. Outer-self and socially responsible product consumption	(Yoon et al., 2020)
3	On the Factors Influencing Green Purchase Intention: A Meta-Analysis Approach	(Zhuang et al., 2021)
4	How to build consumer trust: Socially responsible or controversial advertising	(Bachnik & Nowacki, 2018)
5	Green purchase behavior: The role of green advertising, green awareness, and eco-literacy	(Andika et al., 2023)
6	Green behavior among Gen Z consumers in an emerging market: eco friendly versus non-eco-friendly products	(Ewe & Tjiptono, 2023)

3. RESEARCH OBJECTIVES

i) To identify successful green marketing strategies in different social enterprises.

ii) To investigate green consumer purchase behavior from various social enterprises.

iii) To explore the relationship between effective green marketing strategy and green consumer purchase behavior from various social enterprises.

4. RESEARCH QUESTION

i) What are the green marketing strategies implemented by social enterprises?

ii) How do social enterprises attract green consumer purchase behaviour?

iii) How does green marketing strategy affect consumer's green purchase behaviour?

5. METHODS

The method used for this literature review involves searching the Web of Science Database subscribed by UiTM through their Library Website. The searching process started with using relevant keywords related to researcher's expertise and research interest. The first keyword chosen is "green marketing" and it showed 805 results from Web of Science Core Collection. Since the research interest also involves social entrepreneurship, the second keyword chosen is "social enterprise". The search is refined in the quick filter, publication years, document types, web of science categories, and publishers.

In the quick filter, the search is refined to only include early access, open access, and enriched references cited. The publication years were narrowed down into only within 5 years from 2019 until 2023. The document types include articles, proceeding papers, and book chapters. However, the result showed articles and early access that are only available. Furthermore, the WOS category is refined to only include environmental sciences, green sustainable science technology, business, environmental studies, and management. Lastly, the list of publishers includes Elsevier, Mdpi, Springer Nature, Emerald Group Publishing, and Wiley. The refined search produced 65 results from Web of Science Core Collection. These results will go through the next step which is the screening process.

The screening process involves selective reading of the papers generated from the WOS results. Relevant and important issues from elements of the papers such as the abstract, conclusion, and future research are extracted to write the literature review. This can also help to come up with new research objectives or research questions. This integrative review will consist of the nexus of knowledge in the realm of green marketing and social enterprise.

This literature review also searches papers in Scopus Database subscribed by UiTM. Keywords such as green marketing strategy, social enterprise, and green purchase were used. About 16 articles showed up. The search in Scopus was quite direct and simple due to the thorough search experience in Web of Science that led to the familiarity of keyword searching in similar fields of study in the realm of this current research.

This literature review also searches papers in Google Scholar. Keywords such as sustainability, responsible purchase, and social enterprise were used for search. It's crucial to establish that not all references gathered from the search would meet the minimum criteria for inclusion in the study. The process involved filtering out duplicates from the articles and journals, followed by a manual assessment of abstracts and titles to determine their suitability for the study. Out of the total of 430 000 articles, 17 400 were excluded as they were duplicates across different databases. These articles underwent further scrutiny by evaluating their abstracts, titles, and conclusions. An in-depth examination involving a thorough review of the content ultimately leaves 81 high-quality articles for analysis. The exclusion criteria were implemented to ensure that the information derived from the sources was contextually rich and included only the most relevant texts. The selected articles underwent further analysis through descriptive and content analysis methods to ascertain the factors contributing to value creation. Textual data was condensed, and the articles were categorized based on identified themes and analyzed for frequency.

Table 4: The search from databases

Database	Search Query	No. of Results
Web of Science	Social enterprise, green marketing, green purchase behaviour, sustainability	65
Scopus	Green marketing strategy, social enterprise, green purchase	16
Google Scholar	Sustainability, responsible purchase, social enterprise	81

6. DISCUSSION AND CONCLUSION

This study has identified strategies such as creating eco-conscious brand image and fostering positive customer environmental attitudes are imperative in attracting responsible purchase behavior. In addition, when it comes to packaging, the key focus should be on eco friendliness and innovation, with an effort to minimize the excessive use of paper and plastic materials. Enterprises should capitalize on the environmental features of their products to bolster their branding initiatives.

It is vital to center efforts on improving and maintaining procedures connected to environmental sustainability. This includes emphasizing green supply chain management and taking proactive steps for conserving energy.

Another green marketing strategy can also be seen in providing opportunities for networking and create platforms for meaningful dialogue (Pratono et al., 2019). These initiatives can facilitate connections between green enterprises and similar organizations, fostering partnerships, driving innovation, improving productivity, and opening up new market prospects.

Based on the literature review, millennials and Gen Z are the generations that are likely to be attracted to green marketing and are responsible consumers themselves. They are more exposed to environmental issues and are keener to act on getting solutions to curb environmental pollutions that are harming the world and even themselves as citizens of the earth.

The literature has shown that green marketing strategies generally have positive impact on consumer purchase behavior. The strategies have influenced consumers to practice responsible purchasing for the benefit of the environment, society and economy. In addition, many theories have been discussed that contribute to the body of knowledge relating to social enterprise practices, green marketing strategy development and effectiveness, as well as positive responsible consumer purchase behavior. The theories provide social enterprises with the tools and knowledge needed to attract consumers to their products by understanding consumer behavior, crafting effective messages, building trust, segmenting the market, fostering innovation, and gaining a competitive edge in the market.

This study is to help social enterprise practitioners to be updated with the latest trend in green marketing to strategize their marketing efforts towards achieving financial stability as well as supporting the circular economy that caters for the well-being of the environment and society. This study could also be beneficial for policymakers to improve policies to encourage responsible purchasing and aid in designing the best green marketing strategy towards achieving sustainable development goals.

Collaborations and alliances with like minded organizations can increase impact, while educational content should inform consumers about the benefits of their products. Continuous innovation for sustainability, personalization, and the use of technology are essential. Feedback and measurable impact should be incorporated, emphasizing long-term commitment to social and environmental goals. Expanding global awareness can also broaden consumer reach. These strategies will not only attract consumers but also foster lasting connections and support for the social enterprise's mission.

This study is limited to only social enterprises in certain countries such as Vietnam, Sri Lanka, Malaysia, the Netherlands and Italy. The findings from the literature could also be applied on SMEs and other companies but probably to a different extent or scope.

For future recommendations, it would be valuable to design effective green marketing strategies that attract consumers in social enterprises by prioritizing data-driven insights, transparency as well as crafting compelling narratives around social and environmental initiatives such as storytelling to create an emotional connection with consumers and engage them to achieve desired mission.

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DEFENSIVE STRATEGY OF NEWS TV INDUSTRY (STUDY CASE OF CNN INDONESIA)

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ABSTRACT

Along with the development of the era and technology that is getting faster, access to information is now easier, anytime and anywhere. This affects the existence of News TV which conventionally can only be accessed using television and the broadcasts have been regulated by the TV station. This is very different from social media which could be easily accessed and the information viewed can be adjusted to its users. This study uses a qualitative approach to explore and collect information from respondents and sources related to the research title. This is done through a questionnaire survey and written interviews. Researcheer use the Balanced Scorecard as an analytical tool used to develop strategic factors. The development of CNN Indonesia News TV's social media will have an impact on business development as well as the revenue gains of the business itself. CNN Indonesia must be able to make good use of social media like other News TV social media. A defensive strategy that can be implemented by analyzing Competitor Profiles. To implement this, alignment of the company's vision and mission is needed to develop its social media and also conduct maximum training for its human resources.

Keywords: *defensive strategy, social media, digitalization, balanced scorecard, competitor profiling*

1. INTRODUCTION

1.1 Background

Based on a survey conducted by Katadata Insight Center in collaboration with the Ministry of Communication and Information Technology, titled "Digital Literacy Status in Indonesia 2021," in the year 2021, 73% of respondents chose social media as their source of information. According to this data, in both 2020 and 2021, social media consistently held the top position, followed by television as the second most frequently accessed source. Although television's position as an information source has been overtaken by social media, it still remains an important medium for delivering accurate and credible information to the public. This is evidenced by the Katadata Insight Center and Ministry of Communication and Information Technology survey in 2021, which showed that television is still the most trusted source for obtaining information. 47% of respondents chose television, while 22.4% chose social media. Television, being a mainstream medium, is the public's choice for ensuring the accuracy of the information received, given that information through social media may not always be accurate as it cannot be validated unless it is disseminated by verified social media accounts. Mass media, including television, plays a crucial role in disseminating information and protecting the public from hoaxes or false news that can provoke fear and anxiety. This is why television, especially news television, is of great importance. Furthermore, the TV industry is a labor-intensive business, meaning that many Indonesians rely on this industry for their livelihoods. If TV businesses go bankrupt or close down, many workers will lose their jobs and sources of income. So, how can the TV news business, in particular, survive amidst the onslaught of social media and digitization?

In Indonesia itself, there are more than 1,000 TV stations, including national, local, and regional government-owned stations. Among these numerous TV stations, there are several national TV stations that exclusively broadcast information or news throughout their broadcasting hours, referred to as News TV. There are several National News TV stations in Indonesia, such as Metro TV, Kompas TV, TV One, CNN Indonesia TV, and Inews TV. These five News TV stations broadcast domestic and international news 24 hours a day and compete with each other in terms of the speed and accuracy of their news reporting. Nowadays, these TV stations are also expanding their presence on social media to increase engagement and grow their viewership. Here is a list of national News

TV stations along with their inaugural broadcast years.

Figure 1. List of News TV Channel in Indonesia

Nama Stasiun TV	*Tanggal Siaran Perdana*
Metro TV	25 November 2000
TV One	30 Juli 2002 (sebagai Lativi) 14 Februari 2009 (sebagai TV One)
Kompas TV	1 Agustus 2011
Inews TV	5 Maret 2008 (sebagai SUN TV) 6 April 2015 (sebagai Inews)
CNN Indonesia TV	17 Agustus 2015

The table above shows that even before the advent of social media, the TV business appeared to be challenging to sustain without a sound strategy. For example, two TV stations in the list above, TV One and Inews, have changed their names and programming segments in recent years.

According to Nasrullah (2015), social media is an internet medium that allows users to represent themselves, interact, collaborate, share, and communicate with other users, forming virtual social bonds. Meanwhile, according to Kotler and Keller (2012), social media serves as a means for consumers to exchange textual information, images, videos, and audio with each other and with companies. The overall functions of social media are the same and, in fact, go beyond those of television. Therefore, TV stations, including News TV, now utilize social media platforms. There are several social media platforms that TV stations frequently use because they are deemed to have a large user base and can reach a wide audience or customer base, including YouTube, Instagram, and TikTok.

Researchers began their review with the social media platform YouTube, which has functions most similar to News TV as it relies on video content (visual and audio). The data gathered by the researchers is as follows, as shown in the table.

TV CHANNEL	*CNN INDONESIA*	*KOMPAS TV*	*METRO TV*	*TV ONE*	*INEWS*
DATE JOINED	FEBRUARY 2014	AUGUST 2015	OCTOBER 2007	DESEMBER 2014	JUNI 2015
SUBSCRIBERS	10,1 M	14,7 M	6,54 M	10,4 M	6,51 M
TOTAL VIDEOS	5.352.150.383	11.434.894.385	2.744.745.384	6.724.330.888	4.022.362.772
VIEWS					
TOTAL VIDEOS	83.000	254.000	84.000	88.000	136.000
UPLOADED					
AVERAGE TOTAL	72.779.150	248.341.518	54.456.130	184.472.518	87.776.718
VIEWS					
AVERAGE TOTAL	121.433	256.538	128.482	126.538	126.254
SUBS					
ESTIMATED	$10,7K - $171,1K	$80,3K - $994,8K	$17,4K - $279,2K	$45,2K - $722,4K	$11,7K - $186,8K
MONTHLY					
EARNINGS					
ESTIMATED YEARLY	$128,1K - $2,1M	$728,6K - $11,9M	$208,4K - $3,3M	$541,8K - $8,7M	$140,1K - $2,2M
EARNINGS					

Figure 2. Data of Youtube Accounts of News TV Channel in Indonesia
(Source: socialblade.com)

When looking at the number of subscribers and video views, Kompas TV's YouTube channel is in the top position, indicating that its earnings through AdSense are higher compared to other News TV YouTube channels.

What's interesting from the data above is that the average number of views per video and the estimated AdSense earnings for Inews are higher than those of CNN Indonesia TV, despite CNN Indonesia TV having more YouTube subscribers. There appears to be an anomaly in the data, where CNN Indonesia could potentially achieve more optimal results through its YouTube channel.

There's also something intriguing about the varying durations each News TV station has been on YouTube. Some News TV channels have recently joined YouTube but have managed to utilize it effectively, while others, despite being on the platform for a long time, may not have fully leveraged its potential.

Next, the researchers examined the social media platform Instagram, which is one of the most widely used social media platforms. This platform doesn't provide direct financial benefits but can enhance brand awareness and serve as a platform for product/content promotion.

	CNN INDONESIA	*KOMPAS TV*	*METRO TV*	*TV ONE*	*INEWS*
FOLLOWERS	2.406.370	1.880.633	1.478.838	1.270.609	769.872
MEDIA UPLOADS	8.347	9.368	10.483	9.337	12.182
ENGAGEMENT RATE	0,09%	0,05%	0,02%	0,03%	0,02%
AVERAGE LIKES	2.158	935	226	298	177
AVERAGE COMMENTS	101	63	44	20	8
AVERAGE MONTHLY GAINED FOLLOWERS	22.705	13.752	7.101	11.126	9.401

Figure 3. Data of Instagram Accounts of News TV Channel in Indonesia
(Source: socialblade.com)

Based on the data collected up to March 2023, it can be concluded that Instagram is most optimally utilized by CNN Indonesia. However, there are still some areas that can be improved to achieve better promotional results and brand awareness. Meanwhile, Inews' Instagram account has seen limited growth due to low engagement, and the content should be reevaluated. Despite uploading a considerable amount of content, it hasn't yielded significant positive impacts on achievement data.

TikTok has become one of the platforms with a substantial user base in Indonesia, primarily among millennials and Generation Z. This platform provides an excellent opportunity to reach young audiences, and as a result, several News TV channels have seized the opportunity to leverage the TikTok trend.

	CNN INDONESIA	KOMPAS TV	METRO TV	TV ONE	INEWS
DATE JOINED	SEPTEMBER 2022	AUGUST 2021	NOVEMBER 2021	DECEMBER 2021	SEPTEMBER 2020
FOLLOWERS	358.900	3.100.000	4.800.000	1.200.000	6.500.000
VIDEOS UPLOADED	171	1.862	5.301	3.416	644
LIKES	6.500.000	50.700.000	86.200.000	9.800.000	129.400.000

Figure 4. Data of Tiktok Accounts of News TV Channel in Indonesia
(Source: socialblade.com)

The TikTok data for News TV channels indeed reveals an imbalance between the number of followers and the amount of content uploaded by each channel. There seems to be a significant gap for CNN Indonesia compared to other News TV TikTok channels. From the data, it appears that CNN Indonesia was late in utilizing this platform. However, with various strategies, CNN Indonesia should be able to catch up on this lag. Unfortunately, based on the data, it seems that CNN Indonesia may not be prioritizing the development of its TikTok account.

After analyzing the achievement data from the three social media platforms mentioned above, the researchers have concluded that further examination is needed for CNN Indonesia, which has shown relatively poor performance and is vulnerable to a decline in business performance that could lead to business closure.

1.2 Problem Identification

With the background issues you've outlined, the researchers have identified several problems as follows:

- The TV industry started facing a new substitute in the form of social media in 2020, posing a risk to the sustainability of TV businesses, potentially leading to bankruptcy. TV businesses are labor-intensive, and many people depend on them for their livelihoods as employees.
- There are more than 1,000 TV stations in Indonesia, meaning that if the TV business is disrupted, there could be a loss of 1,000 jobs.
- Historical data on national News TV stations suggests that TV businesses have struggled to survive, even before the disruption caused by social media in the TV industry.
- News TV channels have begun using social media as a survival strategy in the era of digitization, but they may not fully understand or maximize the use of social media for the sustainability of their business.
- TV channels often struggle to keep up with the rapid pace of social media trends, leading to falling behind in the competition.
- Competition among News TV stations on social media is not balanced, and there is disparity among them.
- The News TV industry has not been able to adapt quickly to the rapid developments in social media.
- The data suggests that the utilization of social media as a support for CNN Indonesia's business has not been optimal, making it vulnerable and at risk of business closure.

2. MATERIALS AND METHODS

This research falls under the category of Research and Development (R&D) with a qualitative approach. R&D is a research method that can be used to test the effectiveness of a product and develop specific products (Martianingtiyas, 2019). Activities carried out in Research and Development include introducing and developing new products and services, which can be the initial stage in the development process (Kenton, 2021).

Research and Development is conducted by companies to stay competitive in their respective industries. Therefore, research and development are essential to create a competitive advantage, as competition in all industries is growing stronger in today's business landscape.

Apart from the business world, Research and Development (R&D) can also be applied in the field of education for the sustainability of an educational institution. Research and Development in education involve a process of developing and testing the validity of educational products (Mulyana, 2020). Educational products produced through R&D can include curricula, teaching processes, learning media, and assessment methods. The steps involved typically include understanding research findings related to the product being developed, developing the product based on these findings, testing it in the intended environment, and revising it to address any shortcomings.

The activities carried out in the research and development phase include (Mulyatiningsih, 2013):

1. Define: In this stage, the definition and development criteria are established. An initial analysis is conducted regarding the potential of new substitutes for the News TV industry and the potential for development through social media.
2. Design: This activity is performed to create a

research and development plan based on initial analysis and needs analysis. In the context of developing a survival strategy, this stage involves preparing a conceptual framework that aligns with the initial analysis and needs analysis, typically resulting in a balanced scorecard.

3. Development: This stage consists of two activities: expert appraisal and developmental testing. Expert appraisal is a validation technique that assesses the feasibility of a design. Feedback is used to improve the model that has been developed.
4. Disseminate: In this stage, dissemination is done by examining the results of the development through the responses of viewers and social media users. If the responses are positive, further development can proceed.

2.1 Data Collection Techniques

The researcher employed various data collection techniques to approach the truth in this study. Here is a summary of the data collection techniques that were used:

1. Participatory Observation:

The researcher used participatory observation by actively observing the broadcasting activities of CNN Indonesia on various channels, including TV and various social media platforms. This allowed the researcher to gain a better understanding of how CNN Indonesia operates and interacts with its audience on different platforms.

2. Questionnaire:

The researcher used a questionnaire in the form of an electronic form or Google Form to collect data from the target audience of CNN Indonesia. The questionnaire consisted of 5 questions answered by 30 respondents who were members of the general public aged 17 to 60. The questionnaire helped the researcher understand the preferences of CNN Indonesia's viewers and identify shortcomings in CNN Indonesia compared to its competitors. This data will be used as a reference for formulating CNN Indonesia's survival strategies.

3. Interviews:

The interviewing technique used by the researcher is semi-structured interviews to elicit more open-ended responses by seeking opinions and ideas from informants, which are then recorded by the researcher. Interviews were conducted for written data triangulation. The interviewees represent three parties, namely the public as viewers/customers, agencies or companies as advertising clients for TV, and CNN Indonesia itself. Sample interview questions are as follows:

- What do you want to see or know when watching TV News? Why?
- How does digitization add value to TV News?
- Do you agree if the content on TV News and on the TV News social media channels is the same? If yes, why? If not, what would you like to see on the TV News social media channels?
- Is information from news channels (TV & social media) still important to you? If yes, why? If not, what is the substitute/replacement for news channels for the public to get information?
- In your opinion, how is CNN Indonesia's performance in the era of digital media and social media today?

4. Documentation:

Documentation techniques were used as a complement to observation and interviews. Documentation included transaction reports and other documents in digital and image formats that provided additional data and context related to the research.

With a combination of these data collection techniques, the researcher had diverse and comprehensive sources of information to analyze the issues within the TV News industry, particularly regarding the role of social media in the era of digitization.

The data analysis technique in this research was carried out systematically by organizing the data obtained from field observations, survey questionnaire results, and interview data. Subsequently, the research findings were structured into patterns and conclusions to make them easily understandable. The data analysis process in this research was conducted in several stages as follows:

- Data Collection:

Data were collected through questionnaires, interviews, and observations. Secondary data were obtained from document sources.

- Data Reduction:

Data were simplified, categorized, and sorted to make the data meaningful and facilitate drawing conclusions.

- Data Presentation:

Data were organized and presented systematically and in an easily understandable form, including text, matrices, graphs, and charts.

- Verification:

Verification was performed to draw conclusions by examining the results of data reduction. These results served as a reference for drawing conclusions in response to the existing problems, following the analysis objectives that aimed to use the Balanced Scorecard.

3. RESULTS

The researcher used various sources, methods, and literature studies to provide evidence that reinforces and validates the accuracy of the research (Creswell, 2013). Here is a summary of the triangulation results from the 5 questions answered by informants from the 3 related stakeholders. The summary is also compared with the interview results and existing literature studies:

- TV News is still important and needed by the public as viewers because the information conveyed is credible and trustworthy.
- The development of TV News to social media platforms has proven to reach a broader audience, both in terms of age and location. Therefore, it can provide opportunities to expand the business.
- The development of TV News on social media platforms, if managed optimally, can create potential additional revenue with a larger audience and increased advertising rates.
- The development of social media platforms provides business opportunities for all parties, not just TV News or CNN Indonesia. To thrive and seize these opportunities, CNN Indonesia must provide engaging content that aligns with viewers' preferences.
- The development of TV News into social media requires competent human resources who are not only academically smart but also creative and able to keep up with the latest social media trends.

After conducting research in the form of field observations, questionnaires, and interviews, the researcher identified a gap between the needs and desires of the public as viewers and the reality on the ground or the system implemented by TV News, in this case, CNN Indonesia. This relates to how TV News systems are applied to remain relevant in this modern and technological era by utilizing social media. CNN Indonesia has indeed been utilizing social media, but it has not been fully optimized when compared to the performance of other TV News channels or when compared to other social media channels that are not official TV channels.

Harapan	Realita	Gap (kesenjangan)	Usulan Tindakan
Jumlah akses meningkat	Akses terbatas jika melalui sarana TV. Sedangkan jika melalui sosial media pun jumlah akses belum maksimal karena konten kurang.	• Konten sosial media belum maksimal secara jumlah dan kualitas. • CNN Indonesia masih lebih memprioritaskan konten di TV daripada di sosial media.	• Rutin mengupload konten di seluruh platform sosial media agar bisa diakses siapapun dan di manapun.
Revenue meningkat	Revenue masih berupa revenue dari TV dan dari Youtube namun belum maksimal.	• Revenue masih terpaku pada pendapatan yang didapatkan dari TV berupa sharing rate dan iklan/berita berbayar. Padahal pendapatan bisa dimaksimalkan juga di media sosial dengan mendapatkan iklan media sosial dan meningkatkan pendapatan Youtube.	• Kualitas konten di sosial media harus ditingkatkan sesuai dengan minat pengguna sosial media. • Mulai mengaplikasikan omnichannel marketing atau pemasaran sekaligus melalui sejumlah saluran. Hal ini untuk meningkatkan revenue melalui iklan/konten berbayar.
Efisiensi (hasil maksimal, sumber daya minimal)	Belum efisien.	• Konten sosial media belum maksimal secara kualitas dan kuantitas. • Sumber daya manusia untuk mengelola sosial media belum mumpuni.	• Melakukan training terkait pemanfaatan sosial media untuk meningkatkan kualitas dan promosi yang akan berdampak terhadap peningkatan revenue.

Figure 5. Gap Analysis of the TV News Industry (source: researcher's analysis)

The researcher has compiled critical success factors based on the existing analysis and classified them according to the Balanced Scorecard perspectives as follows:

1. Financial Perspective
   • Increase profitability through social media.
   • Reduce operational costs by repurposing content from TV to social media.
2. Customer Perspective
   • Ensure that content on social media aligns with the needs and characteristics of social media users.
   • Enhance interaction with viewers through social media.
3. Internal Process Perspective
   • Improve work efficiency by repurposing TV content.
   • Enhance content standards for social media to be concise, informative, clear, fast, and engaging.
4. Learning and Growth Perspective

• Provide training on social media utilization for business purposes and creating creative content tailored to the characteristics of social media users.
• Offer marketing training on social media utilization for revenue-generating promotional platforms.
• Foster alignment of vision and mission within CNN Indonesia, including business development through social media, through socialization efforts.

Figure 6. Balanced Scorecard
(source: researcher's analysis)

4. DISCUSSION

Based on the research analysis, data processing, and the formulation of the Balanced Scorecard, the recommended survival strategy for CNN Indonesia to thrive in the era of digitization and social media is the Competitor Analysis Strategy, divided into the following steps:

1. Competitor Observation (Competitor Profiling)

CNN Indonesia needs to observe the strategies and operations of its competitors, especially other TV News stations, in utilizing social media, such as Kompas TV, Metro TV, TV One, and Inews. In this observation, some TV stations have utilized social media more effectively than others, but some are not maximizing its potential. When compared to Kompas TV, which excels in utilizing social media platform YouTube, CNN Indonesia falls short in terms of the quantity of content uploaded to YouTube. However, when looking at the content, the information presented by both TV News stations is relatively similar. The same situation applies to Tiktok, especially since CNN Indonesia entered the Tiktok world later than its competitors. Being late does not mean they cannot catch up, but CNN Indonesia has not fully leveraged the social media platform, especially when compared to the quantity of content uploaded by competitors.

2. Competitive Strategy (Head-to-head Strategy)

After observing the competitors' strategies and operations, it's time for CNN Indonesia to start emulating what competitors are doing to run their businesses, including utilizing social media to enhance brand awareness and revenue. It's not just about copying; CNN Indonesia must make improvements and adjustments so that the strategy, operations, and content are not mere copies but better than the competitors. This approach, emulating competitors, is an attractive and effective strategy because it eliminates the need for many experiments in business operations, saving time, costs, and resources. CNN Indonesia needs to emulate how competitors use social media by increasing the quantity of content uploaded. Not only in terms of quantity, but also in terms of quality, the content uploaded must align with market preferences. Based on the research conducted by the researcher, most people want fast and accurate updates. Additionally, entertainment content such as music and lifestyle remains popular among the audience.

Specifically for YouTube content, CNN Indonesia can upload TV content that has been selected and edited, similar to what other TV stations do on YouTube. However, for other social media platforms like Tiktok and Instagram, CNN Indonesia needs to be more careful in uploading content. CNN Indonesia should emulate the content of Tiktok and Instagram competitors, which upload different content from what is broadcast on TV but contains the same information. Content uploaded on these two social media platforms should be concise, informative, clear, creative, and engaging. This is essential to capture the attention of social media users, as the research indicates that social media users have different characteristics than TV viewers, including a shorter attention span.

3. New Business Model

The final aspect of this strategy is the importance of creating a new business model that makes CNN Indonesia's product better than the competitors. This aspect is crucial because it will also determine product differentiation and uniqueness that competitors do not possess, making it attractive to customers. To be able to

modify effectively, CNN Indonesia must first have competent human resources in content and social media promotion. Therefore, CNN Indonesia needs to conduct HR training.

If, after observing and emulating, it is concluded that CNN Indonesia needs to increase the quantity and quality of content that aligns with market preferences on social media. Then, there should be modifications to what competitors have done through their social media, utilizing other features to increase engagement. Features that have not been well-utilized by competitors are social media features like live streaming on Tiktok and Instagram, and live streaming on YouTube but different from what is broadcast on TV and must be interactive two-way communication. Modifying the social media utilization strategy by TV News in this way can be attempted because this strategy has already been successful for influencers in attracting a wider audience. Additionally, this strategy can also be used to gain advantages, both in terms of increasing the number of viewers and promoting products or advertisements.

5. CONCLUSION

The research findings suggest that TV News is still needed by the public because it provides credible and trustworthy information, which means this business can still thrive in the future. However, to remain sustainable, TV News stations must develop strategies by leveraging technology and social media as the times change. The development of TV News through social media has proven to reach a wider audience in terms of age and geographic location. This is a critical aspect of the sustainability of TV News because the number of viewers impacts the revenue for the company.

The challenge ahead is that CNN Indonesia needs to understand that the business opportunity through social media is available to all companies. Therefore, if CNN Indonesia wants to thrive and seize this opportunity, it must do so promptly and creatively. Competent human resources are needed to manage social media content because the characteristics of TV viewers and social media users are different. Social media users have a shorter attention span, so social media content needs to be concise, clear, and engaging.

Besides having human resources capable of managing social media content with market value, these human resources must also be able to leverage social media as a promotional and profit-generating tool for the company.

Based on the research findings regarding the survival strategy of TV News by utilizing social media, here are some managerial recommendations:

1. Optimize Social Media Utilization: CNN Indonesia should immediately and creatively leverage social media as a business opportunity. Recognize that all companies have this opportunity, so being proactive and innovative in social media management is essential.
2. Invest in Competent Human Resources: Hire or train personnel who are capable of managing social media content effectively. They should understand the differences between TV viewers and social media users and be able to create engaging, concise, and clear content for social media platforms.
3. Diversify Content: Adapt TV content for social media, ensuring it aligns with market preferences. Consider different formats and approaches for content on different social media platforms.
4. Engage with the Audience: Encourage two-way communication with the audience on social media platforms. Respond to comments, questions, and feedback promptly and respectfully.
5. Evaluate and Modify Strategies: Continuously monitor the effectiveness of social media strategies, analyzing metrics and feedback. Be open to modifying strategies based on what works best for engaging the audience and generating revenue.
6. Invest in Training: Provide training for employees to enhance their skills in content management, social media marketing, and understanding the ever-evolving landscape of social media.
7. Develop a Unique Selling Proposition: Differentiate CNN Indonesia's social media presence from competitors by offering unique content, formats, or engagement strategies that appeal to the target audience.
8. Regularly Assess Competitors: Keep a close eye on competitors' social media strategies and adapt and improve based on successful practices observed in the industry.
9. Align with Company Vision: Ensure that social media strategies align with CNN Indonesia's overall vision and mission for business development.

By implementing these managerial recommendations, CNN Indonesia can strengthen its position in the digital era, maintain its relevance, and potentially thrive in the competitive landscape of TV News and social media.

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TRACK 5:

EMERGING MARKET

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FRAMING CONSUMER BEHAVIOR DURING AND AFTER THE PANDEMIC RECESSION: QUALITATIVE RESEARCH

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ABSTRACT

The pandemic established a time of changes, endangering moments of human connection that transformed client conduct and perception. The motivation behind this investigation is to explore the kinds of responses that have been emerging amid the COVID-19 pandemic, which could help policy creators around the world to make sense of and adapt to circumstances according to their own needs and concerns. Individuals are moving towards online shopping, effectively embracing early adopter behaviour, and adapting to technology, needing to consider whether they will continue using this technology (internet shopping) in the post-pandemic era. Data collection must be done qualitatively. Respondents were individuals belonging to different fields of life. Consumer shopping behaviour, the theory of planned behaviour, and cognitive mental health theory support our research questions. Specifically, researchers shed light on the understanding of consumer behaviour during pandemic conditions and assess whether identified practices persisted after the pandemic concluded.

Keywords: *Pandemic; COVID-19; Consumer purchasing patterns; qualitative analysis; developing country.*

1. INTRODUCTION

The most recent and extremely severe global economic recession, commonly known as the "coronavirus recession" and often referred to as the "great lockdown," which started to affect the global economy in February 2020 adversely, has led to a stock market crash worldwide and ultimately resulted in the most abrupt economic downturn that has been witnessed since the era of the "great depression." This pandemic situation has affected both developed and emerging economies quite relentlessly, and philosophers have declared the impact of this "deep recession" to be far worse than the economic decline caused by the "great recession" in 2009 (International Monetary Fund, 2020). The 2019 global economic slowdown that witnessed stock market stagnation and limited consumer activities worldwide, combined with the present pandemic crises, where more than one-third of the globe's population had been placed on lockdown, has resulted in extreme economic ramifications for economies worldwide. Alongside all the possible economic, financial, and organizational consequences of pandemics, such as coronavirus, consumer psychology also changes under these circumstances, ultimately altering appropriate strategies and messaging by marketing professionals. It is imperative to conceptualize how a global pandemic influences the approaches adopted by consumers to satisfy needs and wants in times of recession, which is expected to have a long-term recovery process. A profound transformation in consumption patterns is expected due to a prolonged and deeper recession (Hampson et al., 2018; Sarmento, Marques, & Galan-Ladero, 2019). Boutsouki (2019) characterised economic recessions as suitable statuses to study modifications in consumer behaviour since they entail contexts of vicissitudes in routines, lifestyles, and consumption patterns. Even though most marketers are facing their product portfolios painted in red ink, quite a few opportunities are still there to gain from the present pandemic situation (Koos et al., 2017; Boutsouki, 2019).

Dekimpe and Deleersnyder (2018) acknowledged that understanding how consumers reassess priorities, redefine value, switch brands, and reallocate funds during the recession is critical to generating productive knowledge. Consumption decisions in times of recession and during the recovery phase are still under research regardless of the relevance and increasing interest of researchers to understand this phenomenon (Koos et al., 2017; Sarmento, Marques, & Galan-Ladero, 2019; Arnal Sarasa, de Castro Pericacho, & Martín Martín, 2020). The projection of consumption patterns during the post-recession period has also been overlooked in prior studies despite its ultimate significance in strategy formulation (Auray, Eyquem, & Gomme, 2019). Researching while

considering both perspectives is essentially desired as it is expected to aid in uncovering consumer preferences and behaviour during the recession and recovery phase. The present study may be accommodated into consumer behaviour literature since it attempts to uncover dimensions of the psychology of choices from the contextual perspective of recession and post-recession stages that may allow marketing professionals to reassess their ways to approach consumers during both stages.

The paper's original contribution lies in evaluating consumers' attitudes during the economic downturn and anticipating their expected behaviour during an immediate recovery phase. This may provide new insights regarding saving behaviour, a new logic of spending, and consumer decision-making. It may direct research towards novel avenues of consumer behaviour research considering the psychology of choices during various pandemic and economic contexts. Explicitly, the study has aimed to answer the following research questions:

1. What are the major implications of pandemic recessions in the everyday life of consumers?
2. What are consumers' perceptions and expectations about the post-recession Stage?
3. How can consumer behaviour be characterized during the recovery stage of a recession?
4. What are consumers' positive and negative perceptions regarding recession outcomes?

The study incorporated a cross-sectional qualitative research approach comprising thirty-five semi-structured interviews with male and female consumers belonging to four major cities of Pakistan. The research was carried out in March and April 2020, during the coronavirus pandemic leading to severe global recession.

2. Literature Review

2.1 Bounded Rationality Influencing Consumer Decision Making.

De Mooij (2019) claimed that consumer behaviour is not very simple; rather, it is a complicated function of several known as well as unknown elements that may primarily incorporate economic variables but also include cultural, sociological, and psychological variables. Most of the time, consumers reflect "satisficing" behaviour instead of "maximising", which means that consumers are willing to settle for a good enough "acceptable" option among an abundance of potential purchase alternatives (Voropanova, 2015). More importantly, it is rare for consumers to be completely aware of all possible purchase options. Therefore, there is a greater possibility of selecting the best purchase option from all known alternatives (instead of selecting the optimal option among all potential alternatives). Thus, the rationality of the decision-maker is bounded by this choice set. For an elaborative understanding of modifications in consumption patterns under complicated and changing contexts (such as economic recessions caused by pandemics), using a multidimensional and integrative approach that syndicates the psychological perspectives of consumers with assumptions about utility maximisation and rational decisions becomes essential.

Theoretically and empirically, the conceptualisation of "rational decision-making" being bounded by limited "cognitive capacity" has been an essential component of consumer behaviour literature in recent times (Oehler & Wendt, 2017; Sarmento, Marques, & Galan-Ladero, 2019).

Behavioural economics has been formulated by integrating psychology into neoclassical economics, and this novel field comprehensively elaborates on the systematic deviations from rational behaviour, which are assumed by standard economics (Crespo, 2017). Thaler (1985, 1999) contemplated the theory of mental accounting, which led to the re-conceptualisation of the conventional economic model regarding utility-maximising consumers. Studying theory on mental accounting is imperative for an elaborative understanding of the psychology of choice since this psychological theory particularly highlights spending and saving household behaviours being influenced by limited cognition. Empirical evidence underlying this assumption implies that individuals tend to group the expenditures in distinctive categories (for apparel, foodstuff, accommodation, etc.) where every single type refers to a discrete mental account. Excitingly, mental accounts facilitate people to simplify the financial decision-making process. Besides, they also assist in explaining how individuals comprehend money, indicating intermittent decision-making attributes. Mental accounting plays a significant role in informing consumers about their budgeting and expenditure decisions, keeping track of where money is being spent and ensuring worthwhile control over spending (Thaler, 1999).

The budgeting process is facilitated through this mechanism of rational trade-offs among competing alternatives, and this mechanism may simultaneously endeavour to work as an individual's self-control instrument. Research scholars are increasingly interested in examining behavioural economics from the perspective of recessions (Strutton & Lewin, 2012; Thaler, 2016). Budgeting rules should be fairly explicit under conditions peculiar to financial prudence and limited budgets.

2.2 Influence of Crises over Businesses and Individuals' consumption behaviour

Business performance is adversely affected by recessions (whether it be economic or due to a pandemic); however, there are several differences concerning crisis effects among different firms (Srinivasan, Lilien & Sridhar, 2011; Dekimpe & Deleersnyder, 2018). Sometimes, companies face severe challenges with cash flow due to more difficult financial terms enforced by suppliers and banks (Ahmed, Kristal, & Pagell, 2014) and can also suffer from cutbacks (Koos, 2017). Conversely, a few other

businesses may uncover opportunities to reinforce the business's investment to achieve a competitive advantage (Boutsouki, 2019). Some common strategies adopted by companies during recession periods include: (i) retreat from weak markets, fortify in those markets wherever the brand is strong, acquire unsteady competing firms, stretch towards crisis-resistant marketplaces, and contemplate the resale market specifically in the case of enduring and lasting goods; (ii) advance "fighter lines" (i.e. second-line brands) and make adaptive positioning strategies accordingly; (iii) avoid plummeting both price and quality; instead, focus on sustaining prices along with boosting quality or decrease prices but preserve quality; (iv) make an allowance for alternative channels and cut back marginal dealers;
(v) intensify promotional spending (make use of informative ads) as well as propose several loyalty programs to retain value-conscious buyers (Ang, Leong, & Kotler, 2000; Kaytaz, & Gul, 2014; Azam, 2017).

The market landscape has changed due to economic recovery, and different business strategies are demanded then and there. To address challenges and opportunities regarding varying expectations and growing demands of consumers in periods of recession as well as post-recession, businesses may put forward an agenda for a new market environment that simultaneously considers the reinvention of marketing strategies, aligning upmarket sensing, gaining competitive advantage based on value creation, radical innovation concerning product strategy, restoring value chain relationships, and reassessing marketing communications (Rollins, Nickell, & Ennis, 2014; Calvo-Porral, Stanton, & Lévy-Mangin, 2016). Marketing and sociology researchers are increasingly interested in examining the influences of crises on consumption across diversified contexts (Alonso, Rodríguez, & Rojo, 2015; Koos et al., 2017; Hampson et al., 2018). Koos et al. (2017) argued that there are several ways and levels in which crises affect consumption, and their major impact can be observed on well-being, worldviews, consumption patterns, lifestyles, and routines. Considering the structural and profound changes as outcomes of crises, it becomes critical to enhance understanding and knowledge about consumer responses together with social resilience, coping strategies, and adaptation.

Prior research has studied several aspects attributed to crises and consumption, including the influence of discount stores and private labels (Larson, 2018), changes in household budget distribution (Petersen, Kushwaha, & Kumar, 2015), ethnocentric consumption (Lekakis, 2017), adaptive shopping patterns (Kaswengi & Diallo, 2015), media discourses (Alonso, Fernández Rodríguez, & Ibáñez Rojo, 2017), collaborative consumption (Barnes, & Mattsson, 2017), calculative price behaviour (Berdysheva, & Romanova, 2017), price consciousness by consumers (Van Steenburg, & Naderi, 2020), political and social discourses (Alonso, Rodríguez, & Rojo, 2015), social resilience and communal exchange (Garner, 2017), community-based responses and social innovation (Blättel-Mink et al., 2017), and money attitudes of consumers within the post-recession economy (Hampson et al., 2018).

One of the most cohesive and encompassing conceptual frameworks to study crises along with consumption as well as social resilience in markets has been developed by Koos et al. (2017) to overcome the shortcomings and limitations of previous models. Koos et al. (2017) presented an analytical, multidisciplinary, and broader perspective while approaching the purchase dimension regarding consumption to take account of usage and disposal and overtly consider a broader perspective regarding consumption's economic, institutional, cultural, and social context. The model also elaborated on associating particular response strategies with distinct consumer characteristics such as financial and cultural resources, identity, and social class of consumers.

The proposed framework distinguishes among contextual effects, individual competencies, and divergent consumption strategies while presuming a dynamic association exists among them.

2.3 Coping strategies adopted by consumers

Individual consumers are affected by crises via direct tangible as well as indirect emotional/cognitive gimmicks (Koos, 2015; Koos et al., 2017). Situations may have immediate and tangible influences on monetary resources available to individuals to make daily consumption decisions. Moreover, crises may also intensely impact the daily lives of consumers, their perspectives, feelings, and concerns regarding the future and consumption behaviour and attitudes, even if no deprivation or significant material constraints are involved. Therefore, as elucidated by Koos et al. (2017), crises can potentially weaken taken-for-granted innate beliefs about the structure and stability of the normal life world.

Considerable evidence can be found in existing literature relating to consumers' coping strategies. Empirical evidence has revealed that, during periods of recession, consumers show greater concerns regarding financial security (Birkenmaier & Fu, 2016), and they tend to be more price-conscious and frugal (Steenkamp & Maydeu-Olivares, 2015). Hampson and McGoldrick (2017) emphasized that the reasons consumers feel affected long after the recession technically ends can be explained by stressors and psychological mechanisms. Hampson and McGoldrick (2017) further elaborated that the self-perception of smart shoppers and the anticipated guilt of consumers have a substantial impact on price consciousness, in addition to the significance of economic stressors.

Consumers are inclined towards buying less, carefully searching and evaluating information and alternatives, buying in smaller packages, and buying more frequently during recessions (Voinea & Filip, 2011; Puelles, Diaz-Bustamante, & Carcelén, 2016). Consumers tend to adopt simpler, judicious, and savvy lifestyles (Szmigin & Piacentini, 2018) and

increase spending on discount stores and private labels (Hampson and McGoldrick, 2013; Puelles, Diaz-Bustamante, & Carcelén, 2016), delay purchase of durables (Kaytaz, & Gul, 2014), become knowledgeable shoppers by purchasing less impulsively and focusing more on value while planning investments (Hampson and McGoldrick, 2013), and postpone purchase of luxury goods and reduce consumption of status-rich items (Kamakura & Yuxing Du, 2012; Aminu, & Oyefesobi, 2018). This evidence clearly indicates that consumers' learning about consuming differently and intelligently is also important besides concerns about material deprivation and the subsequent need for less consumption.

Empirical studies have confirmed the predictions concerning thrifty, thoughtful, and frugal post-recession consumers and more sophisticated consumer behaviour (Hampson et al., 2018; Sarmento, Marques, & Galan-Ladero, 2019). The forecasts about conditions returning to normal after the recession period and that things will be as they used to be before the recession may be extremely unreliable (Rollins, Nickell, & Ennis, 2014). However, predictions put forward by marketing scholars were very clear about an increase in public doubts and uncertainty and inadequacy of public trust in the economy and businesses; for instance, U.S. consumption depicted very slow growth regardless of gradual progression in economic performance (Demyanyk et al., 2019). This further strengthens the argument about the indirect emotional/cognitive mechanism of crisis and depicts the elaborate need to understand recession psychology as well as emotional reactions to the economic environment (Koos, 2015; Koos et al., 2017; Sarmento, Marques, & Galan-Ladero, 2019).

Furthermore, Koos et al. (2017) highlighted that crises occur in a multidimensional and complicated context, including the role played by solidarity networks, civic ties, and past experiences, which can moderate or mitigate the effects of crises. Additionally, several empirical research studies have validated the positive and constricting impact of innovative and new logic regarding production and networks, supply, and community-based responses directed towards crises (Lindblom, & Lindblom, 2017; Sanders et al., 2019).

3. Methodology

The qualitative descriptive approach used in the current study (Colorafi & Evans, 2016) is based on interviewing individual customers across the urban cities of Pakistan. This is considered the most suitable methodology as it helps build an in-depth understanding of the phenomenon under study, specifically consumer behaviour in pandemic conditions.

Data were collected from the six major cities of Pakistan. These cities were chosen because they are the six largest cities concerning population. Purposive sampling, along with the convenience sampling technique, is used. These sampling techniques selected customers who were available and willing to give interview time. The sample for the present study comprises 30 individuals. The respondents were purposefully selected from different cities of Pakistan. The customers who were buying other products at this time were selected. Initially, the customers were contacted to ask their willingness for interviews. The customers were first contacted through emails for their consent to an interview.

The semi-structured interviews were conducted after the consent of the consumers. Data were collected between March 2020 and May 2020. Interviews were carried out online due to the lockdown because of COVID-19. All the respondents were consumers of different products and living in Pakistan's six major cities (Islamabad, Rawalpindi, Lahore, Karachi, Peshawar, and Quetta). The interview guidelines were developed to gather all consumer behaviour aspects in this pandemic situation. The consumers were also asked about their plans after this pandemic. Interviews were conducted online but on an individual basis. The respondents' identities were kept secret because of ethical issues. The duration of each interview was between 30-60 minutes. Drawn on the analysis method of Cherrier and Murray (2007), a hermeneutical approach was used, which means that the analysis was focused on the "interpretation of the plot of each story" (Cherrier and Murray, 2007, p. 6), considering narrative movement and narrative framing. In the current research study, adopting this method implied exploring qualitative data from two angles as follows:

(1) a textual analysis to identify and compare the meanings brought by participants to make sense of their experiences, thoughts, selves, and life transitions related to organic consumption; and

(2) a temporal line analysis to identify common storylines related to the organic consumption trajectories.

To do this, the first researcher, who also conducted the interviews, read and re-read each interview to understand each story and identify key patterns regarding the organic consumption trajectory. In this initial analysis, first-order codes and a common storyline were identified. To help organize data and facilitate the coding, the software NVivo 11 was used. Subsequently, all researchers met to discuss first-order codes and the common storyline across all the interviews (Black and Cherrier, 2010; Cherrier and Murray, 2007).

4. Analysis

Data were gathered in 2020 from March to April. The sample size was 30 individuals, half male and half female, and data collection was done through interviews (a qualitative technique). The purchasers were chosen through a snowball method (for example, each interviewee referred someone else to partake in the examination). The interviews were conducted locally by the same interviewer to reduce bias. The initial data collection began in June 2020 when a hypothetical situation was reached (Yin, 1994). In September, a subsequent interview was led with all the consumers. Two interview guides were created and previously evaluated by three academics. The June discussion covered the following themes: the cost or utility of items that are significant in this pandemic and what kind of product and quality is required in this pandemic situation.

The May interview with participants involved the following themes: what kind of practices do clients

exhibit during this pandemic? Are they storing stock in specific amounts for emergencies, or are their buying patterns the same as in conditions without the pandemic? Interviews were conducted for a 40-minute duration. Interviews were transcribed accurately. Inductive reasoning underlines the exact citations used by informants, and the witnesses asked for no changes during the interviews. Thematic approaches were used to code the data and produce the implications. Cross-checking procedures were used to check the intercoder reliability, most commonly used in coding (Perreault and Leight, 1989). To further assess the reliability and trustworthiness of data (Lincoln and Guba, 1985), the results were again reviewed through five randomly selected clients (from the sample).

5. Findings

This section presents the results of the qualitative studies, systematizing the main themes identified in each research topic:

5.1 Significant Ramifications of Pandemic Downturns In the Regular Day-To-Day Existence Of Customers

We need to remember the significant variables while considering the significant ramifications of this pandemic downturn. The item's first utility is more meaningful than the cost in this pandemic circumstance. The requirement for sanitiser, masks, and vitamin tablets is more important than stressing over the cost of those essential items. Although when we need to discuss quality, quality is the main concern because a good-quality item will assist clients in being less vulnerable to the pandemic (Oehler & Wendt, 2017).

Besides, while discussing the capacity of stock, it does not mean we need to store it in bulk; we may store non-perishable items, not perishable merchandise. It also relies upon the buying power of clients; they respond by storing the supply of their preferred brand and, on a regular basis, putting away stock as well (De Mooij, 2019).

Another issue is that due to the lockdown condition, buying power is also disrupted; the private sector is deriving income up to 40%, and the government also deducts pay according to grades, so in this difficult situation, cash spending is done deliberately, causing clients to spend less on excess items.

During times of emergency and uncertainty, the general inclination is to defer buying and utilisation of discretionary products or services. This is often related to large-ticket durable goods, such as cars, homes, and appliances. It includes optional services like shows, sports, bars, and restaurants. This results in a shift of demand from now into the future. The pent-up demand is a natural outcome when access to services is denied for a brief period, such as parks, recreation, movies, and entertainment. While economists have studied the impact of pent-up demand on GDP growth, there is very little research on consumer behaviour regarding the nature and extent of suppressed demand (Oehler & Wendt, 2017).

Normally, most habits will return to normal. However, some habits will die because consumers under lockdown have found a more convenient, affordable, and accessible alternative. Examples include streaming services such as Netflix and Disney. They are likely to switch consumers from going to cinemas. Due to COVID-19, buyers may find it easier to work, learn, and shop from home. In short, what was once an alternative to current habits now becomes central, while the previous habits become marginal. As we know, there is a universal law of consumer behaviour. When a recent tendency or need is surrendered, it often returns as a pastime. Examples include hunting, fishing, gardening, baking, and cooking. It will be interesting to see which existing habits surrendered in favour of new ways will return as hobbies. In other words, will shopping become more of an outdoor activity, pastime, or diversion? (Canilang et al., 2020).

5.2 Recognitions and Desires for Shoppers Relating to Post-Downturn Stage

While discussing the desires and impressions of customers after this pandemic, they should keep certain things in mind. Right after this pandemic, I should keep two things: masks, vitamins, and sanitiser with me since they are vital for a healthy and productive life (De Mooij, 2019).

Also, the lesson I learned from this pandemic is to save money because the overall situation isn't going to be the same, and not to buy unnecessary items—just to purchase essential goods and lead a healthy and safe life (Alonso et al., 2015, 2017). All consumption and consumer behaviour are influenced by time and place. Since World War II, an increasing number of women have been working to reduce discretionary time. It is estimated that today, around 78% of women with children at home are working full-time. This has resulted in time scarcity and a shift in family dynamics as valuable resources. No one is at home between 8 am to 5 pm, Monday through Friday, for maintenance personnel to carry out installations and repairs of machines, as well as fixing broken heating and cooling systems. The provider needs to coordinate with the household to ensure someone is at home to open the doors (Sandes et al., 2019).

5.3 Buyer Conduct Can Be Described During the Recuperation Phase of the Downturn.

The following things should be remembered: Firstly, how the government responded to this pandemic, what the action circumstances are during this pandemic, which measures can ensure the future of employees, how employer stability increases, how savings can be made, and what the responses of individuals are after this pandemic.

Researchers believe the government should initiate some plans that will encourage individuals to start small businesses and create jobs for people. The health sector has had a significant impact and endured during this

pandemic, and IT has inspired individuals to manage this pandemic and understand how it will influence consumer behaviour; thus, after this pandemic, we should focus on the IT and health sectors, nurturing them and exploring further opportunities within them (Pistaferri, 2016).

Furthermore, saving behaviour, purchasing patterns, and stock capacity should also be considered. The availability of resources is limited during this pandemic, so people should save money for the future to avoid suffering again. Additionally, it is important to focus on purchasing essential goods and not waste money on unnecessary items.

Thirdly, the government will finance small businesses to boost the state of private enterprises, increasing job opportunities and enhancing the purchasing power of individuals (Banco de Portugal, 2019).

All consumption and consumer behaviour are influenced by time and place. Since World War II, an increasing number of women have been working to reduce discretionary time. It is estimated that today, around 78% of women with children at home are working full-time. This has resulted in time scarcity and shifts in family dynamics as valuable resources. No one is at home between 8 am and 5 pm, Monday through Friday, for maintenance personnel to carry out installations and repairs of machines, such as fixing broken heating and cooling systems. The provider needs to coordinate with the household to ensure someone is at home to open the doors (Sandes et al., 2019).

Consumers learn to improvise when there are constraints. Existing habits are often discarded, and new ways to adapt are created. COVID-19 sparked consumers' creativity and resilience in custom-bound activities, such as weddings and funeral services. Sidewalk weddings and Zoom funeral services have become substitutes for traditional location-driven events. This was also true for religious gatherings in particular (Sandes et al., 2019).

Improvisation to manage the shortage of items or services is another area for future research. It leads to innovative practices and often results in alternative solutions to location-driven consumption, such as telehealth and online education. Currently, there is a lack of rigorous empirical or scientific research on improvisation (Sandes et al., 2019).

5.4 The Positive and Negative Perceptions of Consumers Regarding Recession Outcomes

The abrupt flare-up of COVID-19 has influenced the whole world. To slow the spread of infectious disease, governments have upheld tough social distancing (for example, "mask mandates" and "stay-at-home") limitations that have generally stopped organizations and laid off specialists in occupations and enterprises considered unimportant and seriously reduced demand for different organizations. The impacts on the economy are promptly seen through a wild securities market, a flood in joblessness protection claims, and the covering of many retail stores the nation over. What is less known, nonetheless, is whether these impacts are being felt distinctively across the populace, particularly among monetarily hindered gatherings, for example, African-Americans and Latinos. On account of restricted savings and wealth, these gatherings are particularly helpless against negative financial shocks, for example, cutbacks from COVID-19 (Canilang et al., 2020).

All consumption and consumer conduct are dependent on time and region. Since World War II, a routinely increasing number of women have been working to decrease optional time. It is estimated that today, approximately 78 females with kids at home work full-time. This has happened in time constraints and time shifts in the family as valuable usage. Nobody is at home between 8 am to 5 pm Monday through Fridays for maintenance authorities to do installations and upkeep of machines, like fixes of broken heating and cooling systems. The provider needs to cause arrangements with the household to guarantee there will be someone at home to open the doors (Sanders et al., 2019).

The first is the public policy. Just as we are used to security checks at the airports after 9/11, there will be more screening and boarding systems, including taking the temperature, testing for the presence of the virus, and boarding the flight. All major transporters are currently putting in new procedures for departing and arriving travellers as well as meal services. As mentioned, government policy to disable utilisation is essential to shape future consumption. As mentioned before, a second significant driver of consumer behaviour is technology. Since the Industrial Revolution, it has changed consumer behaviour by producing vehicles, machines, and planes (Sandes et al., 2019).

Even more significantly, it has a similarly critical impact on the family spending pattern between the old necessities (food, shelter, and clothing) in the new conditions (phone, internet, and applications) (Canilang et al., 2020).

The third factor which creates new habits is the evolving demographics (Sheth and Sisodia, 1999). A few examples will illustrate this. As advanced economies age, new necessities for healthcare (Well-being) and wealth protection (retirement) develop. Moreover, the growing population stresses over personal security and the safety of their assets (Orrenius & Zavodny, 2010).

Finally, their appetite for entertainment (active and passive) has changed when compared with younger generations. Furthermore, as more women enter the workforce, the family acts more like a roommate family. Eating meals together at home every night is not, at this point, feasible. Likewise, the meal together is often a task to be done as quickly as possible given the current situation. Immediately after dinner, each relative goes to their private room or space and takes part in texts, YouTube, or watching T.V. Common usage offers a way to engage in solitary use at the convenience of each family member (Canilang et al., 2020)

6. Conclusions

The principal goal of this research is to add to the conversation regarding consumer perspectives in times of economic plunge and in the subsequent recovery stage, explaining the call for papers addressing changes in consumer behaviour during this pandemic condition for the understanding of those changes (Kaytaz & Gul, 2014; Koos et al., 2017; Zurawicki & Braidot, 2005). Specifically, we shed light on the understanding of consumer behaviour during pandemic conditions and assess whether the

identified practices persisted after the pandemic, enriching existing literature in the field.

The pandemic established a time of changes, altering moments of human connection that transformed client conduct and perception. They spend more on quality, paying little heed to price. People may think to buy two things that must go with them or convey them, like a mask and hand sanitizer. They may think about their and their family's healthy life, trying to stay away from excessive social gatherings and spending carefully.

Furthermore, this pandemic condition leads to spending sensibly on purchasing important and valuable items instead of wasting money on unnecessary items.

Thirdly, this pandemic condition suggests that to save more, spend less, and embrace this principle in your life since this pandemic emergency will cause a lot of suffering for the individuals who didn't save, because a lot of reductions have been made in salaries and many individuals have become jobless. Thus, saving is important for a bright future and to carry on with a normal life given the economic condition (Compliments & Willmott, 2009; Shama, 1981).

Regarding the future, numerous opportunities exist to extend our work to explore this investigation in different settings, such as how the pandemic may influence business measures, activities, investment benefits, and growth. Also, this investigation is qualitative; we may conduct this investigation in a different country; practically all of the world is experiencing this pandemic, so we can easily conduct this investigation in some other country. Thirdly, this investigation is done on qualitative research; we may conduct this investigation quantitatively. Fourthly, we examined customers' mental well-being and emotional behaviour during and after the pandemic.

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TRACK 6:

ENTREPRENEURSHIP

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THE EFFECTIVENESS OF ONLINE LEARNING TOOLS USING ARCS MOTIVATION MODEL

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ABSTRACT

Recently, teaching through online approaches become new phenomena. This trend is escalating during Covid-19 when our teaching and learning had been switching to fully online method. However, it still relevant although our country has announced to endemic phase. The significant of online learning are pursue and still applied with several institution. Online learning cannot be successfully implemented if there is no collaboration with our students. There are several factors that influence students to adapt with new way in teaching and learning process. Within this study, the researcher aims to examine the motivation factors that influence the usage of online learning tools. Using ARCS Motivation factors (attention, relevant, confident and satisfaction), this study explores the relationship and the most influence factor between effectiveness of online learning tools. The data will be collected among students' part 4 who takes entrepreneurship and management courses in UiTM Perak Branch. A set of questionnaires consist of Part A, B and C will be distribute and analyse using SPSS software. Therefore, this study should give positive impact to education field and government to enhance technology usage in teaching and learning process as well as to shed light on the evolving landscape of education in the digital age and its implications for both learners and educator.

Keywords: *Online learning, ARCS Motivation model, entrepreneurship*

1. INTRODUCTION

Online learning has revolutionized the way we acquire knowledge and skills in the digital age. With the rapid advancement of technology and the increasing accessibility of the internet, online learning has become a cornerstone of modern education. This transformative educational approach transcends geographical boundaries, making quality education available to individuals around the globe, irrespective of their physical location or time constraints.

In this era of online learning, learners have the flexibility to choose when and where they engage with educational content, allowing for a more personalized and adaptable learning experience. Whether you're a student pursuing a degree, a professional looking to upskill, or simply someone eager to explore new interests, online learning offers a wide array of courses and resources to cater to your specific needs and aspirations.

Maintaining student engagement and motivation in online courses can be challenging, leading to higher dropout rates and reduced learning outcomes. Nowadays, student's characteristic and interest are different compared to the era before Covid-19. As an instructor, they need to cater with this problem and make some changes to approach students. Some of them are too fragile and cannot manage with the changes and challenges that education level had face today. Even though, our education methods had evolved, can the students realize it?

In this paper, we will explore the motivation factors the will give some impact to effectiveness of online learning tools. ARCS Motivation Model that consists of Attention, Relevance, Confidence and Satisfaction will be tested towards effectiveness of online learning. There are two main research questions for this study which are:

1) What is the relationship between

motivation factors and effectiveness of online learning tools?

2) *Which motivation factors most significant factors that influence effectiveness of online learning tools?*

Research objectives are prepared to answer the following research questions as stated below:

1) *To examine the relationships between motivation factors and effectiveness of online learning tools.*
2) *To explore the most significant factors that influence the effectiveness of online learning tools.*

2. LITERATURE REVIEW

2.1 Online Learning

Nowadays, online learning has become more practical and acceptable in the educational field. There are many tools and software that were developed to give favor to educators implement and diversify teaching methods. Online learning finds application in a wide array of fields, including marketing, business, healthcare, and education (Özhan & Kocadere, 2020). According to Anderson (2011) has been listed several knowledge related to online learning that are summarized from multiple resources, some of it stated that tools that we use in online learning is significant to help the student's interaction with the theory. Therefore, for some students, a computer serves as a tool to provide the necessary processing capabilities and deliver instructional content to learners.

The terminologies used for online learning also might differ such as e-learning, Internet learning, Distributed learning, networked learning, virtual learning, web-based learning, and distance learning. Hence, it can be challenging to formulate a one-size-fits-all or generic definition for online learning due to its diverse interpretations and applications. The definition of online learning exhibits a significant range of interpretations. Anderson (2011) summarizes it as the utilization of the internet to access learning materials, engage with course content, interact with instructors and fellow learners, and receive support throughout the learning journey. The ultimate goal of online learning is to acquire knowledge, construct personal understanding, and benefit from the overall learning experience.

2.2 Attention

In order to keep motivated, attention is the first factor that students need to cater. Getting their attention is crucial, yet it's even more vital to sustain it throughout the entire instructional process (Jokelova, 2013). In terms of motivation, the primary focus is on capturing and maintaining one's attention. When considering its role in learning, the primary objective is to guide attention toward the relevant stimuli. On a basic level, gaining attention can be achieved relatively effortlessly through various means, such as making a striking statement, producing a sudden loud noise, or employing moments of silence, among other techniques (Brewin et al., 1987).

According to Keller (2016) the attention category encompasses studies on various aspects including curiosity and arousal, as well as interest, boredom, and other associated topics like sensation seeking.

2.3 Relevance

Relevance pertains to how learners perceive that the instructional demands align with their objectives, match their preferred learning styles, and relate to their previous experiences (Keller, 2016). In the other sentences, the concept of relevance is closely tied to the question "Why?" that students often ask when contemplating whether to enrol in a course or how much effort to invest in an activity. A satisfactory response to this question implies that the course or the information provided is likely to be pertinent to the students, and as a result, they will be motivated to engage actively in achieving the instructional objectives (Jokelova, 2013).

2.4 Confidence

Students tend to be more motivated in their learning when they are confident in their ability to succeed through their efforts and when they understand that their success is determined by their own skills and not by external factors beyond their control (Jokelova, 2013).

Students with a confident characteristic might divided into internal and external locus of control (Jokelova, 2013). When an individual believes that the results of their actions are contingent on their own abilities and personal traits, they possess an internal locus of control. For example, a student will study hard for a test because they believe that the results are depends on their ability and capability. A student with an external locus of control may not see the need to study because they believe that test scores are determined by luck and fate, and no matter how diligently they study, the score will not accurately reflect their efforts.

2.5 Satisfaction

Satisfaction is the last factor in ARCS Motivation Model. Satisfaction can be defined as experiencing a positive feeling or contentment regarding one's accomplishments (Jokelova, 2013). This factor is known as post-task

component because it arrives after finishing all the tasks. While satisfaction may not be an immediate requirement for the current task at hand, it serves as a fundamental prerequisite for any future tasks. Being content with the results of instruction is what consistently fuels students' motivation to continue learning beyond the completion of their current task (Jokelova, 2013).

3. HYPOTHESES DEVELOPMENT

A compilation of hypotheses was formulated in order to address the inquiries presented in the introduction part. These hypotheses were primarily derived from previous research findings and are closely linked to the research objectives.

3.1) Attention Factor and Effectiveness of Online Learning

Based on previous research there are many studies that agree that attention significantly impacts online learning. According to Conati et al. (2013) that conducted a study on influential elements impacting students' attention to adaptive hints while engaging with an educational computer game, stated that enhancing attention to hints is a valuable objective, especially in the context of Prime Climb, as when students engage with and pay attention to hints, it can have a beneficial impact on their performance in the game.

Other than that, there is a research by Papanastasiou et al. (2016) shown that an increasing body of research advocates for the utilization of information and communication technologies (ICTs) via gaming applications to elevate the learning experience for students with attention difficulties, ultimately enhancing their levels of attention and academic achievement, while benefiting all children. This proves that attention is crucial for effective online learning not only for students but also children.

Nevertheless there are a study conducted by Chen et al. (2019) indicated that there is no significant results between attention and experiments group. Within this study the researchers showed that individuals who engaged in the digital game containing additional cartoon-like, animated, and interactive elements achieved notably better scores on the learning outcome tests compared to both the group that used a less complex digital game and the group that utilized traditional paper-and-pencil methods. Furthermore, unlike several prior studies, the utilization of these digital games did not seem to influence learning motivation and attention negatively.

Therefore, hypothesis for attention factor support as below:

H1: Attention has a significant relationship with effectiveness of online learning.

3.2) Relevant Factor and Effectiveness of Online Learning

During this phase, the objective is to create educational content that aligns with the learning requirements of the students. Based on study conducted by Lajane et al. (2021) that measure the motivation of nursing students in using e-assessment found that students believed the online quizzes to be relevant by the score obtained by relevance factor was 3.93, with a minimum score of 3.8 and a maximum score of 4.27.

Therefore, the hypothesis on relevance factor was described as below:

H2: Relevant has significant relationship with effectiveness of online learning.

3.3) Confidence Factor and Effectiveness of Online Learning

Confidence is one of the elements that crucial to make sure that students can use and are interested in using online learning tools. According to the previous research, through multiple regression analyses, it was determined that students' confidence in their ability to learn online emerged as the most robust and positive predictor of satisfaction and the perceived usefulness of online classes (Landrum, 2020).

Besides that, there are other studies that used Technology Acceptance Model (TAM) plus with other factors, namely self-confidence and subject norm towards e-learning among accounting students at Malang State University. The results of this study indicate that the perceived usefulness, perceived ease of use, self-confidence, and subjective norms have a significant effect on the use of e-learning.

Therefore, the new similar hypothesis also used in this research as below:

H3: Confident has significant relationship with effectiveness of online.

3.4) Satisfaction Factor and Effectiveness of Online Learning

Satisfaction can be seen as a facilitating factor that might help the student's motivation to implement online learning tools. A research by Hampton et al. (2020) that examined degree of self-efficacy in teaching and overall satisfaction among online nursing faculty members validates that the participants displayed notably elevated levels of self-efficacy in online teaching and reported high levels of satisfaction. Other than that, they also reported that instructor satisfaction due to the benefits of the online environment include flexibility, convenience and access to learning tools shows the highest score.

Additionally, Gopal et al. (2021) also recommended that student's satisfaction is

positively impact online teaching on student's performance. The aim of that study is to explore whether the four factors (quality of instructor, course design, instructor's prompt feedback and student's expectations) had impact the perceived satisfaction. The findings indicate that four distinct factors examined in the study had a positive influence on student satisfaction. Additionally, higher levels of student satisfaction were associated with improved student performance.

Different with a study organized by Wei & Chou (2020) found that the relationship between online learning perceptions and both online learning performance and course satisfaction was not statistically significant. This had denied the hypotheses from that research which are 1) College students' online learning perceptions significantly and positively affect online learning performance, which includes online discussion score, midterm exam/final exam score (exam score), and group project score 2) College students' online learning perceptions significantly and positively affect online course satisfaction.

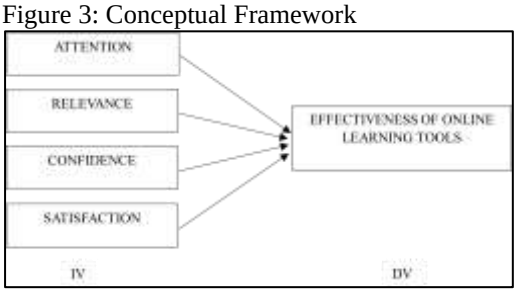
Thus, satisfaction factor will be tested under hypothesis that:

H4: Satisfaction has a significant relationship with effectiveness of online.

3.5) Conceptual Framework

This Figure 3 below illustrate the framework that used to determine the motivation factors that influence the effectiveness of online learning tools. First independent variable indicates the attention factor that give impact to the effectiveness of online learning. Second variable is relevance followed by confidence. Next independent variable is on satisfaction itself. Lastly is dependent variable which is effectiveness of online learning tools.

Figure 3: Conceptual Framework



4. RESEARCH METHADOLOGY

4.1) Operationalization of Construct

This study utilized a quantitative approach for gathering data, involving the use of a survey instrument distributed to selected participants. As Mukesh et al. (2013) point out, quantitative research involves the application of statistical methods with a substantial dataset. One of the techniques commonly employed in quantitative research is surveys. In this case, the researchers chose to employ a questionnaire as it aligned with the study's aim of assessing the factors influencing the effectiveness of online learning.

Furthermore, there are several benefits associated with the use of questionnaires that can be explored here. To begin with, the questionnaire technique offers a cost-effective, prompt, efficient, and precise way of gathering information from a population (Zikmund, 2003) Additionally, it provides greater flexibility compared to alternative methods. This is often referred to as respondent convenience, as individuals have the liberty to respond to questions at their own pace and in their preferred setting.

However, this technique also comes with certain drawbacks. Among these are challenges related to the return of completed questionnaires. Researchers have limited control over when respondents choose to return them, as it falls outside their jurisdiction. Furthermore, there is the potential for a low response rate due to unreturned questionnaires. Nevertheless, these shortcomings have been mitigated by the distribution of questionnaires through electronic devices.

The questionnaire has been created based on the variables identified in the literature review. It will employ the Likert scale technique, which uses a one to five scale (1=strongly disagree, 2=disagree, 3=not sure, 4=agree, and 5=strongly agree) to assess each item within these variables. In this study, the questionnaire method has been selected as the primary means of data collection, and it will be administered in the English language.

The questions include in this questionnaire are about 22. This set of questionnaires can be divided into three parts which are Part A for demographic, Part B examine ARCS Motivation Model and Part C is effectiveness of online learning tools. Construct of thus questionnaire appears as Table 4.1 below.

Table 4.1: Construct of Questionnaire

Part	Category	No. of Items
A	Demographic	4
B	ARCS Motivation Model	15
C	Effectiveness of Online Learning Tools	3
	Total	22

Part A: Demographic

This section observe the respondent profile that include gender, semester and program. The aim of this section is only to get the first knowledge about the respondent background. The respondent were advised to tick only single tick into the column provided. Table 4.2 illustrated the items involved.

Table 4.2: Items Measuring Background of Respondent and

No.	Items	Source
1.	Gender	Ma & Chei (2021)
2.	Semester	Ma & Chei (2021)
3.	Program	Ma & Chei (2021)

Part B: Examine ARCS Motivation Factors

All the Part B questions are related to motivation model which are attention, relevance, confidance and satisfaction. Items developed using the previous study conducted by Hao & Lee (2019). There are 15 items in this part using the Likert scale ranging from one to five scale (1=strongly disagree, 2=disagree, 3=not sure, 4=agree and 5=strongly agree). Items within this construct were modify appropriately with the research title which is motivation factors. Table 4.3, Table 4.4, Table 4.5 below shows the items that developed under ARCS Motivation Model.

Table 4.3: Items Developed for Attention Factor

No.	Items	Source
1.	This material allows me to become even more focused than before.	Hao & Lee (2019)
2.	This material deeply fascinates me.	Hao & Lee (2019)
3.	This material boosts my learning motivation.	Hao & Lee (2019)
4.	This material can help me become focused in my studies	Hao & Lee (2019)

Table 4.5: Items Developed for Relevance Factor

No.	Items	Source
1.	This material teaches me how to apply knowledge that I have learnt from class.	Hao & Lee (2019)
2.	This material helps me understand basic knowledge of "Where Are You Going?" and "What Do You See?".	Hao & Lee (2019)
3.	This material allows me to fully understand the concepts that are being expressed.	Hao & Lee (2019)
4.	This material allows me to fully understand the concepts that are being expressed.	Hao & Lee (2019)

Table 4.5: Items Developed for Confidance Factors

No.	Items	Source
1.	This material makes me work diligently and achieve good learning results.	Hao & Lee (2019)
2.	This material provides me with the confidence that I need to successfully complete my studies.	Hao & Lee (2019)
3.	This material gives me the confidence that I need to achieve my learning targets.	Hao & Lee (2019)

Table 4.6: Items Developed for Satisfaction Factor

No.	Items	Source
1.	I feel satisfied when I see myself making a progress using this material.	Hao & Lee (2019)
2.	This material motivates me to work hard to learn and practice even if I am unable to completely master the course material.	Hao & Lee (2019)
3.	I am happy to learn entrepreneurship through the use of this digital software.	Hao & Lee (2019)
4.	Time flies when I use this material because it is fun to use.	Hao & Lee (2019)

Part C: Effectiveness of Online Learning

There are total of only three items are positioned in this part. This part is mainly about assessing the effevtiveness of online learning tools. The items used were established from Bahasoan et al. (2020). Table 4.7 below shows all the items within this part.

Table 4.7: Items Developed for Effectiveness of Online Learning Tools

No.	Items	Source
1.	Level of satisfaction	Bahasoan et al. (2020)
2.	Obstacle during usage of online learning	Bahasoan et al. (2020)
3.	Materials delivered during online learning tools	Bahasoan et al. (2020)

4.2) Research Instrument

The questionnaire was designed to gather data from the student's in UiTM Perak branch to find out the effectiveness of online learning tools. All the questions within this questionnaire were developed based on previous study that conducting different concept of study. Within this research, the items used were modified to suit with the scope and research objective. Furthermore, this research applied Likert scale technique to measure effectiveness of each motivation factors. Likert scale rating is the most suitable in this study because it easy to measure of each construct and easier for the respondent to understand and give the best answer.

The Google Form utilized for creating the surveys will serve as the platform for distributing them online. Each participant will receive guidance on how to complete the Likert scale questionnaire for the various evaluation factors.

4.2.1) Population and Sampling

The level of analysis for this study is on UiTM Students in Perak branch that focusing in one campus which is Seri Iskandar. UiTM campus Seri Iskandar was selected due to number of students who takes entrepreneurship and management are higher during this semester. The population of manufacturing SMEs were determined from lecturer who use the online learning tools as an additional material for teaching. It stated about 206 students who need to participate.

This study was conducted only for students in part 4 and part 1. According to the statistics from lecturer in charge (LIC), about 1410 students who takes entrepreneurship and management course in UiTM Seri Iskandar however, only students under lecturer who implemet the online learning tools are selected. Sampling technique was examine based on Krejcie and Morgan Table for Sample Size Determination. According to the 206 population of students only 132 sample needed to accomplish the data collection.

4.3) Data Analysis Procedure

The data analysis process commences with the initiation of correlation analysis. This step primarily seeks to investigate the relationship between the independent and dependent variables. Additionally, it aims to determine the strength of any such relationships that may exist. Subsequently, regression analysis is employed. This method is utilized to ascertain which construct provides the most statistically significant and unique contribution to the dependent variable. This is confirmed by evaluating whether the Sig. value is less than 0.000.

4.3.1) Correlation Analysis

Correlation analysis is one of the features available in the SPSS software. It is employed to elucidate the connection between two distinct variables. The Pearson correlation coefficient, which ranges between -1 and +1, is utilized for this purpose. The sign preceding the coefficient signifies whether the correlation is positive or negative (Pallant, 2011). Furthermore, this analysis can help identify the strongest relationship that impacts the independent and dependent variables.

4.3.2) Multiple Regression

Multiple regression analysis holds significant importance in this study as it plays a crucial role in addressing the first objective, which is to assess the primary motivational factors influencing the effectiveness of online learning. Multiple regression analysis enables the examination of the most influential factors from among the four constructs (attention, relevance, confidence, and satisfaction) that have a substantial impact on the dependent variable. This method is also utilized to rigorously test each of the hypotheses and provide robust evidence regarding which factor is the most significant in relation to its dependent variable (Pallant, 2011). Moreover, multiple regression extends beyond correlation analysis, allowing for a more sophisticated exploration of the interrelationships among a set of variables.

5. RESEARCH TIMELINE

The project is anticipated to reach completion within a span of 20 weeks, with the following durations specified for each segment of the research project:

Research Section	Duration
1. Title	1 week
2. Introduction	2 weeks
3. Need for this Study	1 weeks

4. Background	2 weeks
5. Objectives	1 week
6. Research Questions and or Hypothesis	1 week
7. Research Methodology	3 weeks
8. Data Collection	3 weeks
9.Data analysis interpretations and discussions	3 weeks
10. Summary conclusion and recommendations	2 weeks
11. Reviewing work for final submission	1 week

6. CONCLUSION

The importance of conducting a conceptual study on the application of the ARCS Motivation Model to online learning tools in higher education-level entrepreneurship and management courses cannot be overstated. This research holds significance because it enables tertiary educational institutions to adopt effective strategies that attract and encourage students to make extensive use of online learning tools for courses related to entrepreneurship and management. To further boost the adoption rates of these tools in the classroom, especially among tertiary education students, instructors and lecturers should capitalize on the factors that hold value for these students. Numerous studies have demonstrated that the utilization of online learning tools positively impacts the learning experience, motivating students to engage with information in an enjoyable and imaginative manner.

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TRACK 7:

FINANCE MANAGEMENT AND TECHNOLOGY

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CAN A HUMAN CAPITAL-BASED SIX FACTOR MODEL PERFORM BETTER THAN FAMA-FRENCH FIVE FACTOR MODEL? AN EMPIRICAL STUDY ON ASSET PRICING IN PAKISTAN

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ABSTRACT

This study compares the human capital based six factor model with the Fama-French five factor model in the context of Pakistan. For this purpose, we collected data from 170 non-financial firms listed on the Pakistan stock exchange based on market capitalization from 2010 to 2020. We employed Fama-Macbeth two-pass approach. This study finds that the six-factor model outperforms the five-factor model of Fama and French to explain variations in portfolio returns. The findings motivate investors and academicians to include human capital as a factor in asset pricing models to improve the estimation of the required rate of return of a security and/or portfolio.

Keywords: *Fama-Macbeth, human capital, Pakistan stock exchange, Asset pricing.*

1. INTRODUCTION

In recent past, asset pricing has attracted the interest of many researchers. Despite the wide range of asset pricing models that have emerged since (Sharpe, 1964), (Lintner, 1965) and (Mossin, 1966) proposed the capital asset pricing model (henceforth, the CAPM). According to Markowitz (1952) selecting securities can be divided into two stages (i.e., observation and experience). The first step begins with accessible knowledge and leads to constructing views about future stock performance. The second talks about how investors construct portfolio to maximize expected return with undiversified risk. According to Basu (1977) and Banz (1981) leaving anything out of a good model is difficult. Although CAPM has made significant progress in asset pricing, it has certain drawbacks as a single-factor model that uses one risk factor to explain the expected rate of return of an asset (Zhang et al., 2021).

Fama and French (1993) added two additional factors (namely size and book to market ratio) in CAPM. They proposed a three-factor asset pricing model (FF3FM). The proposed model better explains the variation in excess portfolio returns. Following that, Carhart (1997) proposed the 4-factor model (hereafter, C4FM) which included an additional momentum factor based on the Jegadeesh & Titman (1993) momentum strategy, it outperformed FF3FM for explaining the variability in asset returns. Novy-Marx (2013) constructed profit expectation factor which strongly relates to stock returns. Similarly, Aharoni et al. (2013) finds significant correlation between firms' investment and excess stock returns. Fama and French (2008) find that firms with high profitability report abnormal high returns, and there is little evidence that firms with low profitability report low returns. Based on Williams's (1938) and Modigliani and Miller (1961) dividend discount model (DDM), Fama and French (2015) proposed five-factor model (FF5FM) with additional two factors (namely profitability and investment). Roy and Shijin (2018) proposed new six-factor asset pricing model which includes human capital. The model explains substantial amount of the portfolio return variations.

The Pakistan stock exchange is extremely volatile due to political upheaval and poor macroeconomic

performance (Arby, 2004). PSX emerging stock market (Ayub, 2002). When the financial sector was expanded in the 1990s, foreign investors were allowed to make portfolio investments in PSX, which considerably enhanced market capitalization and performance. PSX is now ranked third in the world's emerging equities market. In 2000, the SECP (Security Exchange Commission of Pakistan) created and implemented many regulations and policies that helped stabilize the market and boost investor confidence.

We can see that the five-factor model applicability in different stock markets varies greatly. In terms of the Pakistan stock market, it has yet to be determined whether the Six-factor model's analytical ability is superior to that of the Five-factor model. In this context, the purpose of this study is to conduct an empirical study to test the application of both five and six models for explaining excess portfolio returns and compare the differences in the analytical capacity of both models. Looking at the literature available on the assets pricing model in Pakistan, no prior study has been conducted on the comparison of the six-factor model of Roy and Shijin (2018) and FF5FM employing Fama and Macbeth (1973) two pass methodology.

This paper contributed to the existing literature in the following ways: First, this study examines whether human capital captures the variation in portfolio returns. Second, we examine the efficiency and validity of both models in Pakistan stock market. To the best of our knowledge, no comprehensive study on asset pricing models incorporating human capital is being conducted in Asian emerging markets, particularly in Pakistan. To the best of our knowledge, this is the first study in Pakistan to compare FF5FM and human capital based six factor model.

The remainder of the paper is structured as follows. Section 2 is a review of the existing literature. Section 3 discuss the methodology. Section 4 contains empirical findings and discussion. Section 5 concludes the study and provides recommendations for the future research.

2. LITERATURE REVIEW

Fama and French (1993, 1995, 1998, 2002, 2015-2017) developed the stock anomaly hypothesis rationally and consistently. They created a logical framework for conducting research and creating proposals. Fama and French (2015) developed the five-factor model by incorporating two new components into the three-factor model profitability and investment factors to three-factor model. The profitability component is RMW (robust minus weak) whereas the investment factor is CMA (conservative minus aggressive). Similarly, Fama and French (2018) propped six factor model which includes momentum factor. Financial analyst and investors use their understanding of the factors influencing stock returns and the risks associated to select assets and construct portfolios that maximize returns (Gregory et al., 2013).

Zaremba and Czapkiewicz (2017) compared the CAPM, FFC4M, FF3F, and FF5F models and concluded that considering the present anomalies, the FF5F model best-described portfolio results several studies confirm the validity of FF5FM in several stock markets (see e.g., Ozkan, 2018; Racicot et al., 2018; Qi, 2017; Guo et al., 2017; Chiah et al., 2016; Huynh, 2018; Paliienko, 2019).

Several studies confirm the validity of FF5FM for explaining the variability in asset returns (Racicot and Rentz, 2016; Sutrisno and Ekaputra, 2016; Kubota and Takehara, 2018; Dutta, 2019). However, Foye (2018) finds that FF5FM outperformed FF3FM in Eastern Europe and Latin America but not in Asian emerging markets. According to Huynh (2018) FF3FM failed the GRS (Gibbons-Ross-Shanken) test. Further, it documents that optimal asset pricing model is still ongoing. Cox and Britten (2019) discussed the FF5FM's performance on the Johannesburg Stock Exchange (JSE). They concluded that it has similar explanatory power to the three-factor size-value model. The employment of models that can more precisely justify variations in profitability and explain anomalies in asset pricing. Similarly, price discrepancies could result from market failure or poor specification of preceding models, particularly CAPM (Paliienko et al., 2020).

According to Foye and Valentini (2020), Indonesia has yet to create a mature financial reporting framework, as a result of which accounting-based characteristics (probability and investment) are unable to completely explain the average return of portfolios. To build a new five-factor model, M. N. López-Garca (2021) included the MOM momentum element and new memory component, pointing out that the memory component is more significant than MOM.

Campbell (1996) emphasizes human capital factor in combination with value and size strategies. Kim et al. (2011) demonstrated that human capital incorporates the predictive capability of value and size strategies. Mayers (1972) described the importance of human capital in asset return predictability, indicating that approximately 75% of the consumption is based on labor income, making human capital an important

component of aggregate wealth. According to Belo et al. (2017), there is a strong relationship between asset price and labor economics literature. The empirical findings imply that the premiums in cross-sectional returns are determined by the characteristics of the labor factor, which are usually neglected in capital asset pricing.

Kuehn et al. (2017) studied the behavior of labor-financial market interaction to identify the determinants of stock returns. According to Shijin et al. (2012) human capital accounts for a considerable amount of asset return variation. Roy and Shijin (2018) explored the role of human capital in asset pricing. It finds that human capital subsumes the explanatory power of size and value strategies in return for the predictability. Maiti and Vukovic (2020) document that modified five-factor model including human assets outperformed FF3FM and FF5FM.

In terms of the literature gap, much work has been done in developed and emerging economies to examine the efficacy of CAPM, FF3FM, and FF5FM. However, little work has been carried out that examines the role of human capital in the assets pricing model. Moreover, there have been limited studies conducted that examine the efficiency of FF3FM and FF5FM through Fama and Macbeth's (1973) time series regression methodologies in the context of Pakistan. With the aforementioned limitation in the literature gap, studying the role of human capital in the assets pricing model in Pakistan is still unexplored. This study has been conducted to fill the gap in the extant literature.

3. DATA METHODOLOGY

We collect data of 170 non-financial firms listed on the Pakistan stock exchange (PSX). Further, we take monthly share price data from business recorder website for the period of July 2010- June 2020. Similarly, for factor construction we take annual data for five factors, namely size, value, profitability, investment and human capital are collected for portfolio construction from the Balance Sheet Analysis (BSA), report published by the State Bank of Pakistan (SBP) from June 2010 to June 2019. Similarly, we take monthly stock market index data from the business recorder website. Whereas, for estimation of market risk premium we take twelve-months treasury bill rates (risk free rate) published by the State Bank of Pakistan.

Table 3.1. Variables Description

Variables	Description	References
Size	Market capitalization is used as a proxy of size.	F&F (1993)
HML	Book-equity to the market value of equity is used as a proxy for value-factor.	F&F (1993)
RMW	Operating profit (EBIT) minus interest expense divided by the book value of equity is used as a proxy for the Profitability factor.	F&F (2015)
CMA	Annual change in total assets is used as a proxy for investment factors.	F&F (2015)
LwMHg	Annual salaries and wages payable mentioned in fiscal year annual report, end year t_{-1} to final year t is used as a proxy of labor income growth rate factor.	Roy& Shijin (2018)

3.1 Portfolio Formation

This study created 32 (2x2x2x2x2 sorted) portfolios in which companies were divided into categories based on size (SMB), value (HML), profitability (RMW), investment (CMA), and human capital premium (LwMHg).

Size Premium (SMB) = 1/16 *[(SLWCLw-BLWCLw) + (SLWCHg-BLWCHg) + (SLWALw-BLWALw) + (SLWAHg-BLWAHg) + (SLRCLw)-(BLRCLw) + (SLRCHg)-(BLRCHg) + (SLRALw-BLRALw) + (BLRALw-BLRAHg) + (SHWCLw-BLWCLw) + (SHWCHg-BHWCHg) + (SHWALw-BHWALw) + (SHWAHg-BHWAHg) + (SHRCLw-BHRCLw) + (SHRCHg-BHRCHg) + (SHRALw-BHRALw) + (SHRAHg-BHRAHg)]

Value Premium (HML) = 1/16 *[(SHWCLw-SLWCLw) + (SHWCHg-SLWCLw) + (SHWALw-SLWALw) + (SHWAHg-SLWAHg) + (SHRCLw-SLRCLw) + (SHRCHg-SLRCHg) + (SHRALo-SLRALo) + (SHRAHg-SLRAHg) + (BHWCLo-BLWCLo) + (BHWCHg-BLWCHg) + (BHWALo-BLWALo) + (BHWAHg-BLWAHg) + (BHRCLo-BLRCLo) + (BHRCHg-BLRCHg) + (BHRALo-BLRALo) + (BHRAHg-BLRAHg)]

Profitability Premium (RMW) = 1/16 *[(SLRCLw-SLWCLw) + (SLRCHg-SLWCHg) + (SLRALo-SLWALo) + (SLRAHg-SLWAHg) + (SHRCLo-SHWCLo) + (SHRCHg-SHWCHg) + (SHRALo-SHWALo) + (SHRAHg-SHWAHg) + (BLRCLo-BLWCLo) + (BLRCHg-BLWCHg) + (BLRALo-BLWALo) + (BLRAHg-BLWAHg) + (BHRCLo-BHWCLo) + (BHRCHg-BHWCHg) + (BHRALo-BHWALo) + (BHRAHg-BHWAHg)]

Investment Premium (CMA) =1/16 *[(SLWCLw-SLWALw) + (SLWCHg-SLWAHg) + (SLRCLw-SLRALw) + (SLRCHg-SLRAHg) + (SHWCLw-SHWALw) + (SHWCHg-SHWAHg) + (SHRCLw-SHRAHg) + (SHRCHg-SHRAHg) + (BLWCLw-BLWALw) + (BLWCHg-BLWAHg) + (BLRCLw-BLWALw)+ (BLRCHg-BLWAHg)+ (BHWCLw-BHWALw) + (BHWCHg-BHWAHg) + (BHRCLw-BHRALw) + (BHRCHg-BHRAHg)]

Labor income growth Premium (LwMH) = 1/16 *[(SLWCLw)-SLWCHg) + (SLWALw)-SLWAHg) + (SLRCLw-SLRCHg) + (SLRALw-SLRAHg) + (SHWCLw-SHWCHg) + (SHWALw-SHWAHg) + (SHRCLw-SHRCHg) + (SHRALw-SHRAHg) + (BLWCLw-BLWCHg) + (BLWALw-BLWAHg) + (BLRCLw-BLRCHg) + (BLRALw-BLRAHg) + (BHWCLw-BHWCHg) + (BHWALw-BHWAHg) + (BHRCLw-BHRCHg) + (BHRALw-BHRAHg)]

3.2 Fama-Macbeth (Fmb) Two-Pass-Regression

3.2.1 Fama-French Five-Factor Model FMB time series regression model:

$$R_t - R_{ft} = \alpha + b_m(MKT_t) + b_s(SMB_t) + b_h(HML_t) + b_r(RMW_t) + b_c(CMA_t) + \varepsilon_t \quad (1)$$

FMB two-pass regression model:

$$R_t - R_{ft} = \alpha + b_m(\beta MKT_t) + b_s(\beta SMB_t) + b_h(\beta HML_t) + b_r(\beta RMW_t) + b_c(\beta CMA_t) + \varepsilon_t \quad (2)$$

3.2.2 Six Factor Asset Pricing Model FMB time series regression model:

$$R_t - R_{ft} = \alpha + b_m(MKT_t) + b_s(SMB_t) + b_h(HML_t) + b_r(RMW_t) + b_c(CMA_t) + b_l(LwMHg_t) + \varepsilon_t \quad (3)$$

FMB two pass regression model:

$$R_t - R_{ft} = \alpha + b_m(\beta MKT_t) + b_s(\beta SMB_t) + b_h(\beta HML_t) + b_r(\beta RMW_t) + b_c(\beta CMA_t) + b_l(\beta LwMHg_t) + \varepsilon_t \quad (4)$$

Whereas $R_t - R_{ft}$ represent excess portfolio-returns, MKT_t represent market, SMB_t represent size HML_t represent value, RMW_t represent profitability, CMA_t represent investment and $LwMHg_t$ represent human capital premium. ε_t represent the error term.

4. EMPIRICAL RESULTS AND DISCUSSION

Table 4.1. Summary statistics of portfolios

Portfolio	Mean	SD	Max	Min
SLWCLw	0.052	0.183	1.303	-0.245
SLWCHg	0.028	0.1	0.363	-0.15
SLWALw	0.021	0.102	0.486	-0.201
SLWAHg	0.023	0.107	0.352	-0.213
SLRCLw	0.023	0.105	0.539	-0.229
SLRCHg	0.028	0.151	1.06	-0.183
SLRALw	0.017	0.115	0.492	-0.261
SLRAHg	0.021	0.098	0.405	-0.191
SHWCLw	0.024	0.109	0.442	-0.173
SHWCHg	0.023	0.147	1.06	-0.234
SHWALw	0.024	0.113	0.526	-0.206
SHWAHg	0.008	0.093	0.368	-0.147
SHRCLw	0.002	0.101	0.414	-0.203
SHRCHg	0.037	0.15	1.06	-0.218
SHRALw	0.025	0.115	0.453	-0.232
SHRAHg	0.012	0.101	0.389	-0.244
BLWCLw	0.015	0.102	0.423	-0.173
BLWCHg	0.012	0.083	0.275	-0.178
BLWALw	0.018	0.092	0.359	-0.194
BLWAHg	0.021	0.086	0.413	-0.205
BLRCLw	0.022	0.085	0.255	-0.135
BLRCHg	0.021	0.094	0.389	-0.221
BLRALw	0.016	0.091	0.413	-0.203
BLRAHg	0.021	0.101	0.341	-0.292
BHWCLw	0.017	0.094	0.468	-0.142
BHWCHg	0.035	0.111	0.601	-0.179
BHWALw	0.026	0.112	0.446	-0.222
BHWAHg	0.026	0.086	0.33	-0.143
BHRCLw	0.017	0.086	0.398	-0.155
BHRCHg	0.022	0.089	0.443	-0.109
BHRALw	0.029	0.104	0.413	-0.236
BHRAHg	0.027	0.111	0.471	-0.231

Table 4.1 shows summary statistics of thirty-two portfolios sorted by size, value, profitability, investment and human capital. According to size-sorted portfolios, the risk returns of ten small-size portfolios outperform ten big-size portfolios (i.e., the risk and returns of **S**LWCLw, **S**LWCHg, **S**LWALw, **S**LWAHg, **S**LRCLw, **S**LRCHg, **S**LRALw, **S**HWCLw, **S**HRCLw, and **S**HRCHg are larger than risk and returns of **B**LWCLw, **B**LWCHg, **B**LWALw, **B**LWAHg, **B**LRCLw, **B**LRCHg, **B**LRALw, **B**HWCLw, **B**HRCLw, and **B**HRCHg).

The value sorted portfolio reveals that five out of the eight value stock portfolios outperform, growth stock portfolios in terms of risk and returns. (i.e., S**H**WCLw, S**H**WCHg, S**H**WALw, S**H**RCHg, S**H**RALw, B**L**WCLw, B**L**WCHg, B**L**WALw, B**L**RCHg, B**L**RALw).

Based on the profitability-sorted portfolio analysis, three out of the four high profit portfolios exhibit higher risk-return profiles compared to the risk and returns associated with the low profitable portfolios. Specifically, SHRCHg, SHRALw, and SHRAHg all demonstrate more substantial risk-return profiles in contrast to SHWCHg, SHWALw, and SHWAHg.

The investment-oriented portfolio assessment reveals that the risk-return dynamics of conservative stock portfolios surpass those of aggressive stock portfolios. For instance, SHRCHg exhibits greater risk-return characteristics than SHRAHg.

Similarly, when considering labor income growth rate sorted portfolios, it becomes evident that the risk-return attributes of portfolios with lower labor income growth rates outweigh those of their corresponding portfolios with higher labor income growth rates. This is confirmed by the fact that the risk and returns of SHRCLw are superior to the risk and returns of SHRAHg.

Table 4.2. Descriptive statistics of Six factors

	MKT	**SMB**	**HML**	**RMW**	**CMA**	**LwMHg**
Mean	-0.018	0.002	0.008	-0.008	0.003	0.003
SD	0.059	0.037	0.023	0.028	0.038	0.033
Min	-0.275	-0.066	-0.083	-0.094	-0.122	-0.17
Max	0.129	0.173	0.064	0.084	0.195	0.081

Table 4.2 provides factors' descriptive. It shows that the mean value of market and profitability premium is negative, whereas it is positive for size, value, and human capital factors.

Similarly, the mean of market premium is also highest in absolute terms but is a highly volatile factor, among others. Sadhwani et al. (2019) also reported a negative value of the market factor. It usually occurs when interest rates are high in a country like Pakistan or market downturn situations. The positive mean value of size, value, investment, and human capital factor indicates that returns of small, value, conservative investment, and low investment in human capital are higher than big, growth, aggressive investments, and high investment in human capital.

Table 4.3. Correlation Matrix

	MKT	SMB	HML	RMW	CMA	LwMHg	VIF
MKT	1						1.017
SMB	0.048	1					1.148
HML	-0.046	0.136	1				1.092
RMW	0.091	-0.026	0.091	1			1.087
CMA	-.182*	.306**	-0.048	0.112	1		1.175
LwMHg	0.102	-0.168	-.231*	-.258**	-.227*	1	1.193

*, ** indicates that correlation is significant at the 0.05 and 0.01 level

Table 4.3 provides correlation among explanatory variables to test for the likelihood of the presence of multicollinearity. Therefore, we further test the VIF (variance inflation factor). According to Hair et al. (2010) multicollinearity exists among variables whose value of VIF is greater than 4. Therefore, no multicollinearity exists as the value of VIF is less than four among all explanatory variables.

Table 4.4. Regression result of the Five-factor model

Portfolio	Intercept	MKT	SMB	HML	RMW	CMA	Adj. R^2	F-Statistic
SLWCLw	0.03*	1.00***	1.77***	-1.66***	-1.86***	1.31**	0.42	18.49***
	(2.24)	(4.47)	(4.80)	(-2.96)	(-4.04)	(3.60)		
SLWCHg	0.01	0.84***	0.66***	-0.90***	-0.86***	0.43**	0.39	16.31***
	(1.30)	(6.63)	(3.17)	(-2.86)	(-3.32)	(2.08)		
SLWALw	0.01**	1.20***	0.53***	-0.64**	-0.58***	-0.31*	0.58	33.81***
	(2.01)	(11.26)	(3.03)	(-2.40)	(-2.64)	(-1.81)		
SLWAHg	0.01	0.92***	0.96***	-0.75**	-0.87***	-0.41**	0.44	19.60***
	(1.10)	(7.08)	(4.45)	(-2.30)	(-3.25)	(-1.96)		
SLRCLw	0.01	0.93***	0.45**	0.01	0.29	0.71***	0.33	12.78***
	(0.79)	(6.65)	(1.96)	(0.03)	(1.01)	(3.13)		
SLRCHg	0.00	0.78***	1.65***	0.41	0.59*	1.54***	0.49	23.94***
	(0.20)	(4.51)	(5.77)	(0.95)	(1.66)	(5.48)		
SLRALw	0.01	1.05***	0.99***	-0.99***	0.05	-0.64***	0.45	20.48***
	(0.86)	(7.57)	(4.35)	(-2.84)	(0.17)	(-2.83)		
SLRAHg	0.00	0.74***	0.78***	-0.51	0.37	-0.42**	0.32	12.33***
	(0.56)	(5.76)	(3.69)	(-1.59)	(1.41)	(-2.03)		
SHWCLw	0.01	0.99***	0.83***	0.46	-0.91***	0.35	0.40	17.20***
	(0.94)	(7.31)	(3.71)	1.34	(-3.25)	(1.59)		
SHWCHg	0.00	1.05***	1.48***	1.64***	0.01	1.46***	0.56	31.54***
	(0.12)	(6.70)	(5.74)	(4.17)	(0.04)	(5.71)		
SHWALw	0.01	0.92***	0.93***	0.94***	-1.00***	-0.48**	0.42	18.31***
	(0.96)	(6.57)	(4.03)	(2.67)	(-3.48)	(-2.11)		
SHWAHg	-0.01	0.79***	0.92***	0.67**	-0.18	-0.52***	0.46	20.90***
	(-1.31)	(7.12)	(5.05)	(2.41)	(-0.77)	(-2.89)		
SHRCLw	0.00	0.82***	0.66***	-0.04	0.30	0.43*	0.29	10.91***
	(0.21)	(5.86)	(2.88)	(-0.12)	(1.05)	(1.90)		
SHRCHg	0.02	0.94***	1.47***	1.41***	1.25***	1.29***	0.56	30.80***
	(1.56)	(5.85)	(5.58)	(3.50)	(3.80)	(4.95)		
SHRALw	0.01	1.01***	0.79***	0.50	-0.29	-0.40*	0.35	13.95***
	(1.38)	(6.76)	(3.21)	(1.32)	(-0.96)	(-1.64)		
SHRAHg	-0.01	0.86***	1.10***	0.52*	0.01	-0.68***	0.49	23.97***
	(-0.75)	(7.43)	(5.75)	(1.80)	(0.05)	(-3.62)		
BLWCLw	0.00	0.99***	0.13	-0.58*	-0.98***	0.38*	0.36	14.65***
	(0.07)	(7.51)	(0.61)	(-1.76)	(-3.62)	(1.80)		
BLWCHg	0.00	0.95***	-0.01	-0.13	-0.49**	0.29*	0.41	17.59***
	(-0.66)	(9.15)	(-0.08)	(-0.50)	(-2.27)	(1.73)		
BLWALw	0.00	0.65***	0.06	0.06	-0.57**	-0.19	0.18	6.14***
	(-0.04)	(4.85)	(0.26)	(0.19)	(-2.05)	(-0.86)		
BLWAHg	0.01	0.83***	0.11	-0.03	-0.45**	-0.25	0.36	14.38***
	(0.94)	(7.64)	(0.62)	(-0.11)	(-1.99)	(-1.43)		
BLRCLw	0.01	0.85***	0.07	-0.62**	0.07	0.47***	0.37	14.72***
	(0.92)	(7.75)	0.39	(-2.26)	(0.29)	(2.63)		
BLRCHg	0.01	0.97***	-0.09	-0.21	0.36	0.34*	0.36	14.16***
	(1.14)	(7.93)	(-0.42)	(-0.68)	(1.45)	(1.73)		
BLRALw	0.00	0.95***	-0.05	-0.28	0.45*	0.12	0.39	15.94***
	(0.50)	(8.25)	(-0.25)	(-0.97)	(1.89)	(0.62)		
BLRAHg	0.01*	1.17***	-0.05	-0.12	0.81***	0.28	0.53	27.74***
	(1.83)	(10.61)	(-0.26)	(-0.45)	(3.57)	(1.59)		
BHWCLw	0.00	0.88***	-0.31	0.63**	-0.65***	0.92***	0.31	11.81***
	(-0.10)	(6.91)	(-1.47)	(1.97)	(-2.49)	(4.44)		
BHWCHg	0.02**	0.92***	-0.31	0.59	-1.10***	0.69***	0.24	8.72***
	(1.94)	(5.89)	(-1.19)	(1.52)	(-3.45)	(2.75)		
BHWALw	0.02*	1.11***	0.27	0.41	-0.51*	-0.35	0.37	14.93***
	(1.89)	(7.72)	(1.15)	(1.15)	(-1.72)	(-1.50)		
BHWAHg	0.01	0.79***	-0.05	0.36	-0.67***	0.34*	0.27	9.66***
	(1.15)	(6.62)	(-0.26)	(1.19)	(-2.73)	(1.73)		
BHRCLw	0.00	0.96***	-0.10	-0.17	-0.15	0.17	0.39	16.52***
	(0.56)	(8.92)	(-0.56)	(-0.62)	(-0.70)	(0.97)		
BHRCHg	0.00	0.79***	-0.32	0.27	-0.16	0.59***	0.25	8.74***
	(0.63)	(6.42)	(-1.55)	(0.86)	(-0.64)	(2.93)		
BHRALw	0.01*	0.92***	0.21	0.73**	0.49*	0.01	0.31	11.79***
	(1.79)	(6.68)	(0.92)	(2.10)	(1.71)	(0.06)		
BHRAHg	0.02*	1.08***	0.39	0.14	-0.10	-0.17	0.34	13.07***
	(1.88)	(7.43)	(1.63)	(0.40)	(-0.32)	(-0.73)		

Values in () represent T-statistics. ***, **, and * denote significant levels of 1%, 5%, and 10%, accordingly.

Table 4.4 presents the regression findings of the five-factor model. Within this model, the excess portfolio returns of 32 portfolios are regressed upon the five specific factors: MKT, SMB, HML, RMW, and CMA. An interesting observation arises in relation to SMB. It is notable that SMB displays statistical significance within the context of all sixteen small-size portfolios, achieving a significance level of 5%. Additionally, SMB shows a positive correlation with excess portfolio returns in this context. Conversely, its significance diminishes when it comes to all sixteen large-size portfolios. This contrast in SMB's significance across the two portfolio sizes indicates that, within the Pakistani context, portfolios comprising smaller companies tend to outperform those composed of larger companies in terms of risk-adjusted returns.

Similarly, HML is significantly and positively related to portfolio returns of six High-B/M stock portfolios out of sixteen stock portfolios at a 5% significance level, and HML is significantly and negatively related to portfolio returns of Low-B/M stock portfolios for six out of sixteen Low-B/M portfolios. It demonstrates that in Pakistan portfolio of value stock (High-B/M value stocks) outperforms value stocks (low B/M value stocks) in terms of risk-adjusted return.

Similarly, RMW is significantly and positively related to portfolio returns of robust stocks for two out of sixteen robust, profitable stock portfolios and significantly and negatively related to portfolio returns of weak stocks for thirteen out of sixteen weak profitable portfolios. The significance and positive relation of RMW with portfolio returns of robust, profitable stock portfolios show that in Pakistan robust portfolio outperformed weak portfolio.

CMA is significantly and positively related to portfolio returns of ten conservative stock portfolios out of sixteen conservative stock portfolios and significantly and negatively related to portfolio returns of six out of sixteen aggressive stock portfolios. The result shows that in Pakistan conservative portfolio outperformed aggressive portfolio Pakistan. The value of adjusted R^2 range from 18% to 58% which show the predictive power of five risk factors in the model for explaining the variability in excess portfolio returns.

Table 4.5. Regression result of six-factor model

Portfolio	Intercept	MKT	SMB	HML	RMW	CMA	LwMHg	Adj. R^2	F Statistic
SLWCLw	0.03**	0.93***	1.91***	-1.25**	-1.46***	1.52***	1.45***	0.48	19.27***
	(2.12)	(4.35)	(5.40)	(-2.28)	(-3.24)	(4.32)	(3.64)		
SLWCHg	0.01	0.84***	0.66***	-0.91***	-0.87***	0.42**	-0.02	0.39	13.48***
	(1.30)	(6.58)	(3.13)	(-2.81)	(-3.23)	(2.03)	(-0.10)		
SLWALw	0.01*	1.17***	0.58***	-0.47*	-0.42*	-0.23	0.58***	0.61	31.70***
	(1.88)	(11.32)	(3.43)	(-1.80)	(-1.92)	(-1.36)	(3.02)		
SLWAHg	0.01	0.93***	0.95***	-0.78**	-0.90***	-0.43**	-0.09	0.43	16.24***
	(1.12)	(7.05)	(4.37)	(-2.32)	(-3.23)	(-1.99)	(-0.39)		
SLRCLw	0.00	0.87***	0.56***	0.36	0.62***	0.88	1.21***	0.45	17.39***
	(0.54)	(6.84)	(2.69)	(1.11)	(2.33)	(4.24)	(5.13)		
SLRCHg	0.00	0.83***	1.56***	0.13	0.32	1.40***	-0.99***	0.53	23.21***
	(0.41)	(4.96)	(5.63)	(0.30)	(0.91)	(5.11)	(-3.17)		
SLRALw	0.00	0.99***	1.09***	-0.67**	0.35	-0.48**	1.11***	0.54	23.83***
	(0.64)	(7.75)	(5.19)	(-2.05)	(1.31)	(-2.29)	(4.68)		
SLRAHg	0.01	0.77***	0.72***	-0.70**	0.19	-0.52***	-0.65***	0.36	12.19***
	(0.76)	(6.16)	(3.49)	(-2.18)	(0.74)	(-2.52)	(-2.79)		
SHWCLw	0.01	0.94***	0.92***	0.76**	-0.62**	0.50**	1.04***	0.49	20.00***
	(0.73)	(7.44)	(4.45)	(2.35)	(-2.33)	(2.41)	(4.45)		
SHWCHg	0.00	1.10***	1.39***	1.33***	-0.28	1.30***	-1.08***	0.61	32.19***
	(0.38)	(7.44)	(5.66)	(3.51)	(-0.91)	(5.35)	(-3.93)		
SHWALw	0.01	0.88***	0.99***	1.13***	-0.81**	-0.38*	0.68***	0.45	17.32***
	(0.81)	(6.46)	(4.39)	(3.25)	(-2.81)	(-1.71)	(2.70)		
SHWAHg	-0.01	0.79***	0.90***	0.62**	-0.22	-0.54***	-0.15	0.45	17.44***
	(-1.25)	(7.15)	(4.93)	(2.19)	(-0.93)	(-2.97)	(-0.75)		
SHRCLw	0.00	0.77***	0.74***	0.21	0.54*	0.56***	0.89***	0.36	12.19***
	(-0.01)	(5.79)	(3.38)	(0.62)	(1.94)	(2.55)	(3.59)		
SHRCHg	0.02*	0.97***	1.41***	1.22***	1.08***	1.20***	-0.65**	0.57	27.38***
	(1.73)	(6.14)	(5.42)	(3.02)	(3.22)	(4.61)	(-2.22)		
SHRALw	0.01	0.96***	0.87***	0.76**	-0.05	-0.27	0.90***	0.41	14.60***
	(1.22)	(6.72)	(3.68)	(2.06)	(-0.15)	(-1.14)	(3.39)		
SHRAHg	-0.01	0.85***	1.11***	0.57*	0.06	-0.66***	0.16	0.49	19.99***
	(-0.80)	(7.32)	(5.79)	(1.91)	(0.23)	(-3.45)	(0.74)		
BLWCLw	0.00	0.96***	0.19	-0.40	-0.81***	0.48**	0.64***	0.40	14.06***
	(-0.10)	(7.43)	(0.90)	(-1.21)	(-2.96)	(2.25)	(2.68)		
BLWCHg	0.00	0.95***	-0.02	-0.14	-0.50**	0.29*	-0.04	0.41	14.54***
	(-0.65)	(9.09)	(-0.10)	(-0.53)	(-2.24)	(1.67)	(-0.20)		
BLWALw	0.00	0.62***	0.12	0.25	-0.39	-0.10	0.64***	0.22	6.51***
	(-0.21)	(4.70)	(0.53)	(0.73)	(-1.41)	(-0.45)	(2.61)		
BLWAHg	0.01	0.84***	0.10	-0.07	-0.48**	-0.27	-0.12	0.36	11.97***
	(0.97)	(7.64)	(0.56)	(-0.23)	(-2.07)	(-1.50)	(-0.58)		
BLRCLw	0.01	0.83***	0.11	-0.51*	0.18	0.53***	0.39*	0.38	13.19***
	(0.80)	(7.63)	(0.59)	(-1.83)	(0.76)	(2.94)	(1.94)		
BLRCHg	0.01	0.97***	-0.08	-0.20	0.38	0.35*	0.04	0.35	11.70***
	(1.12)	(7.85)	(-0.40)	(-0.63)	(1.45)	(1.73)	(0.18)		
BLRALw	0.00	0.94***	-0.03	-0.24	0.49**	0.13	0.13	0.38	13.28***
	(0.46)	(8.14)	(-0.18)	(-0.82)	(1.98)	(0.71)	(0.62)		
BLRAHg	0.01*	1.16***	-0.04	-0.09	0.84***	0.30*	0.10	0.53	23.00***
	(1.78)	(10.48)	(-0.20)	(-0.34)	(3.57)	(1.64)	(0.48)		
BHWCLw	0.00	0.84***	-0.23	0.87***	-0.42*	1.04***	0.83***	0.38	13.22***
	(-0.34)	(6.91)	(-1.16)	(2.80)	(-1.65)	(5.22)	(3.70)		
BHWCHg	0.02*	0.92***	-0.32	0.54	-1.16***	0.67***	-0.19	0.24	7.30***
	(1.98)	(5.91)	(-1.25)	(1.34)	(-3.50)	(2.60)	(-0.66)		
BHWALw	0.01*	1.07***	0.34	0.63*	-0.30	-0.24	0.75***	0.41	14.62***
	(1.76)	(7.66)	(1.48)	(1.76)	(-1.03)	(-1.07)	(2.88)		
BHWAHg	0.01	0.82***	-0.10	0.21	-0.82***	0.26	-0.53**	0.30	9.36***
	(1.33)	(6.96)	(-0.51)	(0.68)	(-3.28)	(1.35)	(-2.41)		
BHRCLw	0.00	0.95***	-0.08	-0.09	-0.08	0.21	0.26	0.40	14.15***
	(0.48)	(8.79)	(-0.43)	(-0.33)	(-0.36)	(1.17)	(1.32)		
BHRCHg	0.00	0.77***	-0.27	0.41	-0.03	0.66***	0.49**	0.27	8.27***
	(0.50)	(6.29)	(-1.35)	(1.30)	(-0.12)	(3.28)	(2.14)		
BHRALw	0.01*	0.88***	0.29	0.98***	0.73***	0.14	0.87***	0.38	12.90***
	(1.65)	(6.64)	(1.32)	(2.89)	(2.59)	(0.64)	(3.53)		
BHRAHg	0.02*	1.07***	0.40*	0.18	-0.07	-0.16	0.11	0.33	10.84***
	(1.85)	(7.33)	(1.66)	(0.47)	(-0.21)	(-0.65)	(0.40)		

Note: Refers to notes under Table 4.4

Table 4.5 reports the regression output of the six-factor model. In the six-factor model, the six factors, i.e., MKT, SMB, HML, RMW, CMA, and LwMHg, are regressed on excess portfolio returns of 32 portfolios. It is observed that SMB (size premium) is significantly and positively related to excess portfolio returns for all the sixteen small-size portfolios at a 5% significance level. But SMB is insignificant for all sixteen big size portfolios. It demonstrates that in Pakistan, small companies outperform big companies in terms of risk adjusted returns.

Similarly, it is observed that HML is significantly and positively related to the portfolio returns of seven out of sixteen High-B/M stock portfolios at 5% significance level, and HML is significantly and negatively related to six out of sixteen Low-B/M portfolios. It demonstrates that in Pakistan portfolio of value stock (High-B/M value stocks) outperforms the portfolio of growth stocks (low B/M value stocks).

RMW is significantly and positively related to portfolio returns of robust stocks for five out of sixteen robust, profitable stock portfolios and significantly and negatively related to portfolio returns of weak stocks for ten out of sixteen weak profitable stock portfolios. It shows that a portfolio of robust, profitable earns higher risk-adjusted returns in Pakistan than portfolio of weak profitable stocks.

CMA is significantly and positively related to portfolio returns of thirteen out of sixteen conservative stock portfolios and significantly and negatively related to portfolio returns of five out of sixteen aggressive stock portfolios. It shows that in Pakistan, conservative stocks outperform aggressive stocks. LwMHg is significantly and positively related to portfolio return of twelve out of sixteen low labor income growth stocks and significantly negatively related to portfolio return of five out of sixteen high labor income growth stocks. It demonstrates that in Pakistan portfolio of low labor income growth stocks outperforms the portfolio of high labor income growth stocks. The value of adjusted R^2 range from 22%-61% % which show the predictive power of six risk factors in the model for explaining the variability in excess portfolio returns.

Table 4.6. Two-pass regression of the five-factor model

Portfolio	β_0	β_1	β_2	β_3	β_4	β_5	Aj.R^2	FStat
SLWCLw	-0.02	0.13	-0.03	0.01	-0.01	-0.02	0.01	1.15
	-(0.17)	(1.50)	(-1.07)	(0.46)	(-0.66)	(-0.48)		
SLWCHg	0.12**	-0.16*	0.01	0.00	0.04	0.05	0.02	1.32
	(1.98)	(-1.81)	(0.51)	(-0.11)	(1.30)	(1.33)		
SLWALw	0.05	-0.06	0.03	0.00	0.00	0.04	-0.05	0.26
	(0.46)	(-0.62)	(0.43)	(-0.04)	(0.12)	(0.58)		
SLWAHg	-0.11	0.11	-0.03	0.00	-0.01	-0.05	-0.01	0.83
	(-0.71)	(0.89)	(-0.86)	(-0.02)	(-0.43)	(-1.01)		
SLRCLw	-0.07	-0.01	0.06	0.01	-0.02	0.03	0.00	1.07
	(-1.44)	(-0.15)	(1.44)	(0.64)	(-1.31)	(0.78)		
SLRCHg	0.08	-0.12*	-0.01	0.02	0.00	0.01	0.05	1.87
	(1.05)	(-1.90)	(-0.45)	(0.71)	(-0.17)	(0.51)		
SLRALw	0.25*	-0.19	-0.08**	0.03	0.00	0.04	0.03	1.43
	(1.73)	(-1.55)	(-2.21)	(0.77)	(-0.05)	(0.91)		
SLRAHg	0.10	-0.06	-0.04	0.00	0.00	0.07	-0.01	0.86
	(1.22)	(-1.15)	(-0.81)	(0.04)	(-0.15)	(1.60)		
SHWCLw	-0.17	0.04	0.02	0.07	-0.03	0.07	-0.01	0.91
	(-1.34)	(0.43)	(0.38)	(1.60)	(-0.73)	(1.08)		
SHWCHg	-0.10*	0.03	-0.05	0.02	-0.04*	0.05**	0.03	1.55
	(-1.82)	(0.52)	(-1.12)	(0.71)	(-1.93)	(1.96)		
SHWALw	-0.07	-0.13	0.13**	0.00	-0.01	0.07***	0.08	2.53**
	(-0.69)	(-1.66)	(2.40)	(0.03)	(-0.22)	(2.76)		
SHWAHg	0.09	-0.10	0.06	-0.06	0.09	0.02	0.00	1.05
	(0.95)	(-1.14)	(1.10)	(-1.55)	(2.18)	(0.65)		
SHRCLw	-0.01	0.03	-0.03	0.00	-0.04	0.04	-0.01	0.88
	(-0.14)	(0.38)	(-1.06)	(0.15)	(-1.60)	(0.64)		
SHRCHg	-0.13	0.15*	0.06	0.04	-0.06*	-0.08*	0.05	1.80
	(-1.51)	(1.73)	(1.19)	(1.42)	(-1.79)	(-1.72)		
SHRALw	0.10	-0.13**	0.01	0.04	0.06	0.05*	0.04	1.72
	(0.81)	(-2.05)	(0.23)	(1.25)	(1.12)	(1.89)		
SHRAHg	-0.15*	0.14**	0.00	0.04	-0.01	-0.03	0.01	1.14
	(-1.86)	(1.99)	(-0.12)	(0.91)	(-0.39)	(-0.66)		
BLWCLw	-0.05	0.01	0.01	0.02	0.02	0.09	-0.01	0.86
	(-0.44)	(0.09)	(0.27)	(0.55)	(0.57)	(1.14)		
BLWCHg	-0.04	-0.01	0.06	0.04	0.00	0.08	0.07	2.27**
	(-0.55)	(-0.12)	(1.59)	(1.61)	(-0.18)	(1.76)		
BLWALw	-0.02	-0.05	0.05	0.05	0.00	0.01	-0.02	0.60
	(-0.43)	(-0.99)	(0.68)	(1.25)	(-0.08)	(0.34)		
BLWAHg	-0.04	-0.01	0.01	0.04	-0.04	0.00	-0.04	0.37
	(-0.50)	(-0.05)	(0.16)	(1.09)	(-1.13)	(-0.10)		
BLRCLw	0.04	-0.03	-0.01	0.01	-0.04*	-0.03	0.02	1.27
	(0.62)	(-0.47)	(-0.29)	(0.23)	(-1.76)	(-0.97)		
BLRCHg	0.24***	-0.21***	0.00	0.06**	-0.02	-0.01	0.14	3.74***
	(3.09)	(-2.84)	(0.02)	(2.11)	(-0.61)	(-0.45)		
BLRALw	0.01	-0.04	0.00	0.00	0.01	0.03	-0.04	0.41
	(0.07)	(-0.47)	(0.05)	(0.13)	(0.25)	(0.44)		
BLRAHg	-0.20*	0.19**	0.05	0.04	-0.01	-0.04	0.04	1.63
	(-1.85)	(1.98)	(1.47)	(1.32)	(-0.18)	(-1.20)		
BHWCLw	-0.03	-0.06	0.01	0.03	-0.04	0.02	0.01	1.24
	(-0.41)	(-0.48)	(0.36)	(0.82)	(-1.04)	(0.81)		
BHWCHg	-0.06	-0.03	-0.01	0.01	-0.01	0.06**	0.08	2.39**
	(-0.98)	(-0.44)	(-0.50)	(0.49)	(-0.62)	(2.07)		
BHWALw	0.08	-0.06	-0.06	-0.01	-0.02	0.04	0.02	1.41
	(0.83)	(-0.59)	(-1.40)	(-0.46)	(-0.69)	(0.77)		
BHWAHg	0.02	-0.06	-0.04*	-0.02	-0.02	0.00	0.01	1.21
	(0.50)	(-0.90)	(-1.81)	(-0.72)	(-0.77)	(0.09)		
BHRCLw	0.14	-0.15***	-0.02	-0.06	-0.01	-0.05	0.03	1.49
	(2.29)	(-2.56)	(-0.39)	(-1.18)	(-0.19)	(-1.17)		
BHRCHg	-0.09*	0.12	0.08	-0.02	-0.01	0.03	-0.02	0.65
	(-1.89)	(1.59)	(1.04)	(-0.51)	(-0.55)	(0.59)		
BHRALw	0.07	-0.09	-0.05	0.00	0.01	0.03	0.00	0.99
	(0.84)	(-0.86)	(-0.96)	(-0.06)	(0.38)	(0.73)		
BHRAHg	-0.06	0.03	0.00	0.03	-0.01	-0.02	-0.02	0.60
	(-0.82)	(0.46)	(-0.09)	(1.09)	(-0.14)	(-0.39)		

Note: Values in parentheses indicate t-statistics. ***, **, * indicate significant at 1%, 5% and 10%, respectively. $\beta_{0=}$ Intercept, β_1, β_2, β_3, β_4, $\beta_{5=}$ coefficients of MKT, SMB, HML, RMW, CMA

Table 4.7. Two-pass regression of six-factor model

Portfolio	β_0	β_1	β_2	β_3	β_4	β_5	β_0	AjR^2	F Stat
SLWCLw	0.04	0.07	-0.04	0.02	-0.03	-0.01	-0.02	0.00	1.01
	(0.26)	(0.57)	(-1.19)	(0.57)	(-0.86)	(-0.29)	(-0.56)		
SLWCHg	0.14**	-0.21*	0.02	0.00	0.05	0.06	-0.02	0.01	1.17
	(2.04)	(-1.84)	(0.65)	(0.03)	(1.36)	(1.49)	(-0.69)		
SLWALw	0.03	-0.04	0.03	0.00	0.01	0.04	0.01	-0.06	0.22
	(0.16)	(-0.32)	(0.37)	(-0.02)	(0.19)	(0.62)	(0.23)		
SLWAHg	-0.11	0.11	-0.03	0.00	-0.01	-0.05	0.00	-0.02	0.68
	(-0.70)	(0.88)	(-0.80)	(-0.02)	(-0.43)	(-0.98)	(0.00)		
SLRCLw	-0.11**	0.01	0.07	0.00	-0.02	0.02	0.03	0.02	1.31
	(-2.00)	(0.12)	(1.62)	(-0.22)	(-1.43)	(0.46)	(1.56)		
SLRCHg	0.08	-0.12	-0.01	0.02	0.00	0.01	0.00	0.04	1.53
	(1.02)	(-1.65)	(-0.43)	(0.63)	(-0.17)	(0.51)	(0.02)		
SLRALw	0.25	-0.19	-0.08*	0.03	0.00	0.05	0.00	0.01	1.18

	(1.62)	(-1.53)	(-1.94)	(0.75)	(-0.04)	(0.83)	(0.06)		
SLRAHg	0.10	-0.05	-0.04	0.00	-0.01	0.06	0.02	-0.02	0.78
	(1.21)	(-1.04)	(-0.70)	(-0.10)	(-0.24)	(1.45)	(0.64)		
SHWCLw	-0.21	0.04	0.01	0.06	-0.04	0.10	0.03	-0.01	0.86
	(-1.52)	(0.44)	(0.19)	(1.39)	(-0.85)	(1.31)	(0.78)		
SHWCHg	-0.11**	0.07	-0.05	0.01	-0.05**	0.07**	0.04	0.05	1.66
	(-2.07)	(1.15)	(-1.17)	(0.26)	(-2.28)	(2.44)	(1.44)		
SHWALw	0.05	-0.19**	0.11**	-0.01	0.01	0.02	-0.07	0.10	2.57**
	(0.37)	(-2.17)	(2.07)	(-0.32)	(0.16)	(0.38)	(-1.59)		
SHWAHg	0.07	-0.05	0.06	-0.06	0.07	0.04	0.04	0.00	0.96
	(0.66)	(-0.52)	(1.23)	(-1.68)	(1.57)	(0.98)	(0.75)		
SHRCLw	0.06	-0.02	-0.05	0.01	-0.02	0.02	-0.03	-0.01	0.90
	(0.56)	(-0.16)	(-1.44)	(0.40)	(-0.71)	(0.34)	(-0.99)		
SHRCHg	-0.11	0.12	0.06	0.05	-0.07*	-0.07	0.03	0.04	1.59
	(-1.22)	(1.27)	(1.25)	(1.47)	(-1.89)	(-1.47)	(0.76)		
SHRALw	0.05	-0.10	0.04	0.03	0.07	0.04	0.02	0.04	1.52
	(0.35)	(-1.29)	(0.57)	(0.69)	(1.23)	(1.57)	(0.77)		
SHRAHg	-0.16*	0.11	0.00	0.04	-0.03	-0.06	-0.05	0.01	1.10
	(-1.92)	(1.39)	(0.06)	(1.02)	(-0.82)	(-1.11)	(-0.95)		
BLWCLw	-0.09	0.04	0.01	0.01	0.02	0.10	0.02	-0.02	0.74
	(-0.60)	(0.32)	(0.10)	(0.40)	(0.65)	(1.19)	(0.42)		
BLWCHg	-0.07	0.02	0.07	0.02	-0.01	0.09*	0.03	0.06	1.93*
	(-0.78)	(0.23)	(1.68)	(0.45)	(-0.35)	(1.84)	(0.57)		
BLWALw	0.01	-0.07	0.04	0.06	0.00	0.00	-0.02	-0.03	0.59
	(0.14)	(-1.22)	(0.51)	(1.38)	(0.03)	(-0.10)	(-0.75)		
BLWAHg	-0.03	-0.01	0.00	0.04	-0.03	0.00	0.01	-0.05	0.34
	(-0.37)	(-0.09)	(-0.01)	(1.07)	(-0.89)	(-0.07)	(0.43)		
BLRCLw	0.08	-0.08	-0.03	0.02	-0.03	-0.02	-0.04	0.03	1.44
	(1.30)	(-1.04)	(-0.76)	(0.59)	(-1.03)	(-0.86)	(-1.48)		
BLRCHg	0.24***	-0.21***	-0.01	0.07**	-0.02	-0.02	-0.02	0.13	3.13***
	(3.05)	(-2.80)	(-0.15)	(2.00)	(-0.47)	(-0.68)	(-0.51)		
BLRALw	0.00	-0.03	0.03	0.00	0.01	0.06	0.03	-0.04	0.49
	(-0.03)	(-0.36)	(0.36)	(-0.01)	(0.14)	(0.76)	(0.93)		
BLRAHi	-0.15	0.14	0.05	0.00	0.00	-0.02	0.04	0.05	1.68
	(-1.35)	(1.33)	(1.31)	(0.04)	(0.02)	(-0.47)	(1.35)		
BHWCLw	-0.01	-0.08	0.04	0.03	-0.02	0.00	0.04	0.07	2.02*
	(-0.09)	(-0.67)	(1.06)	(1.00)	(-0.58)	(0.12)	(2.36)		
BHWCHg	-0.04	-0.07	-0.03	0.01	-0.01	0.06**	-0.02	0.07	2.03*
	(-0.49)	(-0.73)	(-0.76)	(0.50)	(-0.70)	(2.10)	(-0.60)		
BHWALw	0.09	-0.06	-0.06	-0.01	-0.02	0.03	-0.01	0.01	1.17
	(0.84)	(-0.59)	(-1.39)	(-0.30)	(-0.68)	(0.68)	(-0.18)		
BHWAHg	0.03	-0.06	-0.02	0.00	-0.02	0.02	0.03	0.01	1.15
	(0.69)	(-0.90)	(-0.92)	(-0.14)	(-0.73)	(0.52)	(0.93)		
BHRCLw	0.23***	-0.19***	-0.05	-0.13**	0.06	-0.15***	-0.12***	0.09	2.45**
	(3.37)	(-3.18)	(-1.26)	(-2.42)	(1.34)	(-2.67)	(-2.59)		
BHRCHg	-0.07	0.11	0.07	-0.01	-0.02	0.02	-0.03	-0.03	0.61
	(-1.30)	(1.55)	(0.83)	(-0.46)	(-0.72)	(0.35)	(-0.65)		
BHRALw	0.02	-0.05	-0.05	0.00	0.01	0.01	0.03	-0.01	0.90
	(0.18)	(-0.46)	(-0.89)	(-0.08)	(0.15)	(0.27)	(0.68)		
BHRAHg	-0.06	0.03	0.00	0.03	-0.01	-0.01	0.00	-0.04	0.49
	(-0.81)	(0.47)	(-0.14)	(0.95)	(-0.13)	(-0.28)	(0.12)		

Note: Refers to notes under Table 4.6

Table 4.6 and 4.7 present the derived outcomes from Fama and Macbeth's two-pass regression approach. These outcomes are achieved through a two-stage process. In the initial stage, we compute betas by conducting regressions involving the six factors against each of the 32 portfolios. This procedure incorporates a rolling regression mechanism using a 36-month window. Subsequently, the second stage involves regressing the betas acquired from the first stage against the excess returns of each of the 36 portfolios. This step aims to anticipate forthcoming excess portfolio returns based on preceding betas (β).

The estimated findings in tables 4.6 and 4.7 illustrate that the explanatory capacity of the model is situated within a lower range. Specifically, the F-statistics and P-values stemming from the two-pass regression exhibit insignificance across the majority of the portfolios. This outcome implies that historical betas (β) do not hold the capability to effectively predict or forecast future excess portfolio returns.

The study's empirical results align with prior research. Acaravci and Karaomer (2017) find that FF5FM effectively explain excess portfolio return variations. Sadhwani et al. (2019) note FF5FM's superior ability to capture cross-sectional portfolio return variation compared to FF3FM. Similarly, Ali et al. (2019) establish FF5FM as the optimal model for anomaly portfolio returns, outperforming alternatives.

Roy and Shijin (2018) emphasize human capital's role in predicting return variations for optimal portfolios. Shijin et al. (2012) demonstrate a causal link between asset returns and labor income. Maiti and Balakrishnan (2018) confirm the six-factor model's efficacy in capturing excess portfolio return variations across size, value, profitability, investment, and human capital.

Maiti and Vukovic (2020) discover the six-factor model's superiority over FF3FM and FF5FM in explaining asset return variability. This study aligns with empirical evidence, affirming that market, size, value, profitability, and investment premium significantly impact excess portfolio returns. Notably, the study underscores human capital's substantial role in explaining asset return variation, reinforcing Roy and Shijin's (2018) findings, specifically in Pakistan's context.

5. CONCLUSION

This study examined the validity and application of FF5FM and six-factor assets pricing model for stock returns traded on PSX from June 2010 to June 2019. Moreover, this study compares the efficiency of both models, which are the Five-factor model of Fama and French (2015), and Six factor model (adding human capital) of Roy and Shijin (2018), in Pakistan equity market by applying Fama and Macbeth (1973) two-pass time series regression methodology. This study finds human capital (proxy by salaries and wages) as a significant factor for most portfolios. It concludes that the human capital component accounts for a significant portion of asset return variation. Both models are viable for the Pakistan stock market, as both models significantly explain variation for sorted portfolios according to the outcomes of these risk factors.

Furthermore, market, size, value, profitability, and investment premium are relevant for various portfolios, even though the labor-income growth rate contributes significantly to the Fama and French-Five factor models. Furthermore, we compared Fama-French five-factor model and the six-factor assets pricing model and found six factor model superior than FF5FM in Pakistan equity market for explaining time-series variation in risk-adjusted portfolios.

This study motivates all types of investors and portfolio managers to consider the human capital components with the other five factors of the Fama and French model while investing in stocks traded on the Pakistan stock exchange. This study collect data for the period from 2010 to 2020. The study scope is limited to Pakistan stock market. Therefore, future research can take larger data sets to construct portfolios with 25 size, value, profitability and investment, as presented in Fama and French Papers (1992, 1993, 2015). Further research can also be conducted to examine the efficiency of assets pricing models in the Covid-19 outbreak or by taking the data of developed and developing markets.

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STOCK PRICE PREDICTION USING MACHINE LEARNING: EVIDENCE FROM PAKISTAN STOCK EXCHANGE

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ABSTRACT

This study explores the application of machine learning techniques to predict the movement of stock prices in the market. Using a dataset of historical stock prices (KSE-100 Index), a Random Forest classifier is employed to make predictions about whether a stock will rise or fall in the future. The model is trained using a sliding window approach and is evaluated using precision, recall, and F1-score metrics. The study also includes back testing and hyper-parameter tuning to improve the model's performance. The results show that the model achieves a precision score of 58%, an improvement from the previous score of 48%. However, the overall accuracy of the model is only 58%, indicating that further improvements are necessary. The study also suggests future directions for research, including the use of alternative data sources, sentiment analysis, and more sophisticated algorithms. The study's findings have implications for investors and financial organizations, demonstrating the potential of machine learning to make more educated investment decisions and enhance financial forecasting and analysis.

Keywords: *Machine learning; Stock prices; Random Forest; Precision; Recall, Financial Forecasting.*

1. INTRODUCTION

The stock market is a dynamic and unpredictable environment that is influenced by a wide variety of factors, including economic data, company performance, political events, and investor emotions. It is crucial for investors to be able to make accurate forecasts regarding the swings of stock prices if they want to maximize their gains and minimize their losses. Traditional methods of predicting stock prices, such as fundamental and technical analysis, have been utilized for decades, but they have limitations in terms of accuracy and dependability. Newer ways of predicting stock prices have been developed.

It has become increasingly popular to apply machine learning algorithms to financial markets as these algorithms have emerged as a potent tool for predicting stock prices. In the course of this investigation, we intend to build a machine learning algorithm with the purpose of determining whether the price of a stock will go up or down the next day. Our primary objective is to maximize the number of true positives, which refers to the instances in which the algorithm forecasts that the price will rise and the increase actually occurs. In order to reduce the amount of money wasted as a result of false positives, the error metric that we will be employing for the algorithm is precision.

The need for precise and dependable stock price projections, which are essential for investors to have in order to make well-informed decisions, is the driving force behind this study. The research team behind this study is of the opinion that machine learning algorithms have the potential to produce more accurate predictions than more conventional methods, and they intend to show that this is the case through their investigation.

In the next section, the study conducted a literature review on the subject of predicting stock prices using machine learning algorithms. A comprehensive methodology for this research is presented, including the dataset that was utilized, the selection of features, and the algorithm that was applied. In the end, the study presented the findings and discussed how those findings should be interpreted by investors and researchers in the future.

2. LITERATURE REVIEW

2.1 Review Stage

Predicting the price of a stock is a difficult endeavor that has been the subject of extensive research within the finance field. Fundamental analysis, technical analysis, and statistical modelling are the three most commonly used methods for forecasting stock prices. Predicting the stock market is a significant challenge for the financial sector. The unpredictability and risk of the market necessitate the use of modern technologies to produce viable outcomes. Stock prices are influenced by politics, investor psychology, supply and demand, natural disasters, and other factors (Qiu & Song, 2016). With the proliferation of machine learning algorithms, however, academics have begun investigating their use to make more accurate and time-efficient predictions. Artificial intelligence is the most accurate method for predicting stock prices. Machine learning can be used to predict stock market prices using Artificial Neural Network (ANN), Support Vector Machines (SVM), and Long Short-Term Memory (LSTM). The most significant developments in ANN have occurred in financial market and business applications. Numerous investors utilize ANN for accurate stock index forecasting. Deep learning can extract theoretical features from data and discover latent nonlinear relationships without econometric assumptions or human talent (Chong et al., 2017).

Using machine learning algorithms to predict stock prices is the subject of a substantial corpus of literature. Other studies have investigated more recent models such as deep learning and reinforcement learning. It enables investors and businesses to evaluate stocks quantitatively in order to make more profitable decisions. Back propagation algorithm-based machine learning models outperform other neural network topologies for stock market index prediction (Sureshkumar & Elango, 2012).

In an investigation, Yu & Yan (2020) estimate stock prices using historical data and Deep Neural Networks (DNNs). The authors developed a deep learning framework for predicting stock prices using convolutional neural network (CNN) and long short-term memory (LSTM) artificial neural networks (ANN). The model consisted of four layers: input, CNN, LSTM, and output. CNN extracted local features from input data, whereas LSTM captured temporal dependencies. The proposed model outperformed conventional machine learning and deep learning algorithms on four stock datasets. Selvamuthu et al. (2019) It is possible to develop an algorithm for stock forecasting using a large amount of data and cutting-edge technology. This facilitates the purchase, sale, and selection of securities. Machine Learning and Data Mining are similar, but Machine Learning observes and analyses new algorithms and models while Data Mining only analyses them (Sheth & Shah, 2023).

Mokhtari et al. (2021) evaluate machine learning techniques for forecasting the stock market. The authors examine the pros and cons of statistical models, regression models, and deep learning techniques. For accurate predictions, feature engineering, data pre-processing, and model selection are required. In addition, they investigate the disadvantages of using artificial intelligence for stock market forecasting, such as model interpretability and historical data overfitting. Artificial Intelligence (AI) and machine learning have the potential to enhance the accuracy of stock market predictions, but additional research is required to address their limitations.

In their research, Sheth and Shah (2023) discuss the use of machine learning algorithms for stock market forecasting. The authors discuss the importance of stock market forecasting and how it can help investors make informed decisions. The paper examines several studies that have predicted the stock market using machine learning algorithms such as decision trees, random forests, and support vector machines (SVMs). The authors compare the accuracy of these stock market prediction models and conclude that SVMs are the most accurate. In addition, they examine studies that foretell the stock market using technical indicators and social media data. The authors then propose a novel algorithm that forecasts stock prices using a combination of technical indicators and social media sentiment analysis. Using stock market data from the real world, the proposed algorithm outperforms conventional machine learning models. The authors conclude that machine learning algorithms can be useful for predicting stock market trends and that their algorithm can provide accurate forecasts to investors. (Henrique et al., 2019) Machine learning can identify patterns, regularities, and differences in statistical data by comprehending historical occurrences, past pricing, etc. The ANN, SVM, and LSTM use machine learning algorithms to predict stock prices. As stated previously, the stock market is volatile and profitable. A method that aids investors in prediction and yields the most accurate results is essential for minimizing annual investment losses.

In addition, Ravikumar and Saraf (2020) employ regression and classification algorithms to forecast the stock prices of companies. From

2015 to 2020, they gathered data on stock prices and economic indicators. Using regression techniques such as linear, Lasso, and Ridge regression and classification algorithms such as Random Forest, K-Nearest Neighbors (KNN), and SVM, the authors predicted the stock values of companies. Random Forest and SVM algorithms outperformed other regression and classification methods in predicting the stock values of companies. The authors reported that economic parameters including crude oil prices, interest rates, and inflation rates improved predictions. By combining financial and economic data, machine learning algorithms can predict stock prices, thereby assisting investors and speculators in making informed stock market decisions.

Moein Aldin et al. (2012) evaluated forecasts for the TEPIX stock price index. This study calculates the effectiveness of practical metrics such as Moving Average, RSI, CCI, MACD, etc. using stock price, volume, and interest rate data. The index of stock prices consists of the closing, high, and low prices. An ANN model with a three-layered input structure predicts stock prices. There are versions for input, concealed, and output. The output value version predicts indices of the stock market. Utilize Mean Absolute Percentage Error (MAPE), Mean Absolute Error (MAE), and Root-Mean Square Error (RMSE) to validate results. The criteria combination (160, 30, 0.1, 0.039) maximized the commercial and analytic performance of the ANN model. It is precise 94% of the time.

Several studies have focused on the application of machine learning algorithms to stock price forecasting over the past several years. This category of algorithms includes neural networks, support vector machines, decision trees, random forests, and regression models. The ability of neural networks, which are included in this class of algorithms, to identify nonlinear relationships within the data has made them especially useful for predicting stock prices.

In a study conducted by Yang et al. (2020), convolutional neural networks (also known as CNNs) and long short-term memory networks (also known as LSTM networks) were utilized. The authors discovered that their model outperformed both conventional statistical models and alternative machine learning techniques in terms of the precision of its predictions. In this article, the authors propose a deep learning-based method for predicting fluctuations in stock prices. Combining two potent deep learning models, convolutional neural networks (CNN) and long short-term memory (LSTM) networks, is the proposed method. The CNN model is used to derive features from the input data, which are then fed into the LSTM network to predict future price fluctuations. The authors conducted experiments with actual stock market data and compared the proposed method to a number of well-established machine learning algorithms. The results demonstrate that the proposed strategy outperforms conventional methods in terms of accuracy of prediction. In addition, the authors performed sensitivity analysis to determine the effect of various parameters on the accuracy of their predictions.

Shajalal et al. (2023) plan to use deep learning to predict product backorders in a separate study. A few products in their dataset have backorders, but the majority do not. To manage skewed data, the authors propose a deep neural network with many hidden layers. Using convolutional and recurrent neural network layers, the model recognizes temporal patterns and extracts features. The authors evaluate their method using precision, recall, F1-score, and accuracy. The experimental results demonstrate that the proposed method predicts product backorders on unbalanced data better than existing cutting-edge methods. The authors conclude that their method can predict product backorders and can be applied to other unbalanced datasets. Deep Residual Attention Network (DRAN) was the moniker given to the novel deep learning model that Liu et al. (2023) proposed for predicting stock prices. The DRAN is a multi-input, multi-output network that combines a convolutional neural network (CNN) with a residual learning and attention mechanism. As inputs, the model takes into account both technical indicators and financial news, and it is capable of producing both short- and long-term stock price forecasts. The authors trained and validated the model using real-world stock price datasets before comparing its results to those of other well-known machine learning models, including Support Vector Regression (SVR), Random Forest Regression (RFR), and the Long Short-Term Memory (LSTM) network. The findings revealed that DRAN outperformed all other models in terms of accuracy and consistency of prediction, indicating that it has a great deal of potential for use in the real world for stock price forecasting.

Wanjawa (2016) used reference data from the Nairobi Securities Exchange (NSE) and the New York Stock Exchange (NYSE) to predict stock indices using a feedforward complex perceptron with error backpropagation and 5:21:21:1 with 80% training data in 130,000 circulations.

Nairobi Securities Exchange and New York Stock Exchange forecasted Mean Absolute Percentage Error (MAPE) between 0.71 to 2.77 percent. The initial test showed 0.7% prototype defect. The second test compared the new model to two others. 1.83 was the lowest Root Mean Square Error (RMSE) model. MAPE forecasted a 0.71 percent stock return last time. The best model was 5:21:21:1. The highest accurate training sets required 1,000 records (80% of the dataset) trained over 130,000 times.

In addition, a feature importance analysis was conducted in order to determine which factors were most influential in determining future stock values. On the basis of the data, it appears that certain technical indicators, such as the Relative Strength Index (RSI) and the Moving Average Convergence Divergence (MACD), are more significant than others, whereas the sentiment of news articles has a relatively minor effect on the forecast performance. Overall, the research presents a novel, deep learning-based method for predicting stock prices. This strategy has potential utility for financial analysts and investors.

Despite the fact that these machine learning approaches have been quite effective, there are still many obstacles to overcome before they can be successfully applied to stock price prediction. Due to their susceptibility to rapid shifts and high levels of volatility, the availability of financial data presents a significant obstacle. In addition, market trends, economic conditions, and geopolitical events must be taken into account because they have the ability to affect stock prices.

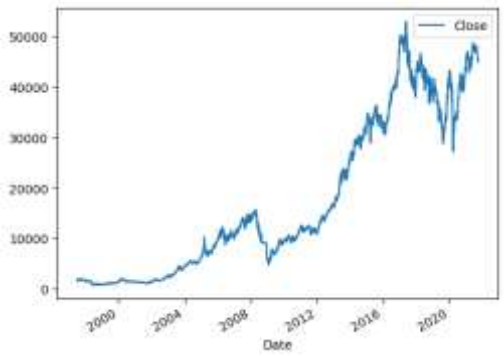
In general, the findings of these studies suggest that machine learning algorithms may be useful for predicting stock price fluctuations. To improve the accuracy of these models, it is useful to combine information from multiple sources, such as social media, technical indicators, and the tone of news articles. Optimizing the performance of a stock price prediction algorithm by maximizing precision as the error metric is one of the specific methodologies employed in this study, and it is a viable approach.

3. METHODOLOGY OF STUDY

The primary objective of this research is to design a machine learning model that can accurately forecast the movement of stock prices. The focus of this study is to develop a model that not only maximizes profits but also minimizes potential risks associated with stock trading. The intended outcome is to make profitable trades by buying stocks when the market opens and selling them when the market closes, with a high level of confidence that the price will increase or decrease. We are using the KSE-100 index as our desired portfolio in which we are interested to invest.

The historical data of portfolio index price (KSE-100) is collected from Yahoo Finance ranging from 1997 to 2023. The downloaded dataset included the Open, High, Low, Close, Volume, Dividends and Stock Splits data. The close prices data is displayed in the line graph below. The KSE 100 is an index tracking the performance of the top 100 businesses traded on Pakistan's Karachi Stock Exchange (KSE). In this line graph, the time period is shown along the horizontal axis, which extends from 1997 to 2023. The value of the KSE 100 index is plotted against time on the vertical axis. If the line is going up or down, that means the market is doing well or poorly. If the line is rising, market performance is improving; if it is falling, market performance is deteriorating. The line chart of the KSE 100 may show some spikes and dips that signify temporary market movements. They may result from national or international economic situations, political unrest, or other factors. The line's long-term trend, however, reveals the market's cumulative performance over time.

Figure 1. Line Graphs of Close Price KSE-100



The dataset is organized to make projections about future stock prices based on previous stock prices. The dataset has been divided into two sections: the training data section and the test data section. The machine learning model is trained with the help of the training data, while the performance of the model is assessed with the assistance of the test data. Therefore, we need to prepare the data before we can make any predictions regarding whether or not there will be an increase in the price of the stock tomorrow based on the data from today. Our goal is to determine whether the price of the stock goes up or down the following day, which is represented by the numbers 1 and 0 correspondingly. We will

move the data from the days before "forward" by one day so that we can utilize historical data to create forecasts. This will help us avoid making the typical mistake of using the same day's data for prediction, which is quite common. In the end, we finished off the process of creating our training data set by combining the shifted data with the target variable.

4. RESULT AND INTERPRETATION

The process of training the model can then begin when the data has been partitioned into two sections. The act of teaching a machine learning model to recognize patterns in data and to make correct predictions or judgments based on those patterns is referred to as "model training." In order to set up the target, we start by making a new 'DataFrame' called 'data' and copying the 'Close' column into it. After that, we rename the column to 'actual_close' and save the changes. Because of this, we are able to monitor the real price at which the market closed each day. Next, we will build up the target by using the pandas rolling function to examine every two rows of the DataFrame. This will allow us to set up the target. This enables us to evaluate how the closing price of one day stacks up against the pricing of the following day. If the price at the end of the second trading day is higher than the price at the end of the first trading day, we will put a value of one in the Target column to indicate that the price increased. If the price at the end of the second day is lower than or equal to the price at the end of the first day, we put a value of 0 in the 'Target' column to indicate that the price went down. For the sake of this comparison, the 'Close' column will be utilized. The resulting 'Target' column has been updated to include the binary values that predicted by our machine learning model. The whole training process is discussed below;

Let X represent the historical data for the stock price, and let Y represent the target variable that indicates whether or not there is an increase or decrease in the stock price tomorrow (1 or 0, respectively). This can be expressed mathematically as follows:

$$X = \{x_1, x_2, x_3, \ldots, x_n\}$$

$$Y = \{y_1, y_2, y_3, \ldots, y_n\}$$

where n refers to the total number of data points in the collection.

In order to get the data ready for machine learning, we have to move the data from the days before "forward" by one day so that we are not making predictions based on the same-day data. This may be represented as:

$$X_shifted = \{x_2, x_3, x_4, \ldots, x_n, x_{n+1}\}$$

$$Y_shifted = \{y_2, y_3, y_4, \ldots, y_n, y_{n+1}\}$$

where X_shifted and Y_shifted represent the shifted data.

We may generate our own training dataset by combining the data that has been shifted with the variable that represents the target, and this dataset can be described as follows:

Training data:

$$Training\ data: \{(x_2, y_2), (x_3, y_3), (x_4, y_4), \ldots, (x_n, y_n)\}$$

To summarize, the following equation can be used to represent the process that was stated in the previous paragraph:

$$Training\ data: \{(X_shifted[i], Y_shifted[i])\}$$

for i = 1 to n-1

Training data: (X_shifted[i],Y_shifted[i) for i = 1 to n-1, where X_shifted[i] represents the ith element in the shifted X data and Y_shifted[i] represents the ith element in the shifted Y data. n is the total number of elements in the data set.

After training the model, the first 10 values of the data are showed in the table, it clearly shown if the values are increasing, the target value is given as 1 and when market decreased, it reported as value of zero.

Table 1. Data Training

Date	Actual_Close	Target
1997-07-02	1618.15002	NaN
1997-07-03	1648.84998	1
1997-07-07	1691.68005	1
1997-07-08	1726.17004	1
1997-07-09	1778.51001	1
1997-07-10	1745.34998	0
1997-07-14	1794.64002	1
1997-07-15	1810.83997	1
1997-07-16	1812.78003	1
1997-07-17	1845.30005	1

Now in the next step, we are going to apply the shift method to the DataFrame at this time, which will move all of the rows "ahead" by one business day. Because of this, the prices that were listed for 1997-07-02 are now associated with 1997-07-03, and the positions of the prices listed after that have been moved up one row. The purpose of this is to ensure that we are accurately projecting future pricing based on historical data.

If we didn't adjust the data in this way, we would be forecasting prices for 07-03 using data from 07-03, which would be an inaccurate assumption. Instead, we need to make our price predictions for 07-03 using information from 07-02. If we do not adhere to this concept, our model

might operate well during testing, but it might not work in the real world, where we do not have knowledge of tomorrow's pricing to guide our forecasts. If we do not adhere to this approach, our model might fail to work in the real world. After this adjustment in the model, here we are presenting the first 10 values of our resultant data.

Table 2. Shifting Data "Forward"

Date	Open	High	Low	Close
02/07/1997	NaN	NaN	NaN	NaN
03/07/1997	1593	1618	1590	1618
07/07/1997	1617	1649	1612	1649
08/07/1997	1674	1699	1674	1692
09/07/1997	1695	1726	1689	1726
10/07/1997	1727	1786	1711	1779
14/07/1997	1779	1784	1664	1745
15/07/1997	1757	1795	1747	1795
16/07/1997	1797	1830	1795	1811
17/07/1997	1808	1818	1803	1813

The above table clearly indicates that data has been shifted forward by one day, as mentioned earlier. The first row now contains NaN values, as there is no previous day's data to shift to this row. The other rows contain the prices and other information for each day.

The next thing we need to do is combine the target variable with the columns that will be used to predict the outcome. In order to accomplish this goal, we will use the join method on DataFrames. As soon as we joined all of our data together, we realized that in order to predict the objective variable, we are utilizing data from the day before. The columns "Close," "Volume," "Open," "High," and "Low" are the ones that are retained to make a prediction about our objective. Table no 3 represents first 10 values of our trained data, after incorporating all the previous steps, and now data is ready for creating our machine learning model.

Table 3. Final Training Data for Machine Learning Model

Dates	Close	Target	Close	Open	High	Low
3 July	1649	1	1618	1593	1618	1590
7 July	1692	1	1649	1617	1649	1612
8 July	1726	1	1692	1674	1699	1674
9 July	1779	1	1726	1695	1726	1689
10 July	1745	0	1779	1727	1786	1711
14 July	1795	1	1745	1779	1784	1664
15 July	1811	1	1795	1757	1795	1747
16 July	1813	1	1811	1797	1830	1795
17 July	1845	1	1813	1808	1818	1803
21 July	1912	1	1845	1812	1845	1809

4.1 Setting Up the Machine Learning Model, Random Forest Classifier

The following step is to apply machine learning techniques in order to develop a trustworthy model for predicting stock prices. We have also made our way here in order to use the random forest classifier for the same purpose. Because it can detect nonlinear correlations in the data and is reasonably resistant to overfitting provided that the appropriate parameters are used, a random forest classifier is an excellent choice as a default model for many applications. This is due to the fact that it may be used to classify the data.

The Random Forest Classifier is a method of machine learning that generates forecasts through the utilization of a forest of decision trees. The following econometric equation can be used to represent the Random Forest Classifier algorithm:

$$y = f(X, \theta) + \varepsilon$$

Where: y is the binary target variable that represents the increase or decrease in market prices of the portfolio (1 if the price went up, 0 if it went down), X is a matrix of predictor variables that includes past returns portfolio data, is a vector of unknown parameters that the algorithm seeks to estimate through training, and is the error term that represents the difference between the predicted values and the actual values. y is a binary target variable that represents the increase or decrease in market prices of the portfolio.

The random forest model is trained on the data, and the function f(X, θ) is the model's output for making predictions about the target variable. It is a collection of decision trees, with each tree being constructed from a different random subset of the predictor variables and a different random sample of the data. The results of each tree are added together before being used in the final prediction.

The following are the specific parameters of the model that are being used in this equation: n_estimators equals 100, which is the number of decision trees that make up the ensemble; min_samples_split equals 200, which is the bare minimum amount of samples that must be collected in order to split a node in a decision tree; random_state equals 1, which is the random seed that ensures repeatability.

4.2 Training the Model

When we've finished configuring the model, we'll be able to train it using the most recent one hundred rows of the dataset. For the purpose of predicting the next price, we are use all of the data, with the exception of the most recent 100 rows. When working with data from a time series, it is imperative that you never utilize information from the future to try to understand the past.

The fit technique educates the model by training it to make accurate predictions using our predictors. The following is a representation of this process that may be made using econometric equations:

Let Y, the future price of the KSE-100 index, be the goal variable representing an increase or reduction in the future (1/0), and let X, the behavior of past prices, serve as the predictor variables. Let Y be the target variable. We have historical data for the past T time periods, which are designated as (Y_t, X_t) for t = 1, 2, ..., T. These data cover the entirety of the time period in question. We wish to train a random forest classifier model to predict the direction of Y for the last 100 periods, and we will use the 100 data that we have collected.

The model can be represented as:

$$Y_t = f(X_t) + e_t$$

where f(.) is the function that maps X to Y, and e_t is the error term at time t. The random forest algorithm estimates this function using an ensemble of decision trees.

To train the model, we use the fit method with the following input arguments:

$$model.fit(X[:T-100], Y[:T-100])$$

This trains the model on the previous observations of X and Y.

After training the model, we can use it to predict the direction of Y for the last 100 periods:

$$Y_pred = model.predict(X[T-100:])$$

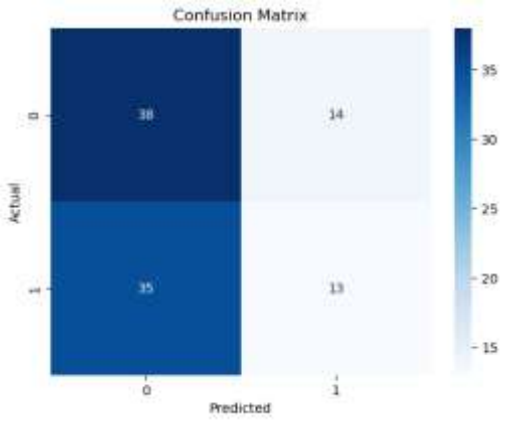
This predicts the direction of Y using the trained model on the last 100 observations of X.

4.3 Classification of The Accuracy Of The Model

We utilized the model's precision as the error metric so that we could determine how accurate it was. The ratio of the overall number of true positives to the total number of positive predictions makes up the accuracy score. A high precision score indicates that the model accurately predicted positive values; in other words, when the model projected that the stock prices would go up, they actually went up. This is the same thing as saying that the model correctly forecasted negative values.

However, the current model has a precision score of 0.48, which indicates that the model's predictions are not very accurate and should not be relied upon. This indicates that the model has to be further refined because the stock prices only went up 48% of the time when the algorithm predicted that they would go up.

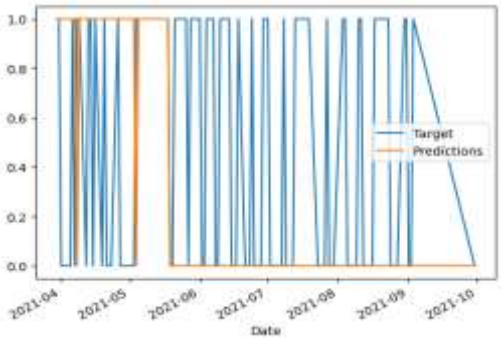
Figure 2. Confusion Matrix



The actual values are listed in the rows, while the expected values are listed in the columns. In light of the confusion matrix presented here, the model made the following predictions: 38 true negatives (TN), 13 true positives (TP), 14 false positives (FP), and 35 false negatives (FN). This indicates that 38% of the observations were correct, 14% of the observations were erroneous, 35% of the observations were false negatives, and 13% of the observations were correct.

It would appear that the model is not functioning up to expectations because it is only correct 48% of the time for the direction. We may look into this matter further by making a graph that compares the projected numbers to the actual values. The figure demonstrates that the model forecasted that the price would continue to increase each day. It does not make any predictions on the movement of the data. Therefore, despite the fact that this is not the best possible scenario, we need to make some adjustments to our model before moving on to the subsequent stage of backtesting.

Figure 3. Prediction Plot



On the other hand, this is merely the preliminary configuration of our model to check that everything is operating as it should. Backtesting our model using the full price history will allow us to derive an error metric that is representative of the true level of error. After we have finished putting the model together, the following step will be to do this.

4.4 Backtesting of the Model

It is vital to generate predictions on the whole dataset in order to improve our model rather than only focusing on the 100 most recent rows alone. By doing so, we are able to acquire an estimate of the model's inaccuracy that is more accurate; this is because the market conditions over the past 100 days may have been exceptional and may have an impact on future projections.

Backtesting, in which we only use data that was collected before the day we are attempting to predict, is something that needs to be done in order for this to be possible. It is not feasible to use data from the future to anticipate what happened in the real world in the past. Because of this, we must steer clear of using data collected after the day for which we are making a prediction.

Backtesting is accomplished by recursively going over all of the data in the dataset and training a model at intervals of 750 rows. Now that the process has been outlined, we will develop a function that will help us follow it, which will prevent us from having to rewrite the code each time we wish to run a backtest. We should train the model more frequently than every 750 rows, however for the sake of efficiency, we will increase this number. Idealistically, we should train the model more frequently than every 750 rows.

The result of performing backtesting and making adjustments to the hyper-parameters of the model yielded a new precession score of 58%. The previous score, which was just 48% accurate, has been significantly improved to 58%, representing a huge rise. Backtesting and hyper-parameter tweaking are two critical processes that must be completed in order to improve the overall performance of a machine learning model.

Following is the classification table after backtesting the model:

Table 4. Classification Table

Class	Precision	Recall	F1-score	Support
0	47%	76%	58%	2001
1	58%	28%	38%	2384
Total	53%	52%	48%	4385

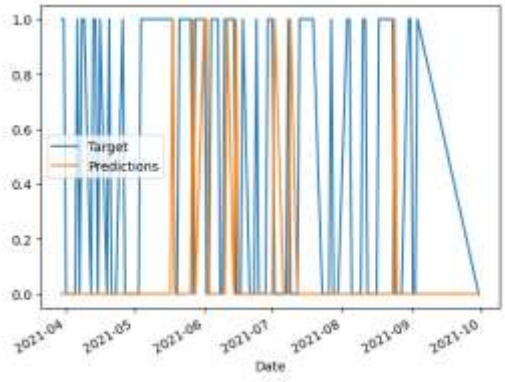
This table shows the performance of the classifier on the test set. The precision for class 0.0 is 47%, which means that when the classifier predicts a stock will go down, it is correct 47% of the time. The recall for class 0.0 is 76%, which means that of all the stocks that actually went down, the classifier identified 76% of them correctly. The F1-score for class 0.0 is 58%, which is the harmonic mean of precision and recall for that class.

The precision for class 1.0 is 58%, which means that when the classifier predicts a stock will go up, it is correct 58% of the time. The recall for class 1.0 is 28%, which means that of all the stocks that actually went up, the classifier identified only 28% of them correctly. The F1-score for class 1.0 is 38%, which is the harmonic mean of precision and recall for that class.

Overall, the classifier has an accuracy of 50%, which is not very good. The macro average of precision, recall, and F1-score is around 52%, while the weighted average is around 48%. This suggests that the classifier is performing well on either class then the previous results, but although may need further improvements.

The precision score could be enhanced with the help of the number of factors, enhancement of the historical data, selection of the more stable market, inclusion of the more factors that determine the future price, selection of the more comprehensive technique and selection of more economic indicators.

Figure 4. Prediction Plot after Backtesting



For investors and financial organizations who rely on accurate and timely projections of stock values, the results of this study have major significance. Investors can have the ability to make more educated investment decisions and potentially earn higher returns by employing techniques from the field of machine learning to conduct analyses of past data and make predictions about future prices.

This study also sheds insight on the possible applications of machine learning in financial forecasting and analysis. As research into artificial intelligence continues to make strides forward, there is a growing possibility that financial analysis will benefit from the application of machine learning algorithms, which are expected to enhance both accuracy and efficiency.

On the other hand, it is essential to keep in mind that machine learning models are not infallible and do not guarantee correct predictions in all situation. When making decisions about their investments, investors should always exercise caution and consider the forecasts generated by machine learning as only one of numerous relevant aspects.

5. FUTURE DIRECTIONS

The current model employs a Random Forest classifier, which is a machine learning method that is utilized frequently. On the other hand, there are more sophisticated algorithms such as neural networks, deep learning, and gradient boosting, all of which have the potential to improve the accuracy of the model. These algorithms are capable of capturing relationships that are more intricate between the features and the target variable.

The use of sentiment analysis of news stories and social media can provide additional information about how the market feels about a specific asset if it is done correctly. The process of employing techniques from natural language processing to extract and quantify feelings, opinions, and attitudes included within text data is referred to as sentiment analysis. A gauge of the market's optimism or pessimism about a specific asset can be obtained through sentiment analysis, which can then be utilized to improve the model's ability to make accurate forecasts.

Alternative Data Sources Satellite imagery and web scraping are just two examples of the many alternative data sources that are available and have the potential to provide useful information regarding the industry. Web scraping can provide real-time data on consumer behavior and online transactions, whilst satellite imagery can provide insights into economic activity and commodity production. Satellite imagery can also provide insights into consumer behavior. The accuracy of the model could potentially be improved by including these alternative data sources.

The existing model makes use of technical indicators as features; however, it is possible that other features, such as price-volume connections and volatility measures, can be derived from the data that is currently available and incorporated into the model. The accuracy of the model can be improved by the use of feature engineering, which provides a more thorough depiction of the dynamics of the market.

Ensemble methods involve the combination of numerous models in order to increase the overall accuracy of the forecast. For instance, the model may be integrated with a number of other classifiers or regression models in order to generate an ensemble of models that produce predictions by cooperating with one another. Ensemble approaches have the potential to lessen the likelihood of overfitting and to improve the generalization performance of the model.

6. CONCLUSION

This study intends to investigate the application of machine learning strategies to the forecasting of stock prices. Using historical data from the Pakistan stock market, we trained a Random Forest classifier to predict whether the price of a stock will increase or decrease in the future. They employ technical indicators such as moving averages and the relative strength index (RSI) as model characteristics. The tuning procedure for hyperparameters, backtesting, and model evaluation are discussed.

After completing the backtesting procedure, the results indicate that the Random Forest classifier has a precision score of 58%, which is an improvement over the previous score of 48%. However, the model's accuracy is only 58%, which still requires refinement. With the addition

of more factors, the improvement of historical data, the selection of a more stable market, the inclusion of more factors that determine the future price, the selection of a more comprehensive technique, and the selection of more economic indicators, the precision score can be enhanced.

Future directions for improving the model's accuracy are also provided, including the use of more advanced algorithms such as neural networks, deep learning, and gradient boosting; sentiment analysis of news articles and social media; the use of alternative data sources such as satellite imagery and web scraping; and feature engineering. At the conclusion of the article, the author reminds readers that machine learning algorithms are not foolproof and that investors must exercise prudence when making investment decisions.

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TRACK 8:

HUMAN RESOURCE

Cawangan Perak INSPIRED IPOH INTERNATIONAL SUMMIT
INTERNATIONAL CONFERENCE ON BUSINESS MANAGEMENT AND INNOVATION 2023
https://icbiv2023.wixsite.com/icbiv2023
ICBiv 2023 INTERNATIONAL CONFERENCE ON BUSINESS AND INNOVATION

EXAMINING THE MEDIATING ROLE OF KNOWLEDGE MANAGEMENT IN INCREMENTAL INNOVATION SME-ICT

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ABSTRACT

Insightful company leaders increasingly rely on data as their primary source of fresh concepts. Little is known about how improvements in HRM might inspire creativity in the workplace. This research explores the connection between knowledge management abilities and original thought in the context of human resource management policies and practises. Since then, we've expanded our primary data set for the ICT sector of the study to include over 200 small firms in the Klang Valley of Malaysia. To accomplish the aims of the study, adopt a quantitative strategy. The survey method is used to collect data from the heads of ICT SMEs and their top executives. More than two hundred survey responses were collected and evaluated for this study. PLS (Partial Least Squares) analysis was used to check the validity of the hypotheses and models. The intersection of HR and KM is an intriguing research topic, especially in the context of ne Companies must enhance their IT and knowledge management capabilities to fulfil the conflicting demands of exploration and extraction. In order to balance exploratory and exploitative innovations, small and medium-sized firms must take into account both internal and external business environments. Small and medium-sized firms (SMEs) must regularly watch their sector and be quick to respond to changes in order to maintain a competitive edge.In order to stay up with the rapidly evolving business climate, companies must have the appropriate personnel in place. In order to understand the connection between HRM and organizational innovation, this study emphasizes the significance of performance and knowledge management competence. Human resource management to provide long-term benefits. , with product creation. Recent research has established a connection between HRM competencies and worker expertise.

Keywords: *Innovation, Knowledge Management, Incremental, HRM*

1. INTRODUCTION

Human resource practices have an immediate effect on both little and large innovations in the workplace. Human resource management practices have a large effect on both incremental and radical innovation. Past research shows that HRM practices help foster an environment conducive to innovation (Gil-Marques et al., 2013). As of late, human resource practises have been linked to organisational innovation (Hussenki et al., 2017; Inkinen et al., 2015; Kianto et al., 2014, 2017). Using KMS that centre on HRM practises can help solve issues more quickly and easily (Zack et al., 2009). Therefore, knowledge management is essential for enhancing an organization's ability to innovate. Knowledge-oriented practises, for instance, are often associated to innovation performance, as claimed by Darroch and McNaughton (2012). Research and development, staff education, and business innovation are all interconnected, as stated by Zack et al. (2009). Advancing KMS practises results in the development of novel theories and data (Ozlen & Handzic, 2014). in HRM methods and new developments (see, for instance, Gil-Moreno-Luzon et al., 2013). The link has been reaffirmed by recent studies. Organisational innovation is influenced by employers' HR practises (1999; Inkinen et al. et al., 2017). Knowledge Management Systems (KMS) with a focus on human resources can leverage institutional wisdom to speed up problem resolution (Zack et al., 2009). Therefore, the need of efficient knowledge management cannot be overstated. According to Darroch and McNaughton (2012), firms' innovativeness and their investment in research are inextricably intertwined, and the two go hand in hand with knowledge-based practises. As stated by Zack et

al. (2019) Several KMS procedures can be encouraged by a company's inventiveness (Ozlen & Handzic, 2014).

The objective of this research is to know how knowledge management can help human resource management to improve organizational performance through innovation.

2. LITERATURE REVIEW

2.1 SME -ICT

When it comes to the global economy, small and medium-sized businesses (SMEs) are crucial. The growth of Malaysia is apparent given that Malaysia hold 98.5% of all businesses and 38.9% of the GDP (Gross Domestic Product) in 2019. The contributions of SMEs to the international economy are crucial. In 2019, the growth of Malaysia is evident because locals own 98.5% of all businesses and 38.9% of the GDP. In 2019, it is predicted that there will be 907,065 small and medium-sized businesses (SMEs), employing 48.4% of the total workforce.

The 3rd Industrial Master Plan (IMP3) for Malaysia, which spans the years 2006-2020, places a strong emphasis on the country's small and medium-sized enterprises (SMEs). The Small and Medium Enterprise Development Council (NSDC) was created in June 2004 to aid SMEs across the country in formulating policies and strategies (Habaradas, 2008). The National SME Development Blueprint aims to assist SMEs in maximising their potential for growth and economic contribution through the use of knowledge, skill, and new ideas (Habaradas, 2008). Small and medium-sized businesses (SMEs) are defined differently in each country. A corporation is classified in terms of its employees, total assets, revenues, and production capacity (Bank Negara Malaysia, 2005). The National SME Development Council of Malaysia classifies SMEs into various sectors according to their staff count and annual revenue. In Table 2.3.1, we define "small and medium-sized enterprise" (SME).

The Economic Planning Unit in Malaysia has raised the issue of the lack of innovation in the nation's businesses (2016). The Malaysia Science and Technology Information Centre lists three main causes for Malaysia's lack of innovation (MASTIC). The study made reference to both a lack of funding and an overestimation of risk. Due to their mistrust of the market's appetite for novel goods and services and their fear of an unpredictably volatile and high-risk environment, local businesses have chosen to accept rather than innovate. According to the research, only 6% of adapter businesses are creators, while 36% of adapter businesses and 52% of adapter businesses are respectively (Malaysia Economic Planning Unit, 2016). Individuals and managers who stifle creative acts have been discovered, nevertheless, for organizational reasons. Critical thinking, effective communication, as well as cooperative and leadership behaviour among the company's personnel, are also lacking (Muta, Lettieri, Radaelli, & Spiller, 2013). When a business innovates, both its customers and its staff win. By reducing costs and strategically differentiating.

Businesses can improve their performance through the development of top-notch human resources and competitiveness. For example: (AlHusseini & Elbeltagi, 2012). Businesses that regularly innovate can keep up with their competitors. Information and communications technology (ICT) enables knowledge exchange, individual and organisational potential discovery, and effective learning and knowledge development (Chong, 2006). Utilize this resource to start looking into how this achievement was put into practice and learn just how important it is to the success factors for innovation. The foundation of business success is a steadfast dedication to uniqueness and creativity (Barney 1991).

Over time, the corporate environment has advanced technologically and become more sophisticated. Success is dependent on creativity. The utilization of knowledge assets, as well as a company's ability to manage them, enable both organizational value creation and long-term competitive advantage. Chen and Huang (2019) define intangible assets. The capacity of a corporation for incremental or radical innovation is determined by its existing expertise. the ability to deal with problems successfully (Subramaniam and Youndt, 2005). Because the firm's organizational structure is based on the assumption that information is maintained within the corporation, individuals and organisations must both make it easier for people to connect with one another and share ideas in order to support them in gaining fresh views and abilities. 1995; Nonaka and Takeuchi). The literature on human resource management is frequently cited. Understanding the dynamics of organizational knowledge is critical. As there is a specific idea in the subject of human resource management (HRM) The management of people in organisations is handled in its whole, and it is evaluated in relation to knowledge management and corporate innovation. As a result, the issue becomes, "How can human resource management at a firm improve?" Every practise and policy should be centred on increasing the organization's intellectual capital and fostering creative thinking. What are you capable of? Numerous studies have shown the importance of Few have looked into how HR might drive innovation, but those who have found various degrees of effectiveness. Another way to phrase it is (Kang, Morris, and Snell, 2017). The combination of strategic HRM

research resulted in this study paper on organisational learning and knowledge management in the context of innovation. Its primary goal is to create a thorough framework for understanding how human resource management functions within a corporation. Organizational knowledge can be gained through strategy and practise. . It increases a company's ability to innovate. Competence, or the ability to perform a job or task to the best of one's abilities, necessitates both knowledge and skills. by the dedication needed for the job. Competence is thus the proof of one's ability to complete a task. It is thought that the professionalism of a certain pitch is the most crucial and superior to the rest of the group (Wibowo, 2013). Efficiency, quality, innovation, and customer response are all examples of distinguishing traits, or a set of distinctive skills that enable an organisation to achieve them and provide it a competitive advantage (Maltis, 2014). The four components of competency are distinct knowledge, skills, talents, and competence

2.2 Innovation

The corporate environment has become more sophisticated and technologically evolved over time. Innovation is the key to success. Organizational value generation and long-term competitive advantage are enabled by a company's ability to manage its knowledge assets and intangible assets (Chen and Huang, 2019). A company's ability to innovate gradually or dramatically is contingent on prior information. the ability to efficiently handle (Subramaniam and Youndt, 2005). Because the firm's structure is based on the concept that knowledge is held in the corporation, individuals and businesses alike must make it easier for people to talk to one another and share ideas. can assist people in gaining new perspectives and talents (Nonaka and Takeuchi, 1995). Human resource management literature is frequently quoted. As a result, understanding the dynamics of organizational knowledge is crucial. Although there is a specific field of human resource management (HRM), it is thoroughly concerned with the management of humans in organizations studied in the context of the management of knowledge and the company's innovation. As a result, the question is, "How can a company's human resource management improve?" and procedures should be focused on strengthening the organization's intellectual capital and fostering new ideas capability? Few have explored the role of HR in generating innovation, but those who have sought to do so have reported varied results. to put it another way (Kang, Morris, and Snell, 2017). When strategic HRM studies are combined, the goal of this research paper on organizational learning and knowledge management in the context of innovation is to create an integrated framework for understanding how an organization's human resource management functions organisational knowledge can be built through the application of strategy and practise. Boost a company's ability to innovate.

2.2.1 Innovative Capability

Companies with a creative aptitude can efficiently consume, master, and improve existing technology while also developing new ones (Lall, 1992). When we discuss incremental innovation, we are referring to the refining and improvement of existing items through the production of new ideas. Incremental innovation in the form of services, in particular. The ability to drastically alter existing products, services, or processes as a result of which current technologies, especially radical innovating (Chandy and Tellis, 2000). One of the most well-known sorts of companies is incremental or radical innovation (Subramaniam and Youndt, 2005). At this point in time, the concepts of gradual and radical innovation in research are not novel. Scholars dispute whether an idea's evolution is radical or incremental. Concepts might span from one extreme to the other. The radical and progressive symphony (Baer, 2017). Radical ideas can transform a company's goods, procedures, or services. Procedural changes, on the other hand, are less disruptive to the business than incremental ideas that, if implemented, would not necessitate a considerable deal of extra knowledge. According to Green, Welsh, and Dehler (2013) vantage point from which ideas are evaluated while looking at new ideas, a continuum of incremental to radical has been used, being on the same continuum as being capable of (Romijn and Albaladejo, 2019).

2.2.2 Knowledge and Innovative Capability

The study of organizational innovation and the development and application of knowledge in firms are frequently connected subjects of investigation (Leede and Looise, 2015). In order to succeed in a fiercely competitive environment, firms must focus more on knowledge development and producing value from intellectual capital. Intellectual capital refers to the accumulation of all sorts of information that organisations use to gain a competitive advantage (Youndt, Subramaniam and Snell, 2004). Knowledge is kept in databases, SOPs, manuals, regulations, and routines, which increases a company's ability for creativity (Davenport and Prusak, 1998; Gloet and Terziovski, 2004). There is evidence that a company's performance can be

enhanced by boosting the effectiveness and efficiency of its knowledge repository.

2.3 Human Resource Management (HRM)

Human resource management (HRM) is concerned with employee recruitment and retention, as well as performance appraisals (Jones, George & Hill, 2000). Employee advancement policies and practised, as well as rules and procedures for selection, recruiting, and training, are common (Dessler, 2013). Strategic HRM requires considering how decisions on how to deploy a company's workforce will effect operational and business performance (Boxall & Purcell, 2000; Lengnick-Hall, et al., 2019). The 1980s marked a watershed moment for managers and HRM experts who saw a link between HRM and company performance (Budhwar, 2000). Human resource management guarantees that all "resources (human, technical, and financial)" are considered when setting goals and developing plans, minimising the subordination or neglect of human resources as a crucial source of competitiveness within a company.

2.3.1 HRM and Innovation

Numerous academics have highlighted that innovation is a major source of competitive advantage, but according to Youndt and Snell (2004), interest in transforming HRM practised and policies into innovation-related results has just recently surfaced. However, because HRM researchers have been focused on establishing firms' financial performance as an important outcome of HRM systems, they have been slow to follow up on empirical findings demonstrating the importance of firm innovation in achieving important financial outcomes, such as a firm's market share and other financial returns (Jimenez-Jimenez and Sanz-Valle, 2018; Wang and Shyu, 2019). HRM issues have garnered attention in innovation management research, but few studies have attempted to provide a complete framework integrating HRM and innovation (de Leede and Looise). SHRM and innovation can be found in the firm's resource-based mindset, which was developed in the strategic management literature (Lengnick-Hall et al., 2019). It has been demonstrated that resource-based theory-based strategic human resource management policies and practises can be used to effectively acquire and retain human resources with distinct and difficult-to-replicate characteristics, as well as to transform individual competencies into organizational competencies that can serve as sources of long-term competitive advantage for businesses (Barney and Wright, 1998; Boselie et al., 2015). Firms can also be explained using the notion of knowledge-based firms, which asserts that firms are knowledge distribution networks (Lengnick-Hall et al., 2019).

3. HR ARCHITECTURE AND KNOWLEDGE FLOW

As previously stated, several types of human capital might exist inside a single organization; therefore, HRM must manage all types of human capital in order to fully realise their contribution to firm success (Lepak and Snell, 2012). Yet, the majority of HRM literature only examines one or two categories of human capital. Typically, they focus on alliances and core knowledge employees. This could be due to their high level of originality or familiarity with the specific company. According to research, this group of employees frequently serves as the motivation for new thoughts. The writers (Perez and de Pablos, 2013) give attention to concerns connected to the management of workers with core knowledge, as is customary in most of the literature on the topic of innovation. fundamental knowledge in a company (Jimenez-Jimenez and Sanz-Valle, 2015). Some scientists believe that if new discoveries are not made on a regular basis, the field would become stagnant. The gathering of fresh information and the expansion of existing knowledge repositories Development in the workplace can be inhibited by deteriorating and outdated knowledge. dynamic renewal capacities of a corporation and organisational renewal (Levinthal and March, 1993). In order to establish organisations that are focused on innovation, the working environment of the organisation must foster the free flow of information flexibly (Ong and Lee, 2015). Companies must use HRM to ensure that their core knowledge is regularly updated and to develop processes that make it easier for core personnel to access. Researchers in human resource management discovered that access to resources owned by others increased engagement with internal and external information sources (e.g., et al., 2007, Matusik and Hill, 1998, and Perez and de Pablos, 2013). Companies gain from handling the boundary between the organization's environment and its surroundings properly, as well as from knowledge obtained from both internal and external sources in both exterior and interior settings (Evans, 1986). The terms "contingent" and "contractual," for example, provide a benefit to employees by allowing the organisation to receive expertise from outside sources, so increasing the company's knowledge base and competitiveness.

Because information is such an important enabler of corporate innovation, a distinct HR strategy is necessary. Various HR configurations

must be incorporated into the architecture to ensure that existing knowledge is shared and updated on a regular basis to inspire new ideas. Organization is given a lot of attention (Kang et al., 2007, Leede and Looise, 2015). A distinct HR architecture should be employed to handle 'knowledge flow.' Kang and colleagues should manage 'knowledge stocks' inside the already established HR architecture (2007). That being said, what form of HR structure can help to ensure constant updating and improvement of organisational knowledge stocks? Knowledge flow refers to the mobility of knowledge. It includes the acquisition, transfer, and absorbing of knowledge in order to improve and adapt a company's operations stockpiles of knowledge and the interchange of fresh information in-house knowledge as well as company-wide information exchange. Now, research indicates that special emphasis should be paid to the development of an HR framework for managing organizational Research has revealed that the flow of knowledge is severely hindered (, 2004). Instead, it appears that many scholars are focusing on how HRM practises might influence knowledge management. Huang (2009) and Jimenez-Jimenez and Sanz-Valle (2008), respectively, investigated the dynamics of the link between HRM and innovation, but did not go any further. Learning, social interaction, and knowledge management flow and dynamics in the workplace are all covered in Management of Human Resources in a Knowledge-Based Economy. Human resource setups can be used to manage a company, it is claimed within and outside of the firm's borders to ensure effective communication advancement of knowledge through the acquisition, exchange, and use of information a company's ability to innovate. A company's success can be judged from a social standpoint. Access to new information located beyond the company's borders results in experimental learning, which leads to radical innovation. Access to new information can be obtained through increased education. core knowledge of employees' interaction and flow of information to external alliance partners for the firm. There is no requirement that the external ties be strong.

3.1 Incremental Innovative Capability

The ability to develop new, useful features for existing products and services was characterised as incremental innovative capability in this analysis. An incremental change strategy, as proposed by Youndt and Subramaniam (2005) (Green, Welsh, & Dehler, 2003), has a lower impact on the firm and requires less training. Incremental innovations can be defined as changes or improvements to already-existing technology (Chang, Gong, & Shum, 2011). In order to create incremental innovation, a company will extend and strengthen its knowledge and technological processes (Gatignon et al., 2004).

Subramaniam and Youndt (2005) distinguish between incremental and radical innovation based on the degree to which a corporation makes use of its existing body of knowledge. One of the few empirical studies evaluating inventive capability is the work by Subramaniam and Youndt (2005), on which this study significantly relies. The research summarised here demonstrates that both radical and incremental innovation capacities are well-established ideas with substantial practical consequences for businesses. This concludes the review for that reason. We still don't have a firm handle on how to help businesses maximise the value of their own knowledge bases.

3.2 Organizational Innovation

The topic of knowledge usage and its impact on a company's incremental and radical inventive capability should therefore be further investigated. Firm performance has been proven to benefit more from radical breakthroughs than incremental ones, making the ability of a company to produce radical as well as incremental innovations crucial (Damanpour, 1991). If research can offer light on how information in organisations may be leveraged in a way that consistently yields radical ideas, the industry stands to benefit. The following part goes into deeper depth on the notions of incremental and radical inventive capabilities to continue the topic.

4. RESULTS

In this study, the primary data collection for the ICT sector of the study included around 200 small businesses in Malaysia's Klang Valley.

4.1 Hypothesis Derived

H1 The Knowledge Management Capacity Mediates the relationship between HRM Acquisition and Incremental Innovative Capability

H2 The Knowledge Management Capacity Mediates the relationship between HRM Development and Incremental Innovative Capability

H3 The Knowledge Management Capacity Mediates the relationship between HRM Egalitarian and Incremental Innovative Capability

H4 The Knowledge Management Capacity Mediates the relationship between HRM Collaboration and Incremental Innovative Capability

H5 The knowledge Management Capacity Mediates the relationship between HRM Documentation and Incremental Innovative Capability

H6 The Knowledge Management Capacity Mediates the relationship between HRM Information and Incremental Innovative Capability

Table 1. Mediating Effect of Knowledge Management Capability towards Innovation

Hypothesis	Path Coefficient	Beta Values	SE	T-Values	P Values	LL	UL	Decision
H1	HRM Acquisition -> KM_Capability ->Incremental Innovation Capability	-0.095	0.055	1.728	0.085	-0.222	-0.016	Not Supported
H2	HRM Development -> KM_Capability ->Incremental Innovation Capability	0.03	0.035	0.866	0.387	-0.021	0.123	Not Supported
H3	HRM Egalitarian_ -> KM_Capability ->Incremental Innovation Capability	0.704	0.273	2.576	0.01	0.214	1.22	Supported
H4	HRM Documentation ->KM Capability -> Innovation	-0.018	0.033	0.545	0.586	-0.105	0.031	Not Supported
H5	HRM Information -> KM_Capability -> Innovation	-0.03	0.037	0.82	0.413	-0.131	0.029	Not Supported
H6	HRM Collaboration -> KM_Capability -> Innovation	0.465	0.178	2.617	0.009	0.164	0.846	Not Supported

As shown in Table 1, there were positive path coefficients for collaboration, development, and egalitarianism. Path coefficients for acquisition (-0.095), documenting acquisition (-0.018), and managing acquisition (-0.03), on the other hand, were all negatives. This is the next step, which is to determine the significance of the relationship. Bootstrapping each dataset with 500 samples is a requirement. Significant values (p0.05) must be less than 1.96 (t-values greater than 1.96) in order to accept the hypothesis (t-value). This study found that knowledge management mediated the relationship between collaboration and internal innovation capability (t=2.617, p0.05) and egalitarian (t=2.576, p0.05). These findings support both H15 and H18 hypotheses. H13, H14, H16, and H17, on the other hand, did not receive any support.

5. DISCUSSION

A study indicated that the ability to manage knowledge mediated the connection between egalitarianism and the capacity for incremental innovation (H15). It was shown that knowledge management could bridge the gap between teamwork and the ability to innovate incrementally (H18). Similar to what Saunila and Ukko (2011) found, it has been discovered that cooperation enables members to learn from each other's experiences. In each given organisation, information is continually being shared and implemented.

It's more likely that a group will come up with original and creative solutions to problems if its members get along well. To access the network resources necessary for product creation, businesses are urged to network with one another (Mu, 2013, 2014; Mu & Di Benedetto, 2012). Knowledge management's capacity for gradual improvement is mediated nicely by egalitarianism as well. This demonstrates that there is consensus inside the company regarding the desired outcome of the incremental innovation. Because everyone is on an equal playing field, successful knowledge management has a major impact on incremental innovation. According to a 2019 study by Jacb, "Knowledge Management Capability" serves as a bridge between radical and gradual innovation.

It is feasible to reconfigure organisational capabilities and competencies that produce value-added goods when new and current knowledge are combined. Businesses, whether large and small, can improve their chances of survival by actively encouraging the creation of novel products and processes through the use of

knowledge management strategies. Knowledge management is crucial for businesses to grow their existing knowledge base and create and protect new knowledge in order to be competitive in the market (Bose, 2003). A year later, (Tseng & Lee, 2014). Hayashi (2004) argues that a company's competitive strategy should centre on its ability to generate, preserve, disseminate, and apply knowledge and expertise. Knowledge management must serve as a mediator between collaboration and result support if incremental innovation is to thrive.

6. CONCLUSION

It was revealed that the relationship between incremental and radical innovation capacities was unaffected by knowledge management. In order to grow, many small and medium-sized firms (SMEs) employ acquisition as a growth strategy. Mergers and acquisitions can increase a company's staff and introduce new services and products. Companies might gain from this upheaval by reorganising internally, which can inspire fresh perspectives and a departure from the norm. As a result, businesses frequently adopt new resources that are not "path dependent."

To ensure the company's longevity, new knowledge management skills are required. The company's knowledge management capabilities guarantee that the efforts of its employees will not go to waste. Successful innovation relies on a company's adaptability to the changing needs of its target market. Keep up with the latest market trends if you want to be successful in business. To guarantee that innovative practices within Malaysian enterprises can lead to corporate growth, more study is needed.

Companies must rely on innovation to remain competitive in today's knowledge-based economy. Fostering innovation involves both corporate and individual comprehension. For businesses to benefit from knowledge, it must be successfully obtained, communicated, and applied. The primary goal of this study is to investigate how to improve internal communication and information sharing in order to assist an organisation in becoming more innovative. Human resource management (HRM) is an increasingly important field of study since it focuses on how businesses manage their people capital. It is suggested that the HR architecture of a company be designed to support and manage procedures for knowledge acquisition, knowledge exchange, and knowledge application. The proposed method also takes into account how a company's intellectual capital influences its potential to innovate. This article focuses on developing a comprehensive strategic HRM framework for the development of creative organisations capable of meeting the challenges of the knowledge economy. To fulfil the conflicting demands of exploration and exploitation, businesses must increase their Technology and knowledge management capabilities. As a result, it is critical for small and medium-sized businesses to find a balance between experimental and exploitation-focused innovations by considering both internal and external business contexts. To maintain a competitive edge, small and medium-sized firms (SMEs) must regularly analyse their industry and be quick to respond to changes. To keep up with the ever-changing business climate, businesses must have the right staff in place. While examining the relationship between HRM and organisational innovation, this study emphasises the importance of performance and knowledge management competence. If culture is included into human resource management, long-term benefits can be realized

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Employer Branding and Its Influence of Employee Retention: A Literature Review

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ABSTRACT

The impact of employer branding on employee retention is essential for organizations aiming to create a strong and sustainable workforce. This literature review aims to examine the role of employer branding on employee retention in the organizations. By synthesizing and analyzing a wide range of studies published between 2019 and 2023, this review provides insights into the key determinants of employee retention, identifies gaps in the literature, and offers implications for practice and future research. The articles were screened, filtered and followed by the reading of the full-text articles. From the previous results, most studies applied a quantitative approach which is the most popular research method. Therefore, this study suggests that employer branding studies should be given adequate concentration. The findings highlight the importance of various factors, including dimension of employer branding such as perceived organizational support, development value, work environment, and social value, in influencing employee retention. Furthermore, this literature review recommends that researchers should investigate and focus more on the influence of employer branding on employee retention.

Keywords: *employee retention, employer branding, organization, review*

1. INTRODUCTION

Over the years, a multitude of studies have diligently explored and analyzed the complex relationship that exists between employer branding and employee retention. It is a critical aspect of workforce management and involves creating strategies and practices that encourage employees to stay with the company rather than seeking opportunities elsewhere. Hee & Rhung (2019) stated that employee retention is very common issue in every organization, thereby presenting a formidable challenge for the field of human resource management (Mahadi et al., 2020).

The main objective of this review is to determine whether there exists substantial evidence indicating that other factors related to employee retention have led to this outcome. According to Yap (2023), in The Star, the talent retention is the key for private business. He also added that 67% of private company employers have difficulties when the staff turnover has increased over the past year and most of the companies been impacted by several factors such as supply chain disruption, changes in customer behavior, workforce challenges and labour shortage, and changes in work culture. Employee retention constitutes a significant facet of the employer branding concept, aligning with its fundamental goals of both attracting and maintaining a talented workforce (Ambler & Barrow, 1996).

Recruitment has become a costlier endeavor, as numerous companies face challenges in luring, recruiting, empowering, and retaining the utmost talented human resources. Hence, they adopt employer branding as a strategy approach to distinguish their employer identity from competitors and highlight their offerings, encompassing various facilities that facilitate employee retention within the organizational environment (Raja et al., 2021)

Every organization possesses an employer brand, representing how they set themselves apart in the

job market. This distinctiveness enables them to allure, hire, maintain, and captivate suitable individuals (CIPD, 2022).

Limited empirical evidence exists regarding studies exploring the connection between employer branding and employee retention (Ibrahim et al., 2018) and different research studies have been explored there is a deficiency of empirical evidence supporting the theoretical connection between employer branding and employee retention (Ahmed et al., 2022).

Therefore, this paper was carried out to study how importance is employer branding to the employee retention. As an illustration, when employers mistreat their employees, they expose themselves to potential harm to their reputation. This, in turn, could adversely affect how prospective candidates view the organization.

2. LITERATURE REVIEW

2.1 Employer Branding

Employer branding has gained significant attention in the literature over the past few years, with numerous studies exploring its impact on organizational outcomes. Employer branding has been introduced from the marketing discipline to the realm of human resource management (HRM). Scholars have investigated various dimensions of employer branding, such as its relationship with employee attraction, engagement, retention, and overall organizational performance. The conceptualization and measurement of employer branding have evolved to reflect the changing nature of the workforce and the importance of a strong employer brand in attracting top talent.

According to Chacko & Zacharias (2020), employer branding refers to the methods and strategies an organization employs internally to engage, inspire, and retain its employees, ultimately positioning the organization as a premier workplace. Hence, employer branding plays a crucial role in employee retention by shaping the overall perception of the organization as a desirable place to work. When employees have a positive experience and connection with their workplace, they are more likely to stay engaged and committed to the company. The primary focus of employer branding revolves around drawing in and retaining employees, contingent upon the company's image, policies, and procedures (Easa & Bazzi, 2020).

In essence, employer branding is about creating a lasting impression of an organization as an employer of choice, making it easier to attract and retain the right talent that can contribute to the company's success and growth. Therefore, a robust employer brand contributes to employee retention by creating an attractive workplace, making employees less inclined to seek opportunities elsewhere as other organizations appear comparatively less appealing (Hadi & Ahmed, 2018)

2.2 Employee Retention

High employee turnover across industries can lead to low morale due to increased workloads on remaining staff, resulting from the need to take on additional responsibilities and tasks left vacant by departing employees. The costs associated with hiring new employees vary by industry (Mahadi et al., 2020).

In addition, an effective employee retention is vital for an organization's stability, expansion, and financial success (Cloutier et al., n.d.). Employee retention refers to the organization's ability to retain its employees over a certain period of time. In other words, the employee will choose to work and remain in the organization.

Previous studies showed that employee retention also becomes a big challenge for the banking industry in Pakistan (Shah et al., 2018). Kuuyelleh (2021) in the study examines the various employee retention strategies and their implications for business organizations. It also provides some recommendations for enhancing employee retention and reducing turnover. In existing research, Hadi & Ahmed (2018) examined the role of employer branding dimensions on employee retention from the educational sector perspective. Findings of the study revealed that development value has a substantial relationship with employee retention.

In other hand, Irshad & Afridi (2011) endeavored to recognize the components of HR practices and their impact on retaining employees. The study revealed a significant and compelling link between HR practices and employee retention within any organizational context. Notably, factors such as compensation, rewards, flexible timings, training, and advancement opportunities stood out as crucial contributors among various others.

Research on employee retention was also highlighted by (Zainal et al., 2022) revealed that work-life balance and work environment had a strong positive effect on employee retention, but reward and compensation had a much stronger positive effect on employee retention.

Additionally, Alzaid & Dukhaykh (2023) examined the relationship between employer branding and employee retention and conclude that the study indicated that employer branding is a strong predictor of employee retention.

3. MATERIALS AND METHODS

The focal point of this literature review is to unveil the relationship between employer branding and employee retention in the organization. In this study, a total of 58 different research papers or articles have been classified and the results indicate areas for a potential angle of recommendation. LR was conducted to answer the following research questions; What are the types of employer branding that have been studied in employee retention researches and how strong the relationship between employer branding and employee retention?

3.1 Selection of papers

The utilization of literature review aimed to examine the trajectory of research on the employee retention in the context of employer branding. The initial step involved identifying a dependent variable, namely employee retention. To identify related studies, automatic searches were performed using the search engines of electronic databases such as Scopus, Science Direct, and Web of Science. The subsequent phase entailed refining the search scope to encompass literature published over a span of seven years, commencing from 2018 until 2023.

4. RESULTS

In this section, the literature review presents the data collected according to i) the overview of the employer branding, employee retention articles, and journals publications between years 2018 to 2023; and ii) the relationship between employer branding and employee retention.

5.1 Overview of studies on employer branding and employee retention

It is understandable that employee retention has attracted many researchers and the number of studies has continued to increase every year. There was a significant increase from 2014 to 2015 but experienced a sharp decline in 2016 with 6 research papers. While the year 2022 recorded the highest number of researches conducted, and the percentages for 2018, 2019, and 2020 remained constant with 9 papers reviewed. However, not many research done between employer branding and employee retention.

5.2 To investigate the relationship between employer branding and employee retention

The previous research revealed the relationship between employer branding and employee retention.

According to Easa & Bazzi (2020), it is more effective for an organization to maintain their existing customers rather than to acquire new ones. Some studies have suggested that employer branding is the predictor for employee retention (Gupta et al., 2018, Chacko & Zacharias, 2020, Alzaid & Dukhaykh, 2023).

However, some organizations still pay little attention to employer branding and the linkage with employee retention in organization is still not encouraging. By reviewing and analysing the obtained literature related to employer branding, only a few articles are quantitative-based studies, as illustrated in Table 1, and a total of nine different types of employer dimension were recognised in this study.

Table 1. Summaries of previous studies on employer branding and employee retention

Author	Year	IV	DV	Findings	Results
Thalgaspitiya	2020	Employee growth need strength, Psychological	Employee Retention	Employer growth need strength was the most	Significant

		contracts, Perceptions of organizational support, Organizational identification		influential dimension	
Chacko and Zacharias	2020	Economic value, Social value, Developmental value, work life balance value, Reputational value	Employee Retention	Employer branding is a crucial piece of effective talent	Significant
Dasan	2022	Employer branding	Employee Retention	Recruitment and retention of employees are strongly influenced by the employer branding	Significant
Alzaid and Dukhaykh	2023	Employer Branding	Employee Retention	Employee branding is the strong predictor of employee retention	Significant
Sharif and Sharif	2017	Employer branding dimension (work environment, social aspect, compensation structure, developmental value, knowledge sharing)	Employee Retention	Work environment, social aspect, developmental value are significant predictors of employee retention	Partial
Udayanga, Jayaratha, Silva, Rashaad, Dissanayake	2021	Work environment, Corporate social responsibility, Work-life balance, Training & Development	Employee retention	Work-life balance and training & development have the most significant impact on employee retention	All the dimensions/variable are statistically significant except Corporate social responsibility
Chacko and Zacharias	2020	Employer branding	Employee retention	Employer branding	Significant
Arasanmi and Krishna	2019	Perceived Organisational support (POS)	Employee retention	POS as employer branding strategy affect employee retention	Significant
Hadi and Ahmed	2018	Application value, Development value, Interest value, Work/life balance	Employee retention	Only one dimension, development value significant positive relationship with employee retention	Partial Significant

5. DISCUSSION

This should explore the significance of the results of the work. The literature review highlights that employer branding should be a cohesive organizational process leading to favorable outcomes that actively contribute to employee retention.

Previous research has also suggested that a combination of findings has emerged from the selected papers. Hence, additional research is required to determine the relationship between employer branding and employee retention.

6. CONCLUSION

Employer branding and employee retention are gaining increasing in importance both in academic literature and practitioners. This paper explored the literature on the role of employer branding on employee retention. Literally, this topic is very interesting to discuss in literature review. Therefore, considering the findings from the chosen papers within the framework of employer branding, it becomes evident that there is a need for additional research in specific sub-area like employee perceptions and employee loyalty towards the organization. Hence, this research can be a starting point for many other areas of research on the subject area and gives relatively clear understanding on the importance of employer brand management influencing employee retention.

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TRACK 9:

ORGANIZATIONAL BEHAVIOUR

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RELATIONSHIP QUALITY MEDIATES THE RELATIONSHIP BETWEEN PERSONALITY TRAITS AND CONFLICT MANAGEMENT STYLES AT PEJABAT SETIAUSAHA KERAJAAN NEGERI PAHANG

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ABSTRACT

This research will investigate the relationship between personality traits, relationship quality, and conflict management style among employees during the pandemic at the Secretary of Pahang State Government. The purpose of this research is to determine how variables in the extended Theory of the Five-factor Model of Personality Traits and the mediating relationship quality can be tested as predictors of conflict management style. The researcher specifically expects that conflict management style would be related to extraversion, openness to experience, agreeableness, conscientiousness, and neuroticism, which are the five-factor model of personality traits, as well as relationship quality. The researcher also looked at how relationship quality mediated the relationship between personality traits and conflict management style. To better understand the relationship, this study developed a framework and analysed how well the model fits the data using the Partial Least Squares Structural Equation Modelling (PLS-SEM) method. A total of 214 respondents from the departments and units in the Secretary's Office of Pahang State Government were selected to complete a questionnaire to provide the empirical data for the analysis. All hypotheses were supported in this research, with the presence of the mediator showing that personality traits were significantly related to conflict management style. The limitation of this research, in terms of scope, is that it focuses solely on the government sector during the pandemic.

Keywords: *Conflict management style, Personality traits, Relationship quality*

1. INTRODUCTION

There is evidence of actions taken by the government related to levels of psychological wellness (Qiu et al., 2020), and the novelty of this situation invites an understanding of individual differences in how people cope with the pandemic. For example, nowadays, the world has turned to remote working or work-from-home concepts due to Coronavirus Disease 2019 (COVID-19), an infectious disease caused by a severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (Elengoe, 2020). When the pandemic outbreak happened back in the year 2020, the government and the policymakers took preventive steps and directive measures to sustain social movement and infection among the citizens (Alifuddin, 2021). A common action that was taken globally was the implementation of a lockdown.

Since the World Health Organization (WHO) proclaimed COVID-19 a pandemic on March 11, 2020, the cases of coronavirus have surpassed millions, which has spread quickly to more than 200 countries and territories worldwide. Countries in the Southeast Asia region are not exempt from this pandemic. It not only poses issues to public health but also affects the government sector.

The COVID-19 epidemic has caused a crisis on a grand scale, with far-reaching social, economic, and environmental consequences (Bapuji et al., 2020). For most organizations in the government sector, the effects of this pandemic in the most impacted countries are numerous and of unprecedented intensity. These uncertainties are much more challenging to handle for organizations because there has been little in-depth research on the subject, and the information provided is scant, fragmentary, and conflicting (Boiral et al., 2021).

Furthermore, the pandemic in Malaysia has created an endemic situation of uncertainty and confusion about the risks to employees, the measures and best practices that organizations should implement, stakeholder pressures, recovery plans including assistance to the most affected companies, and the possibility of new waves of contamination and

government shutdowns (Bryce et al., 2020; Isabella & Carnevale, 2020; Oehmen et al., 2020).

As a result of the government's movement restriction order requiring all employees to work from home, this became the first experience for the employees of the Secretary's Office of Pahang State Government in dealing with the pandemic. Conversely, it has impacted employees, such as pressure on the use of new technology due to a variety of circumstances, such as employees who lack skills in using the new medium due to age factors and low internet access. It will also cause conflict at an early stage while working at home. When returning to the work session in the office, even if the employee is not 100% present in the office, the employees will be more cautious and distance themselves from their colleagues. It will also cause conflict among employees when they must consider how to maintain social distancing and work layout during a pandemic.

Since the COVID-19 pandemic, individual personality has influenced everyday behaviour (Cooper et al., 2019; Sherman et al., 2015) and health behaviours (Jones et al., 2017). Individual differences reflect differences in behaviour to cope with the pandemic. How individuals behave depends on their personality. Therefore, the researcher expects that conflict management style will play a role in employees' personality traits and the quality of the relationship between the employees engaged in such conflict issues during a pandemic.

There is no single conflict management style considered the most appropriate across every negotiation. It will be influenced by top management's point of view on conflict and employee personality type. According to McKibben (2017), differing conflict management styles among employees and situations may represent a suitable style selection.

Moreover, the choice of conflict management style is also impacted by many factors (Dziwinski, 2020). Miller and Poston (2020) mentioned that satisfying one's needs or interests is an important outcome in the conflict resolution process. This becomes a challenge when parties in the conflict want opposing needs or interests satisfied.

However, personality does seem to play an important role in determining conflict behaviours. According to Zhou et al. (2017), people's personalities will first have an impact on their relationship satisfaction. A good relationship is typically associated with higher levels of relationship expectation and satisfaction, as well as a longer relationship duration. According to Hannis Ansah et al. (2018), a peaceful workplace is just one of the numerous benefits of excellent employee connections, and since confrontations hinder productivity and cause discord, the energy devoted to conflict resolution could be better spent working.

Conflict management style is the degree to which group members differ regarding a particular individual conflict management style. Kilmann (2020) has identified five conflict management styles, each of which has its consequences. These styles are collaborating, accommodating, compromising, competing, and avoiding.

The collaborating approach entails trying to work with other individuals to search for a solution that fully addresses the issue at hand, satisfying all the involved parties. It includes the identification of the underlying concerns of one's opponent and finding alternatives for meeting the interests of each party.

The accommodating style accommodates the concerns of 'others first' instead of giving one's interests top priority. This technique is appropriate when it is crucial to provide relief that is temporary from conflict or when the problem is not meaningful to one person compared to others.

The compromising style is a conflict management approach aimed at finding a solution that is mutually acceptable and expedient and partially satisfies both the involved parties.

The fourth style of conflict management is competing. Adopting a competing approach entails pushing one's opinion at the expense of others and maintaining active resistance to the action of the other person.

The forcing technique is used in situations where one needs to fight for one's rights or opinion, resisting pressure or aggression.

Avoidance is a conflict management style whereby an individual fails to adequately address a conflict but instead postpones, withdraws, or sidesteps. In most cases, individuals will tend to avoid conflict due to fear of getting involved in a dispute or they may lack confidence in their conflict management skills (Chandolia & Anastasiou, 2020; Thomas et al., 2008).

In general, personality refers to individual differences in the way he or she feels, thinks, and behaves. Thus, it is the unique combination of characteristics and qualities that makes employees unique across situations and contexts (Vedel & Poropat, 2017).

According to Abdullah et al. (2016), personality can be defined as a collection of intrinsic and extrinsic traits that may affect the behaviour of an individual. Parks-Leduc et al. (2015) indicated that personality traits are typically defined as descriptions of people in terms of relatively stable patterns of behaviour, thoughts, and emotions. Mental Help (2020) indicated that the big five major personality traits are neuroticism, extraversion, agreeableness, conscientiousness, and openness to experience. Neuroticism is a tendency to easily experience unpleasant emotions such as anxiety, anger, or depression. Extraversion captures the energy, urgency, and tendency to seek stimulation and the company of others. Agreeableness is a tendency to be compassionate and cooperative rather than suspicious and antagonistic towards others. Conscientiousness is a tendency to show self-discipline, act dutifully, and aim for achievement. Openness to experience is an appreciation for art, emotion, adventure, unusual ideas; imagination and curiosity.

Therefore, the researcher specifically expected that conflict management style would be related to extraversion, openness to experience, agreeableness, conscientiousness, and neuroticism, which are the five-factor model of personality traits, as well as relationship quality, based on the conflict management style definitions.

1.1 Statement of the Research Problem

Conflict in the work environment among employees during the pandemic can have different consequences. It became worse when the pandemic occurred, whereby employees at the Secretary's Office of Pahang State Government could not communicate with each other. Because of that, when the employees are unable to communicate well with each other, miscommunication might occur, and conflict may arise. When conflict arises, it will ruin the relationship between employees. According to Türk & Ceylan (2020) and Gulec & Alkis (2004), in this situation, the employees need to be well-versed in human behaviours in order to manage their colleagues' behaviours. Besides, it should be accepted that the conflicts that arise in the work environment among employees are part of the organisation. Thus, instead of ignoring the conflict situations, it will be useful to understand the nature of the conflicts and to determine the solution to improve the quality of relationships and reduce job stress. There is visible conflict and job stress among the employees at the Secretary's Office of Pahang State Government's well-being. Nowadays, because of the COVID-19 pandemic, employees in the Secretary of Pahang State Government face the pressures of the new norm of working from home (WFH); hence workplace conflict can be more complex because of role overload and family distractions (Noor Shamsiah Hussin, 2021). Employees will experience job stress because work gets disturbed due to the multiple roles of father, mother, husband, or wife. WFH also presents challenges from family distractions because of sudden sickness, family visitors, or being a teacher for the kids who need to do their home-based teaching and learning activities (PdPR). Moreover, the employees have been managing the psychological challenges of the changes to their working lives with the competing demands of family. Anwar et al. (2021) have proved that WFH deprives employees of their growth opportunities; the stay-at-home recommendation during the MCO hampered people from making physical contact with other family members, friends, and colleagues, which in turn may have led to feelings of isolation and depression (Tay et al., 2021). Some might feel stress and anxiety due to the situation, affecting employees at the State of Secretary of Pahang State Government.

When it comes to stress and anxiety, many employees continue to feel that they may have a significant impact on them, both physically and mentally. Based on Scott (2020), stress can affect their thinking and behaviour, making employees more likely to get into conflict situations. In turn, conflict can cause significant anxiety, which further affects their health and well-being. It is critical to assist employees in managing conflict. The problem can be resolved swiftly, informally, and collaboratively if the top management at the State of Secretary of Pahang State Government understands the abilities that need to be developed and supports their employees with training on how to manage stress while WFH during the pandemic.

According to Noor Shamsiah Hussin (2021), employees at the State of Secretary of Pahang State Government will decide to work at risk if the workplace's support system is in good working order. Employee emotions and job performance will diminish if there is no good support structure in the workplace. A mutually respectful attitude toward one another is very important because, from the perspective of challenges throughout the MCO, they do not realise that each of their colleagues has their own challenges which will indirectly affect the attitude of employees themselves due to emotional instability.

To be able to cope with this situation or to reduce the negative effects of conflict on employees, and to turn it into a positive outcome, the employee who has a conflict with other employees or team members or the manager should utilise the right conflict management style to tackle the difficulties stated. However, it is considered that one of the reasons behind these decisions is the personality traits of the employees themselves. The way an employee chooses to use the conflict management style and personality traits determines whether they wish to sustain or damage the relationship. Based on the researcher's knowledge, there is limited research on conflict management in organizations during the pandemic because it rarely occurs in Malaysia. Therefore, the researcher has decided to conduct a study on conflict management during the pandemic at the Secretary of Pahang State Government. This research aims to bridge the gap between the relationship among personality traits, relationship quality, and conflict management style among employees during the pandemic at the Secretary of Pahang State Government. To examine the relationship, this study will come out with a framework and test how the model will fit with the data.

1.2 Research Objectives

The general objective of this research is to investigate the relationship between personality traits, relationship quality, and conflict management styles. Besides the general purpose of the research, the following are the specific objectives:

1. To identify the relationship between the five-factor model of personality traits and conflict management styles.
2. To examine the relationship between the five-factor model of personality traits and relationship quality.
3. To measure the relationship between relationship quality and conflict management styles.

4. To investigate the mediating effect of relationship quality on the five-factor model of personality traits and conflict management styles.

1.3 Research Questions

Based on the research objectives, the research questions for the objectives are:

1. Which type of five-factor personality traits will have a relationship with conflict management styles?
2. Is there any relationship between personality traits and relationship quality?
3. Is there any relationship between relationship quality and conflict management styles?
4. Does relationship quality mediate the relationship between personality traits and conflict management styles?

2. LITERATURE REVIEW

2.1 Conflict Management Style

According to Ren and Kim (2017) and Kilmann and Thomas (1977), conflict management styles can be defined as individual patterns of behavioural predisposition that evolve individual behaviours and reactions. Raykova et al. (2020) proposed that conflict is a common feature of group activities and inherent to a wide range of interactions among team members (Jehn & Bendersky, 2018; Jehn & Mannix, 2001). Stress and anxiety to reach an agreement (Baron, 1988), power differences (Zartman & Touval, 1985), complexity of the task (Lawrence & Lorsch, 1967), culture, and leadership models employed by team leaders (Kozan, 1989) all affect how conflict ought to be handled.

Conflict management refers to the strategies followed by both parties to cope with a conflicting situation. According to Rahim (2012), conflict management refers to the process of eliminating the negative aspects of conflict while escalating the positive aspects of conflict. The aim is to improve learning and group outcomes, including effectiveness or performance in an organisational setting. Thomas and Schmidt (2014) suggested five modes: avoiding, dominating, obliging, integrating, and compromising. The avoiding style neglects the conflict or denies the availability of conflict rather than finding a solution to the problem and seeks neither one's own concerns nor others. The dominating style neglects personal concerns to persuade the concerns of the opposite parties. It is a form of self-sacrificing kindness that is followed by the fulfilment of others' wishes when one would prefer not to do so.

People look for their own concerns at the cost of others' concerns by applying all suitable authority to succeed in the location and protect something that is believed to be correct in the obliging style. In the integrating style, the detection of all concerns of both parties through a solution that gratifies both parties totally is achieved because of attempts to find alternatives to satisfy the needs of all of them. The compromising style searches for a mutually suitable clarification that satisfies both parties moderately by taking into consideration some concerns of both parties and neglecting others by exchanging concessions and finding a middle-ground position (Rani, 2018).

A summary of the work and the development of conflict management style studies shows a strong basis for researchers to continue to delve into aspects of conflict management style where such studies are still too few in developing countries such as Malaysia, as well as in the Secretary of Pahang State Government. The researcher relies on underpinning theories that support how and why, when choosing the five-factor model of personality traits, relationship quality has a relationship with conflict management style.

2.2 Theory 1: Rahim Model of Conflict Management (1983)

According to Rahim (1983), conflict is an interactive state manifested in compatibility, disagreement, or difference within or between social entities such as individuals, groups, or organisations. For the purpose of this study, Rahim's definition of conflict will be used, as he conceptualised conflict as an interactive process, which is consistent with the views of others (Baron, 1990). In order for conflict to exist, it needs to be recognised by all the parties involved in it. Rahim and Bonoma (1979) have differentiated the styles of handling interpersonal conflict along two basic dimensions: concern for self and concern for others. Concern for self, as a dimension, explains the degree (high or low) to which individuals attempt to satisfy their own concerns, whereas the second dimension, concern for others, explains the degree (high or low) to which individuals want to satisfy the concerns of others. These dimensions portray the motivational orientations of a given individual during conflict. In situations such as disagreement, chaos, disputes, and incompatibility between individuals, individuals exhibit five different behaviours that are shown in Figure 1, which constitute "Conflict Management Approaches".

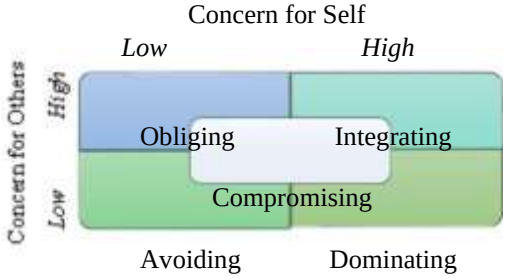

Figure 1 Conflict management approaches Rahim (1983). A measure of styles of handling interpersonal conflict

These two dimensions can be crossed to identify five styles of conflict management: integrating involves a high concern for self and for others, obliging involves a low concern for self and a high

concern for others. Meanwhile, compromising represents an intermediate concern for self and others. Dominating reflects a high concern for self and a low concern for others. Lastly, avoiding indicates a low concern for self and others.

For this study, the researcher has chosen Rahim's (1983) model of conflict management based on a two-dimensional model labelled as concern for self and concern for others. Individuals who demonstrate a high concern for self will show a strong concern to fulfil their own needs, whereas individuals who show a high concern for others demonstrate a high level of interest in fulfilling the needs of the other party (Rahim & Bonoma, 1979). It is among the most popular styles of handling conflict used in research. The researcher has studied five different approaches to handling interpersonal conflict by using the five styles of conflict management. These five different styles are those that one will use depending on the circumstances and situations faced by the management along with subordinates. Based on Antonioni (2008), some scholars have suggested a contingency approach to handling conflict, meaning that the appropriateness of using a particular style depends on the conflict situation (Rahim et al., 1992).

2.3 Personality Traits

The Big Five personality trait model is the most frequently used term for the model of personality which demonstrates five fundamental factors of personality (Dunlop et al., 2020). It combines the emotions, attitudes, and behaviour of people. Based on Simha and Parboteeah (2019), the Big Five model of personality traits is the most widely accepted model of normal range variation in personality, positing five broad dimensions to account for individual differences in human behaviour, cognition, and emotion. According to Rothermich et al. (2021) and Antonioni (1998), each of the factors is bipolar and the binaries align as follows: extraversion-introversion, agreeableness-antagonism,conscientiousness-undisciplined openness-closeness, and emotional stability-neuroticism. Personality traits are systemised from narrow and particular to broad and general traits, and the researcher indicates the existence of five primary traits or factors of personality from McCrae and Costa (1989) that are often referred to as the Five-Factor Model of Personality.

The psychological and behavioural responses to the pandemic can be influenced by several factors, including a person's characteristics and resources (Gori et al., 2021; Di Crosta et al., 2020), as evidenced by previous research that has highlighted the significant influence of personality traits on reactions to stress (Oshio et al., 2018; Bibbey et al., 2013). In this field, the Five-Factor Model of Personality by Costa and McCrae (McCrae & Costa, 1990) is one of the most frequently used, in which five dimensions (extraversion, agreeableness, conscientiousness, neuroticism, and openness) represent a coherent and basically stable set of aspects that influence the affects, thoughts, and behaviours of individuals in their different life experiences. Personality traits, therefore, can shape an individual's responses to life situations by influencing their cognitive assessments, the emotions associated with them, and the strategies used to regulate those affective activations (Afshar et al., 2015; Costa & McCrae, 2006). The personality traits of individuals are evident in individuals having different perspectives, showing different attitudes and different behaviours, accepting a situation or event as a conflict, and deciding the strategy for managing a conflict (Erdenk & Altuntaş, 2017; Turhan et al., 2012).

An individual's personality is the composite of intellectual characteristics that make them distinct from other individuals. If someone wants to understand the behaviour of employees in the organisation, it would be helpful if one knows something about the personality of that individual. Personality is an individual's distinctive psychological and intellectual arrangements or a person's exclusive steady pattern of thinking, feeling, and acting. Personality traits hold specific components in an organisational structure and have dynamic features, which will react differently to changes in the environment (Rani, 2018). The five-factor model of personality trait is the most frequently used term for the model of personality which demonstrates five fundamental factors of personality. According to Ehrhart (2006) and Bozionelos (2004), extraversion encompasses characteristics that include sociability, affiliation, and gregariousness, as well as the extent to which individuals are assertive, dominant, and experience positive affect. Openness to experience is related to technical and imaginative creativity, contradictory philosophy, and political liberalisation. Agreeableness is the optimistic view which makes them believe that all people in society are honest and cooperative. It involves attributes such as selflessness, collaboration, and affection. Conscientiousness is a propensity to demonstrate self-regulation and perform obediently. Conscientious individuals tend to have a sense of duty, be organised, and be efficient. Neuroticism can be defined as the tendency to be concerned, suspicious, anxious, and ineffective. Due to a lack of confidence, people often have a defensive attitude, and feel fearful, and insecure.

2.4 Theory 2: McCrae and Costa's Five-Factor Model of Personality (1987)

The Five-Factor Model of Personality by McCrae and Costa (1987) represents the dominant conceptualization of personality structure in the current literature. This model posits that the five personality factors of Extraversion, Openness to Experience, Agreeableness, Conscientiousness, and Neuroticism reside at the highest level of the personality hierarchy, as well as encompassing the entire domain of more narrow personality traits that fall at lower levels of the hierarchy. The Five-Factor Model of Personality is considered by some to be the most widely accepted model of personality structure (Ekehammar & Akrami, 2003). Therefore, this model is presumed to be a complete framework for organizing personality traits. Each of the five

dimensions represent a broad domain comprising a variety of more discrete traits, or facets.

Individuals differ in the extent to which their personality style is made up of the five personality traits such as Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness. Thus, individuals' personality styles will shape their interactions in their work environment. Those who score high on the Extraversion scale will tend to be sociable and assertive and will prefer to work with other people. Those who score high on Openness to Experience will be prone to open-mindedness, active imagination, preference for variety, and independence of judgment. Individuals who score high on Agreeableness will tend to be tolerant, trusting, accepting, and will value and respect other people's beliefs and conventions more than those who score low on the same trait. Those who score high on Conscientiousness will tend to distinguish themselves by their trustworthiness and their sense of purposefulness and responsibility, as they will tend to be strong-willed, task-focused, and achievement-oriented. Finally, individuals who score high on Neuroticism tend to experience negative feelings such as embarrassment, guilt, pessimism, and low self-esteem.

2.5 Relationship Quality

Relationship quality has consistently been conceptualized as a multi-faceted, second-order construct consisting of trust and at least one more distinct relational construct (Rusdi et al., 2016; Beatson, 2008). For example, Crosby et al. (1990) consider trust and satisfaction together as the primary indicators of relationship quality, while Dwyer et al. (1987) argue that commitment is an appropriate third facet of relationship quality. This study will demonstrate that stress affects both relationship quality, such as how good people subjectively consider their relationship to be, and how employees deal with disagreement together (Lo et al., 2017). Relationship quality is, in turn, intimately related to many aspects of well-being, including psychological and physical health (Pieh et al., 2021).

There is no clear explanation of what relationship quality is. According to Purnasari & Yuliando (2015) and Morgan & Hunt (1994), there is a general agreement that satisfaction, trust, and commitment are key aspects of relationship quality. Employees must possess these aspects of relationship quality to form strong bonds with one another. In addition, the level of concern for conflict management style will show how the employee views their conflict either in a negative or positive situation and, at the same time, maintain their relationship with the other parties.

2.6 Relationship between personality traits and conflict management styles

Big Five personality trait theory introduced a robust method to study personality quantitatively. Organizational research has also realised the importance of individual differences and the effects of personality characteristics. Along with individual differences, another inevitable group process is conflict. It takes two to tangle; that is, when two persons interact, they are likely to experience disagreements and incompatibilities. Personality traits can describe who is more likely to perceive conflict and how that conflict will be managed. Organizational studies, however, are yet to reach a comprehensive understanding of the relationship between personality and conflict, although personality helps critically in determining interpersonal interactions (Barrick, 2005).

The five factors of personality have contributed to a new way of looking at personality (Peabody & Goldberg, 1989; McCrae & Costa, 1987). The five factors of personality are extraversion, agreeableness, conscientiousness, openness, and neuroticism, which measure dispositional categories under which a variety of specific traits are subsumed. Digman (1990) concluded that the five factors of personality are a fundamental model for describing personality. This study intends to determine whether strong relationships exist between dispositional categories and conflict management styles (Antonioni, 2008).

As people grow and develop, they also develop preferences and strategies for dealing with the world around them. Because conflict is an unavoidable part of life, at least one of these strategies must be to manage conflict. Scholars have determined that people typically have a preferred conflict style, and according to Kaimenyi (2014), these conflict style preferences develop because of a complex mix of history and personal traits, which are nurture and nature. Although there have been many models utilised over the years to explain and describe conflict styles, the model that will be utilised in this discussion is the Rahim (1983) model. Many factors, both interpersonal and intrapersonal, are believed to affect how employees will choose to manage conflict. It has even been observed that although employees have preferred styles, they will typically vary their conflict style depending on the context of the conflict. For example, it is not unusual for employees to use one conflict style at home with their family members and another at work with their colleagues. The use of varying conflict styles during a single conflict episode has even been observed. For example, a person may begin a conflict by avoiding, then transition to dominating, and end the conflict with an integrating style. One area that has been of interest to scholars is the role of intrapersonal attributes, one of which is personality, in the choice of preferred conflict style. This discussion will explore the literature concerning personality traits and conflict management styles. Of particular interest in this discussion is the role played by personality traits in the preferred conflict management style (Patel, 2012).

Early studies on the interaction between personality traits and conflict management styles have

produced inconsistent results. However, this does not necessarily mean that conflict management style cannot be predicted by personality traits or that no relationship exists between personality and conflict management style (Antonioni, 1998). A search of multiple databases resulted in four studies investigating the associations between the Five-factor model of personality and conflict management style (Zaso et al., 2021; Ahmed et al., 2010), and four studies investigating the association between personality traits, conflict management style, and other factors (Aliakbari & Amiri, 2016; Barbuto et al., 2010). The four studies that investigated other factors still conducted analyses and produced results concerning the relationship between personality and conflict style.

Thus, the results of these studies are still relevant to this discussion. Antonioni's (1998) study, which was the most comprehensive, advanced a hypothesis concerning how almost every personality attribute would predict each conflict management style. Antonioni argued that in order to successfully utilise a specific conflict management style, one would need to possess certain personal attributes or skills. For example, Antonioni believed that a requirement to use the integrating style was that people be able to work collaboratively to find solutions and solve problems in a manner that is satisfactory to all parties involved. However, those who prefer to avoid conflict may be quiet or timid and tend to prefer to maintain harmony. They may also tend to procrastinate when dealing with conflicts and may not be open to new ideas or compromise. Similarly, those who prefer the obliging style will also wish to maintain harmony, but unlike the avoider, the obligor demonstrates a high level of concern for the other's interests. Conversely, those who prefer a dominating style show a high level of concern for their own interests and low concern for the other's interests; thus, they are more likely to be aggressive, persistent, closed-minded, and strategic. Antonioni stated that compromising, by its very nature as a blend between yielding and problem-solving, is more difficult to predict. However, he further states that some traits, such as flexibility, may play a role in preferring compromise as a conflict management strategy.

2.7 Relationship between personality traits and relationship quality

According to Rainey and Petkari (2019) and Thibaut and Kelley (2017), within every relationship, individuals try to maximize rewards such as happiness, social status, and pleasure, while minimizing costs such as anxiety, negative emotions, and conflict. Hence, in employees' relationships, individuals expect their relationships to benefit them through social support (Shapiro & Martin, 2010), increased technical skills, and individual and team success (Casper et al., 2007). However, due to the competitive nature of these relationships, such interactions may sometimes be negative (Eime et al., 2013). Importantly, such relationships can help individuals manage stress, cultivate skill development, improve social relationships, prolong participation, and enable employees to reach their full mental and potential to enhance performance success (Jowett & Nezlek, 2012; Allen et al., 2011). This perception is derived from three distinct facets of social relationships: social support, depth, and conflict (Uchino, 2006), which have a major influence on employees' health and well-being. Social support is the perception of an interactive, interpersonal connectedness (Sarason & Sarason, 1985), and when received from peer employees, it is connected to increased self-motivation and reduced burnout (DeFreese & Smith, 2013). Relationship depth refers to the extent to which an individual perceives a relationship as important, positive, and secure, thereby enhancing the sense of cohesion in employees' peer relationships (Bosselut et al., 2012). The third facet of relationships, conflict, refers to a struggle between two individuals with opposing values, needs, beliefs, or goals (Vazou et al., 2005). Although this conflict is prominent in employee intra-group relationships, it has been largely unexplored (Carron et al., 2014).

The role and significance of close relationships in people's growth and development have been extensively discussed in social psychology (Harvey, 1987). There is substantial evidence demonstrating the effect that personality traits have on individuals' interpersonal and relational outcomes (S. X. Yang et al., 2015; B. Jackson et al., 2010). Moreover, the links between personality and close relationships have been viewed as a platform from which interpersonal behaviours and interactions occur and unfold (M. L. Cooper & Sheldon, 2002). Subsequently, personality and relationships together seem to form parts of a system that can help generate knowledge and understanding of human behaviour. The significance of considering personality and relationships as part of an integrated system is reflected in its long research tradition. Each of these five factors influences employees' thought processes, behaviours, and social relationships (Allen & Laborde, 2014).

The Five-Factor Model of personality comprises the five personality traits of extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience (McCrae & Costa, 1987). Within relationship research, agreeableness has been associated with individuals whose personality is characterized by cooperation, trust, and understanding. Such individuals are more likely to perceive their relationships as supportive, satisfying, committed, and non-conflictual (Cuperman & Ickes, 2009). Correspondingly, extraversion is a personality trait characterized by sociability and gregariousness; extraverted individuals are more likely to perceive their relationships as positive, responsive, and close (Berry et al., 2000). Conscientious individuals, whose personalities are underlined by being reliable, disciplined, organized, and goal-oriented, have been found to be more satisfied and committed to their relationships (Karney & Bradbury, 1995). In contrast, neurotic individuals tend to experience negative affect; therefore, they are more likely to perceive their

relationships as stressful, conflictual, dissatisfying, and noncommittal, which can lead to potential dissolution in relationships (White et al., 2004). Lastly, openness is a characteristic of individuals who are inclined to experiment and favour creativity, innovation, and imagination. Such personality traits have been found to be associated with relationships that are conversational in nature, accommodating, close, empathic, and satisfying (Berry et al., 2000; McCrae, 1996).

2.8 Relationship between relationship quality and conflict management styles

Resolving conflict properly is an effective way of improving the relationship quality between employees (Xu & Ren, 2010). Conflict management styles are important antecedents of relationship quality among employees. Failure to manage and control conflict between the two sides will lead to a deterioration of relationship quality and further escalation of the conflict. Thus, conflict and relationship quality can form a vicious cycle due to mismanagement of conflict (Jelodar et al., 2015). Bearing this in mind, it is necessary to study the influence of different conflict management styles on relationship quality (Jelodar & Yiu, 2012). According to contingency theory, conflict must be managed effectively to ensure a positive outcome (Jehn & Bendersky, 2003). Existing research shows that the effectiveness of specific conflict management styles changes with different levels of conflict (Xie et al., 1998). This means that the extent of the positive effect of a specific conflict management style on outcome variables will vary with the level of conflict. However, the influence of conflict in organizations is complex and may be positive or negative depending on the type of conflict and the conflict management styles used (Liu & Zhai, 2011). Conflict can be divided into two categories: task conflict and relationship conflict. Task conflict includes task inconsistency and may promote the completion of goals. In contrast, relationship conflict includes emotional or personal problems, which may negatively affect the relationship between the two sides (Li et al., 2015).

This study considers relationship quality between employees, defined as the overall evaluation or perception of the state of the relationship between the two sides (Lu & Wang, 2017). According to Jelodar & Yiu (2012), conflict management styles affect relationship quality between the two sides. This study adopts the two-dimensional model of M. A. Rahim (2017), based on concern for self and concern for others. It includes five styles of conflict management: integrating, obliging, compromising, dominating, and avoiding. Top management must know the effective ways to deal with conflict in different situations. Additionally, different conflict management styles may be appropriate in different contexts. If a style can enhance the effectiveness of individuals, groups, or organizations, it can be viewed as a win-win style (M. A. Rahim, 2017). Research on interpersonal conflict in the construction industry shows that avoiding and dominating styles are negatively related to interpersonal relationships. Obliging is sometimes positively and sometimes negatively related to interpersonal relationships. Only integrating is consistently positively related to interpersonal relationships. Moreover, compromising has no significant effect on interpersonal relationships (Burke, 1970).

The more agreeable the conflict management style, the more effective it is in resolving conflicts and maximizing relationship quality (Dechurch & Marks, 2001). Existing studies indicate that the effectiveness of each conflict management style varies depending on the level of conflict (Xie et al., 1998). Research on interpersonal conflict shows that the most effective conflict management style for interpersonal relationships is the integrating style, which is particularly effective at a high level of conflict. The compromising and avoiding styles negatively affect interpersonal relationships at a low level of conflict but have a positive effect on interpersonal relationships at a high level of conflict (Andrews & Tjosvold, 1983).

Conflict management styles will affect the relationship quality between the two parties involved in the conflict (Jelodar & Yiu, 2012). Integrating considers both others' and the self's concerns. The first step in achieving integration is to face the real problem, expose the conflict, and make everything open (Kramer & Gray, 1990). Integrating is a win-win conflict management style, which some scholars consider the most appropriate and effective style because it focuses on reducing pressure for both sides, consolidating commitment between the two parties, and improving employees' job performance and satisfaction, which benefits relationship quality. The obliging style represents high concern for others and low concern for the self, emphasizing meeting the needs of the other party at the expense of one's own needs (Rahim, 2017). This implies self-sacrifice, making concessions to others, and being loyal to others (Thammavijitdej & Horayangkura, 2016), which can also benefit relationship quality. The compromising style means giving up less than the obliging style, but it does not achieve a win-win situation (M. A. Rahim, 2017). It represents a compromise between the two parties, where both will lose some of their interests (Sunindijo & Hadikusumo, 2014). The level of agreeableness in the compromising style is just above that of the dominating style among the five conflict management styles (Dechurch & Marks, 2001). Additionally, the compromising style is associated with both functional and dysfunctional outcomes; thus, while it may not lead to further differences, it may be difficult to reduce the level of conflict (Cheung et al., 2006).

Therefore, although compromising can enable the parties to reach a middle ground, both sides will need to take a step back and sacrifice some of their own interests. Thus, compromising may not be the optimal style for resolving conflict (Shih & Susanto, 2010). The interests that the parties sacrifice may give rise to some dissatisfaction, thereby harming relationship quality. Dominating and avoiding are styles characterized by lower concern for others.

Dominating entails one party imposing its own views on the other, leading to a win-lose situation where one party wins at the expense of the other. Avoiding is also a rather negative response to conflict, ignoring the considerations of all parties (Prieto-Remón et al., 2015). The use of the avoiding style will not resolve conflict in the early stages, which is harmful to relationship quality (Xie et al., 1998). Therefore, neither of these two styles can improve relationship quality.

Based on the review of previous literature, the conceptual framework has been developed, as shown in Figure 2. Figure 2 illustrates the mediated relationship between personality traits and conflict management styles through relationship quality. The researcher adopted and adapted the framework from Ayub et al. (2017), Lu & Wang (2017), and Holland & Roisman (2008) based on the relationships among the variables. There are three types of variables that have been applied in this study: independent variable, mediating variable, and dependent variable. The researcher chose five styles of conflict management that can be related to five types of personality traits and relationship quality. The framework of this study presents the relationships between personality traits, relationship quality, and conflict management styles.

The study investigates the interaction between personality traits and conflict management styles through relationship quality.

2.9 Conceptual Framework

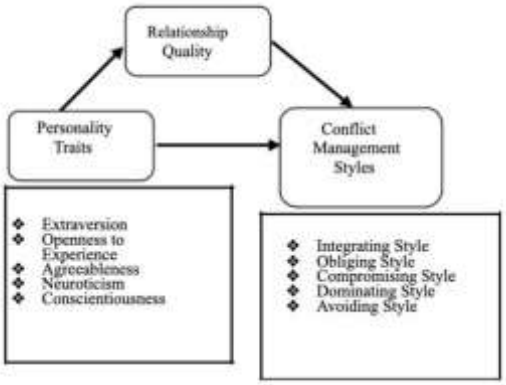

Figure 2 The conceptual framework of the mediated relationship between personality traits

2.10 Hypotheses

Based on the various studies on the relationship between the five-factor model of personality traits, relationship quality, and conflict management styles available in the literature, the following hypotheses will be formulated for the research.

H1: There is a significant relationship between the five-factor model of personality traits and conflict management styles.

H1a: The five-factor model of personality traits has a significant and positive relationship with the integrating style.

H1a1: Extraversion has a significant and positive relationship with the integrating style.
H1a2: Openness to experience has a significant and positive relationship with the integrating style.
H1a3: Agreeableness has a significant and positive relationship with the integrating style.
H1a4: Conscientiousness has a significant and positive relationship with the integrating style.
H1a5: Neuroticism has a significant and positive relationship with the integrating style.

H1b: The five-factor model of personality traits has a significant and positive relationship with the obliging style.

H1b1: Extraversion has a significant and positive relationship with the obliging style.
H1b2: Openness to experience has a significant and positive relationship with the obliging style.
H1b3: Agreeableness has a significant and positive relationship with the obliging style.
H1b4: Conscientiousness has a significant and positive relationship with the obliging style.
H1b5: Neuroticism has a significant and positive relationship with the obliging style.

H1c: The Five-factor model of personality traits has a significant and positive relationship with the dominating style.

H1c1: Extraversion has a significant and positive relationship with the dominating style.
H1c2: Openness to experience has a significant and positive relationship with the dominating style.
H1c3: Agreeableness has a significant and positive relationship with the dominating style.
H1c4: Conscientiousness has a significant and positive relationship with the dominating style.
H1c5: Neuroticism has a significant and positive relationship with the dominating style.

H1d: The five-factor model of personality traits has a significant and positive relationship with the avoiding style.

H1d1: Extraversion has a significant and positive relationship with the avoiding style.
H1d2: Openness to experience has a significant and positive relationship with the avoiding style.
H1d3: Agreeableness has a significant and positive relationship with the avoiding style.
H1d4: Conscientiousness has a significant and positive relationship with the avoiding style.
H1d5: Neuroticism has a significant and positive relationship with the avoiding style.

H1e: The five-factor model of personality traits has a significant and positive relationship with the compromising style.

H1e1: Extraversion has a significant and positive relationship with the compromising style.
H1e2: Openness to experience has a significant and positive relationship with the compromising style.

H1e3: Agreeableness has a significant and positive relationship with the compromising style.
H1e4: Conscientiousness has a significant and positive relationship with the compromising style.
H1e5: Neuroticism has a significant and positive relationship with the compromising style.

H2: There is a significant relationship between the five-factor model of personality traits and relationship quality.

H2a: Extraversion has a significant and positive relationship with relationship quality.
H2b: Openness to experience has a significant and positive relationship with relationship quality.
H2c: Agreeableness has a significant and positive relationship with relationship quality.
H2d: Conscientiousness has a significant and positive relationship with relationship quality.
H2e: Neuroticism has a significant and positive relationship with relationship quality.

H3: There is a significant relationship between relationship quality and conflict management.

H3a: There is a significant relationship of relationship quality with the integrating style.
H3b: There is a significant relationship of relationship quality with the obliging style.
H3c: There is a significant relationship of relationship quality with the dominating style.
H3d: There is a significant relationship of relationship quality with the avoiding style.
H3e: There is a significant relationship between relationship quality with the compromising style.

H4: Relationship quality will mediate the relationship between the five-factor model of personality traits and conflict management style.

H4a: Relationship quality has a mediating effect on agreeableness and conflict management styles.
H4b: Relationship quality has a mediating effect on conscientiousness and conflict management styles.
H4c: Relationship quality has a mediating effect on extraversion and conflict management styles.
H4d: Relationship quality has a mediating effect on neuroticism and conflict management styles.
H4e: Relationship quality has a mediating effect on openness to experience and conflict management styles

3. MATERIALS AND METHODS

The sampling frame of this study will involve selected employees from the departments and units at the State Secretariat of Pahang State Government. The list of employees' names was obtained from all departments and units, totaling over 472 employees. The respondents will be selected based on the number of employees in each department and unit. A total of 214 employees will be selected randomly as respondents. The Partial Least Squares Structural Equation Modeling (PLS-SEM) will be used to analyze the data obtained from the questionnaire. According to Hair et al. (2013), PLS-SEM is a method of Structural Equation Modeling (SEM) that allows for estimating complex cause-effect relationship models with latent variables. The researcher will use PLS-SEM to estimate complex models with many constructs, indicator variables, and structural paths without imposing distributional assumptions on the data. This method helps determine how well the model explains the target constructs of interest. The type of measurement model in Structural Equation Modeling (SEM) used in this study is a reflective measurement scale.

4. DATA ANALYSIS AND FINDINGS

The responses from the respondents were entered into the software, and statistical analyses such as descriptive statistics and frequencies were measured. Furthermore, this process allows the researcher to identify any potential missing data and errors in the responses. Any missing values in the responses were removed from the data entry. PLS-SEM specifically assesses the effectiveness of the measurement model to ensure both the reliability and validity of the constructs. After the assessment of the measurement model is completed, the analysis continues with the evaluation of the structural model. The measurement model involves the assessment of the indicators, reliability, and validity. The indicators examined include the reflective measurements, as well as their reliability and validity. The structural model analyzes the results of the relationships among the latent variables or constructs. This analysis includes the coefficient of determination (R^2), path coefficients, predictive relevance (Q^2), and direct and indirect effects (mediating effects). The structural model in PLS-SEM represents the relationships among constructs.

4.1 Assessment of Measurement Model

The assessment of the measurement model focuses on measuring the relationships between indicators and latent variables using Smart PLS 3.9. Smart PLS 3.9 is utilized to assess both the measurement and structural models (Ringle et al., 2018). This statistical software evaluates the psychometric properties of the measurement model and estimates the parameters of the structural model. The purpose of the measurement model is to determine the quality of the model, ensuring it fits well with the data. Four main criteria need to be met in the reflective measurement model: internal consistency, indicator reliability, convergent validity, and discriminant validity. The following sections present the results of all analyses to evaluate the validity and reliability of the measurement model.

Concerns the ability of the variables to provide consistent measurements, while validity measures the extent to which the variables are measuring what they are supposed to measure (Tavakol & Dennick, 2011). Therefore, due to the limitations of Cronbach's alpha, this study uses

composite reliability (CR) as an alternative measure of internal consistency, as it considers the loadings of all items (David et al., 2000). A value of 0.7 is deemed acceptable; however, CR values should ideally be 0.8 or higher to indicate good internal consistency (Sarstedt et al., 2011). Table 1 shows that the CR values of each construct for this study range from 0.759 to 0.904. The CR values for all the items are: CSM (0.904), PTA (0.807), PTC (0.864), PTE (0.759), PTN (0.859), PTO (0.851), and RQ (0.949). These results indicate that the items used to represent the constructs demonstrate satisfactory internal consistency reliability.

4.1.2 Indicator Reliability

The indicator reliability of the measurement model is assessed by examining the item loadings. A measurement model is considered to have satisfactory indicator reliability when each item's loading estimate is between 0.5 and 0.7 (Hair et al., 2010). Based on the analysis, all items in the measurement model exhibited loadings exceeding 0.5, ranging from a lower bound of 0.503 to an upper bound of 0.823. Table 1 shows that all loadings for the respective items are greater than 0.5, indicating acceptable values. Thus, this indicates that all loadings are consistent in measuring what they intend to measure and are valid for use in the measurement study.

Table 1
Construct Reliability Analysis (Cronbach Alpha and Composite Reliability)

	Cronbach's Alpha	Composite Reliability (CR)
CMS	0.878	0.904
PTA	0.711	0.807
PTC	0.812	0.864
PTE	0.553	0.759
PTN	0.814	0.859
PTO	0.781	0.851
RQ	0.928	0.949

4.1.1 Internal Consistency

4.1.3 Convergent Validity

Hair et al. (2010) suggested several methods to estimate convergent validity among item measures, including factor loadings, average variance extracted (AVE), and composite reliability (CR). The loadings for all items should exceed the recommended value of 0.50 or higher (Hair et al., 2017). The average variance extracted (AVE), which reflects the mean variance extracted for the items loading on a construct, was above the recommended value of 0.50 (Hair et al., 2010), indicating that more than half of the variances observed in the items were accounted for by their hypothesized factors (Liao et al., 2014). Statistically, using PLS-SEM, construct validity is established when both convergent and discriminant validity are satisfied. The AVE for this study ranged from 0.503 to 0.823. Composite reliability, which indicates the degree to which the latent variables can be explained by the observed variables (Wong, 2013), ranged from 0.759 to 0.949, exceeding the cut-off value of 0.6 (Bagozzi & Yi, 1988).

Thus, this study confirms the existence of convergent validity. Table 2 summarizes the results of the measurement model, showing that all constructs are valid measures of their respective constructs. The AVE results for CSM (0.503), PTA (0.520), PTC (0.515), PTE (0.517), PTN (0.505), PTO (0.538), and RQ (0.823) indicate that all items have an AVE score of more than 0.5, confirming that convergent validity is achieved.

Table 2
Internal Consistency, Indicator Reliability and Convergent Validity

Construct	Item	Loading	Average Variance Extracted (AVE)	Composite Reliability (CR)
CMS	CMSA5	0.331	0.503	0.904
	CMSC3	0.573		
	CMSD4	0.460		
	CMSI2	0.800		
	CMSI3	0.822		
	CMSI4	0.859		
	CMSI5	0.765		
	CMSI6	0.862		
	CMSI7	0.858		
	CMSO1	0.514		
PTA	PTA10	0.736	0.520	0.807
	PTA2	0.490		
	PTA3	0.768		
	PTA4	0.842		
PTC	PTC1	0.703	0.515	0.864
	PTC2	0.658		
	PTC4	0.631		
	PTC7	0.759		
	PTC8	0.817		
	PTC9	0.724		
PTE	PTE6	0.746	0.517	0.759
	PTE7	0.588		
	PTE8	0.805		
PTN	PTN1	0.703	0.505	0.859
	PTN3	0.763		
	PTN5	0.798		
	PTN6	0.674		
	PTN7	0.645		
	PTN8	0.668		
PTO	PTO	0.801	0.538	0.851
	PTO	0.573		
	PTO	0.650		
	PTO	0.825		
	PTO	0.787		
RQ	RQP1	0.899	0.823	0.949
	RQP2	0.896		
	RQP3	0.925		
	RQP4	0.908		

4.1.4 Discriminant Validity

The discriminant validity test was conducted after the convergent validity test. This verification was administrated to evaluate whether a specific variable interpreted a certain measurement.

Henseler et al. (2015) proposed a Heterotrait-Monotrait ratio (HTMT) correlation which is something more prevailing. The HTMT is defined as the mean value of item correlations across constructs relative to the mean (geometric) correlations for items measuring the same construct. The discriminant validity problem is present when the HTMT value is high. In such a setting, HTMT value above 0.90 would indicate that discriminant validity does not exist.

By referring to table 4.8, it has shown the highest validity.

Table 3
Heterotrait-Monotrait Ratio Correlation Result (HTMT)

	CMS	PTA	PTC	PTE	PTN	
Conflict Management Styles						
Personality Traits Agreeableness	0.475					
Personality Traits Conscientiousness	0.600	0.463				
Personality Traits Extraversion	0.219	0.296	0.422			
Personality Traits Neuroticism	0.191	0.148	0.180	0.193		
Personality Traits Openness to Experience	0.446	0.792	0.489	0.341	0.205	
Relationship Quality	0.453	0.401	0.490	0.314	0.265	

The value of HTMT is 0.475. Based on table 3 shows that the HTMT values for all items are less than 0.90 which suggests that discriminant validity has been established. Assessment of Collinearity In PLS, the assessment of collinearity can be confirmed through the Variance Inflation Factor (VIF). VIF is a tool to measure how much variance is being inflated (Daoud, 2018). If the value of VIF is found to be less than 5, the multicollinearity issues are not a problem (Hair et al., 2012). Based on Table 4, the Inner VIF values for all independent variables are less than 5, which indicates that multicollinearity is not an issue for this study. Thus, path coefficient assessment can proceed.

4.2 Assessment of Structural Model

Once the construct has been confirmed to be reliable and proceed. Hair et al. (2012) have suggested that the bootstrapping method of re-sampling techniques must be carried out before an experience was conducted to check the result of the hypothesis throughout the research and determination of its significance structural model or hypotheses testing will be shown in the following section. There are five steps to evaluate the structural model in PLS-SEM which are assessment significance and relevance of the structural model, assessment of coefficient of determination known as R2, and assessment of effect size known as (f2).

Table 4
Literal Collinearity Assessment Result

Construct	RQ (Inner VIF)
PT Agreeableness	1.598
PT Conscientiousness	1.365
PT Extraversion	1.114
PT Neuroticism	1.070
PT Openness to Experience	1.637

4.2.2 Assessment of Coefficient of Determination (R2)

R-square statistics explain the variance in the endogenous variable that is accounted for by the exogenous variables. In simpler terms, it reflects how much change in the dependent variable can be attributed to one or more independent variables. Based on Table 5, the R-square value for this study is 0.176, indicating that a total of 17.6% of the variance in the dependent variable (Conflict Management Styles) is explained. Additionally, the R-square value of 0.329 indicates that a total of 32.9% of the variance in the mediating variable (Relationship Quality) is explained. Falk & Miller (1992) recommended that R^2 should be equal to or greater than 0.10 for the variance explained of a particular endogenous construct to be considered adequate. Cohen (1998) suggested R^2 values for endogenous latent variables as follows: 0.26 (substantial), 0.13 (moderate), and 0.02 (weak).

Table 5
Coefficient of Determination (R^2) Result

	R Square	R Square Adjusted
CMS	0.176	0.173
RQ	0.329	0.313

4.2.3 Assessment of Effect Size (f2)

The difference in the R^2 value was further utilized for calculating the effect size (f^2), which indicates the impact of an exogenous latent variable on an endogenous variable. Effect size is assessed to determine the strength of the relationship between the independent and dependent variables. Cohen (1992) suggested that an effect size value of 0.02 is considered small, 0.15 as medium, and 0.35 as large. The effect size (f^2) for this study is 0.3442, which can be concluded as medium according to Cohen (1992).

4.3 Hypothesis testing

Table 6 and Table 7 present the results of the hypotheses for direct and indirect relationships. The results show that H1a, H1b, H1c, H1d, and H1e demonstrate a strong relationship between personality traits and conflict management styles in the hypothesised direction (β=0.030, $p<0.028$; β=0.034, $p<0.004$; β=0.027, $p<0.022$; β=0.028, $p<0.000$;

β=0.034, p<0.039). Meanwhile, H2a, H2b, H2c, H2d, and H2e also have a strong relationship between relationship quality and conflict management styles in the hypothesis direction (β=0.066, p<0.015; β=0.066, p<0.000; β=0.058, p<0.012; β=0.049, p<0.000; β=0.074, p<0.024). H3 has a significant relationship between relationship quality and conflict management styles and in the hypothesized direction (β=0.059, p<0.000). Therefore, hypotheses H1, H2, and H3 are supported.

Table 6
Hypothesis Result Hypothesis 1

H	Relationship	Path Coefficient	t-value	p-value	Decision
H_{1a}	PTA -> CMS	0.030	2.200	0.028	Supported
H_{1b}	PTC -> CMS	0.034	2.866	0.004	Supported
H_{1c}	PTE -> CMS	0.027	2.292	0.022	Supported
H_{1d}	PTN -> CMS	0.028	4.114	0.000	Supported
H_{1e}	PTO -> CMS	0.034	2.066	0.039	Supported

Table 7
Hypothesis Result Hypothesis 2 and Hypothesis 3

H	Relationship	Path Coefficient	t-value	p-value	Decision
H_{2a}	PTA -> RQ	0.066	2.422	0.015	Supported
H_{2b}	PTC -> RQ	0.066	3.492	0.000	Supported
H_{2c}	PTE -> RQ	0.058	2.505	0.012	Supported
H_{2d}	PTN -> RQ	0.049	5.497	0.000	Supported
H_{2e}	PTO -> RQ	0.074	2.262	0.024	Supported
H_3	RQ -> CMS	0.059	7.136	0.000	Supported

4.4 Mediation Analysis

Mediation analysis was conducted to evaluate the mediating role of Relationship Quality (RQ) in the connection between Personality Traits (PT) and Conflict Management Styles (CMS).This section discusses the mediation analysis used to test hypotheses H1, H2, H3, H4, and H5. Preacher and Hayes (2008) define mediation analysis as a method for hypothesizing how or through what means the predictor (X) influences the outcome (Y) via a mediator (M). In this context, the study aimed to determine whether relationship quality mediates the relationship between personality traits and conflict management styles. Following recommendations from previous research suggesting the use of the bootstrapping method to assess mediation effects (Preacher & Hayes, 2004), this study employed the bootstrapping analysis method outlined by Preacher and Hayes (2008). The five mediation hypotheses are formulated as follows:

H4a: Relationship quality has a mediating effect on agreeableness and conflict management styles. H4b: Relationship quality has a mediating effect on conscientiousness and conflict management styles.

H4c: Relationship quality has a mediating effect on extraversion and conflict management styles. H4d: Relationship quality has a mediating effect on neuroticism and conflict management styles.

H4e: Relationship quality has a mediating effect on openness to experience and conflict management styles.

4.4.1 Result from the Bootstrapping Analysis

Since the predictor comprises two variables, which are personality traits and conflict management styles, the bootstrapping analysis is done separately for each predictor. The data is analysed on mediation by implementing the Preacher & Hayes (2008) script in Smart PLS version 3.0. The results and interpretation of the bootstrapping analysis are provided as follows:

Table 8

The results and interpretation of bootstrapping analysis

	PT>RQ	RQ>CMS	PT>CMS	H
H_{4a}	β=0.159, t=2.422, p < 0.01	β=0.420, t=7.136, p < 0.000	β=0.067, t=2.200, p < 0.01	β= 0.003, CI= 0.010 to 0.130
H_{4b}	β=0.232, t=3.492, p < 0.000	β=0.420, t=7.136, p < 0.000	β=0.067, t=2.866, p < 0.01	β= 0.000, CI= 0.039 to 0.172
H_{4c}	β=0.146, t=2.505, p < 0.01	β=0.420, t=7.136, p < 0.000	β=0.061, t=2.292, p < 0.01	β= 0.003, CI= 0.007 to 0.113
H_{4d}	β=-0.271, t=5.497, p < 0.000	β=0.420, t=7.136, p < 0.000	β=-0.114, t=4.114, p < 0.000	β= -0.007, CI= -0.0164 to -0.061
H_{4e}	β=0.168, t=2.262, p < 0.01	β=0.420, t=7.136, p < 0.000	β=0.070, t=2.066, p < 0.01	β= 0.005, CI= 0.005 to 0.139

4.4.2 Result of the Hypothesis (Hypothesis 4)

The purpose of this research is to determine how variables in the extended Theory of the Five-factor of Personality Traits and the mediating relationship quality can be tested as a predictor of the conflict management style. Table 18 summarizes the result of the hypothesized relationship in this study.
Accordingly, hypotheses H4a, H4b, H4c, H4d, and H4e were supported in this study with the presence of the mediator showing that personality traits were significantly related to Conflict Management Style.

Table 9
Summary of hypothesized relationship

H	Hypotheses	Result	Decision
H_{4a}	Relationship quality has a mediating effect on agreeableness and conflict management styles.	Positively Significant	Supported
H_{4b}	Relationship quality has a on conscientiousness and conflict management styles.	Positively Significant	Supported
H_{4c}	Relationship quality has a mediating effect on extraversion and conflict management styles.	Positively Significant	Supported
H_{4d}	Relationship quality has a mediating effect on neuroticism and conflict management styles.	Positively Significant	Supported
H_{4e}	Relationship quality has a mediating effect on openness to experience and conflict management styles.	Positively Significant	Supported

5. DISCUSSION

The underlying theory used to explain the theoretical framework and research hypotheses was derived from two different resources. Firstly, the Five-factor of personality traits by McCrae and Costa. The second is the theory from the Rahim Model of conflict management style. This section summarized the research objectives and research questions, as well as provided justification based on the findings, as follows:

Research Objective 1: To identify the relationship between the five-factor model of personality traits and conflict management styles.

Which type of the five-factor personality traits have a relationship with conflict management styles?

This research has examined the relationship between five-factor of personality traits and conflict management styles. The result from the total effect showed that the relationship between five-factor of personality traits and conflict management styles: Agreeableness (β=0.030, t=2.200, p<0.028), conscientiousness (β=0.034, t=2.866, p<0.040), extraversion (β=0.027, t=2.292, p<0.022), neuroticism (β=0.028, t=4.114, p<0.000), and openness to experience (β=0.034, t=2.066, p<0.039) respectively, describes that there is a significant relationship between variables.

Research Objective 2: To examine the relationship between the five-factor model of personality traits and relationship quality.

Is there any relationship between personality traits and relationship quality?

In this research, the relationship between the five-factor model of personality traits and relationship quality is determined to be tested. The result shows that the relationship between the five-factor model of personality traits and relationship quality are Agreeableness (β=0.066, t=2.422, p<0.015), conscientiousness (β=0.066, t=3.492, p<0.000), extraversion (β=0.058, t=2.505, p<0.012), neuroticism (β= 0.049, t=5.497, p<0.000), and openness to experience (β= 0.074, t=2.262, p<0.024). All five factors in the model of personality traits show a significant relationship with relationship quality in this study. The findings expected that personality traits would predict changes in subsequent relationship quality (Malouff et al., 2010). It has been hypothesized that lower neuroticism and higher extraversion, agreeableness, openness to experience, and conscientiousness would predict decreases in conflict and positive changes in relationship quality.

Research Objective 3: To measure the relationship between relationship quality and conflict management styles.

Is there any relationship between relationship quality and conflict management styles?

The relationship between the mediator and the outcome was revealed to have a positive significance with conflict management styles in this study. Based on a two-tailed analysis, results for the relationship quality to conflict management styles are shown (β= 0.420, t = 7.136, p < 0.000). The correlation analysis was used to determine the strength of the relationship between the two variables based on Cronbach's alpha results: conflict management styles, r = 0.878, and relationship quality, r = 0.928. It indicates that there is a very strong positive relationship between relationship quality and conflict management styles. This result supports previous studies that investigated the same variables (Ataee, 2020). Based on the result of the R-square value for this study, 0.176 indicates that a total of 17.6% of the variance in the dependent variable can be explained by Conflict Management Styles, and 0.329 indicates that a total of 32.9% of the variance in the mediating variable is explained by Relationship Quality. The result of R^2 should be equal to or greater than 0.10 for the variance to be explained by a particular endogenous construct to be deemed adequate for this study.

Research Objective 4: To investigate the mediating effect of relationship quality on five-factor model of personality traits and conflict management styles.

Does relationship quality mediate the relationship between personality traits and conflict management styles?

The bootstrapping method of mediation analysis by Preacher & Hayes (2008) was employed to test the mediating effect of relationship quality in determining the relationship between the five factors of personality and conflict management styles. H1, H2, H3, H4, and H5 predicted the mediating role of relationship quality, which is explained by path c' (c'=c+ab). The result from the analysis confirms the mediating role of relationship quality, which includes positive and negative relationships in the relationship between the five factors of personality traits and conflict management styles. Results from the analysis discovered that path a, path b, and path c for the five factors of personality traits and conflict management styles showed a positive significant relationship. Hence, the bootstrapping bias-corrected confidence interval estimates were thoroughly observed.

Since zero falls outside the interval with agreeableness (β= 0.003, CI= 0.010 to 0.130), conscientiousness (β= 0.000, CI= 0.039 to 0.172), extraversion (β= 0.003, CI= 0.007 to 0.113), neuroticism (β= -0.007, CI= -0.0164 to -0.061), openness to experience (β= 0.005, CI= 0.005 to 0.139), and conflict management styles, the mediating roles of relationship quality in the relationship between the five factors of personality traits and conflict management styles can be assumed (Preacher & Hayes). Moreover, the direct effect – path c' also shows a significant result for agreeableness (β=0.067, t=2.200, $p < 0.01$), conscientiousness (β=0.097, t=2.866, $p < 0.01$), extraversion (β=0.067, t=2.292, $p < 0.01$), neuroticism (β=-0.114, t=4.114, $p < 0.000$), and openness to experience (β=0.070, t=2.066, $p < 0.01$), which suggests that relationship quality has partially mediated the relationship between the five factors of personality traits and conflict management styles (Preacher & Hayes, 2008).

The findings of the mediation analysis performed in this study are supported by previous studies (Karen Jehn et al., 2017), indicating that relationship quality has a mediating effect on the relationship between personality traits and conflict management styles. Pertaining to the results from the mediation analysis, and the supporting literature from the previous studies, it is concluded that H4a, H4b, H4c, H4d, and H4e are supported in this study.

6. CONCLUSION

The current research used conflict management latent change scores to investigate the relationship between changes in relationship quality and personality traits among employees at the Secretary of Pahang State Government during the pandemic. The findings indicated changes in neuroticism, agreeableness, and extraversion. These results illustrate that personality in an emerging employee's life is not fixed. This research's findings suggest that life transitions, such as pandemic transitions, present internal conditions associated with personality development. The findings revealed that not all personality traits were related to all relationship quality and conflict management styles. This is consistent not only with previous research in this area but also with personality traits and conflict management style theory.

Furthermore, the research has shown that maturity may have an impact on the five-factor model of personality among employees during the pandemic at the Secretary of Pahang State Government. As people age, they tend to become less extroverted, less neurotic, and less open to experience. Men and women have different biological roles. Gender differences in personality traits are often characterised in terms of which gender has higher scores on those traits. In this research, agreeableness comprises traits relating to altruism, such as empathy and kindness. This means that women, on average, are more nurturing, tender-minded, and altruistic more often and to a greater extent than men. However, such a finding does not preclude the fact that men may also experience nurturing, tender-minded, and altruistic states, and that some men may even score higher in these traits than some women. Therefore, from the researcher's perspective, these differences will impact how employees manage their personality traits and the quality of their relationships.

The research has important theoretical, managerial, and methodological implications for future researchers, educators, and policymakers. It also discusses the study's limitations and makes recommendations for future research. Meanwhile, the study's findings point to relationship quality as a mediating variable in the relationship between personality traits and conflict management styles among employees at the Pahang State Government's Secretary during the pandemic. Due to the immense pressures of the COVID-19 outbreak on the Secretary of Pahang State Government, issues such as employee behaviour and relationships are frequently overlooked. Working remotely during the pandemic causes management to miss warning signs of interpersonal conflict or to avoid it entirely.

When conflict is managed proactively and effectively, organisations can adapt and manage it in a way that improves employee well-being and engagement during the pandemic while maintaining the quality of their relationships.

As with all empirical research, this study is not without limitations, as it did not completely cover every aspect that has ever been discussed about conflict management styles, personality traits, and relationship quality. The findings of this research provided some unique insights into how conflicts are managed in organisations and the buffering effect that personality traits have in promoting good relationship quality in the workplace.

Another limitation is the cross-sectional survey design employed to measure the impact of conflict management on employee behaviour and relationships in the workplace during the pandemic. The situation revealed in the research may be different on another occasion. Therefore, future studies could turn this research into a continuous tracking (longitudinal)

study to better understand the changes in how conflict management styles influence personality traits and relationship quality among employees over time.

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MITIGATING EFFECT OF AFFECTIVE TRUST ON THE WORKPLACE FUN AND WORK ENGAGEMENT RELATIONSHIP: EVIDENCE FROM THE TOURISM AND HOSPITALITY SECTOR

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ABSTRACT

In an environment driven by constant change and pressure for sustainability, modern HRM must plan and execute novel, positive methods for a constructive work environment. In this pursuit, the present study was driven by two aims: one, to test direct effect of workplace fun on work engagement; two, to test possible mitigating effect of affective trust on the relationship between workplace fun and work engagement. Using co-relational study design and employing survey methods, we collected data from 235 hospitality and tourism sector employees. Regression analyses confirmed the two hypotheses, suggesting a direct affect of workplace fun on work engagement and confirming mitigating effect of affective trust on this relationship. We suggest that HRM design and implement policies that integrate fun and recreation activities at work, and boost affective trust at workplace for safe, healthy and productive work environments.

Keywords*: affective trust, hospitality, Pakistan, psychological capital, tourism, work engagement, workplace fun*

1. INTRODUCTION

Modern employees must distinguish between a pleasant and an unpleasant workplace (Georganta & Montgomey, 2019). Workplace fun, a relatively old concept, (Deal & Kennedy, 1982; Peter & Waterman, 1982) helps employees differentiate between the two types of workplaces through recreation, play, interpersonal and social activities that offer amusement and leisure and release work stress (Lamm & Meeks, 2009). As modern firms experience intense pressures and rivalry, workplace fun has become increasingly important (Schneider & Bowen, 2010; Tsaur, Hsu & Lin, 2019). Worldwide research conducted on workplace fun points to its implication for firm survival, (Karl, Peluchette & Harland, 2007) work performance, (Tews, Michel & Stafford, 2013) and shared achievements (Pahl & Barrett, 2007). Specifically with reference to developing nations as Pakistan, research focusing on workplace fun and its correlates gain importance because various demands have placed strain on the Pakistani workforce (Tsaur, Hsu, & Linet al., 2019) as research on this topic is scant.

A good number of studies point to a desirable impact of workplace fun on important effects that include work satisfaction, (Karl, Peluchette, & Harland, 2007) work exhaustion, (Kuruuzum, Anafarta & Irmak, 2008) work performance, (Zani, Merican, Saad & Safin, 2017) intentions to quit, (Tews, Michael, Michel & Allen, 2014). Multiple studies have suggested additional empirical research on workplace fun to augment current knowledge of how workplace fun relates to other organizational variables (McManus & Furnham 2010; Tews et al., 2013; Georganta & Montgomery, 2018). Alongside, favourable impact of employee engagement on desirable work outcomes is well documented in earlier research. For instance, according to Demerouti, Cropanzano, Bakker and Leiter, (2010) engaged employees have higher performance, while according to Hakanen, Bakker and Schaufeli, (2006) work engagement reduces emotional exhaustion at work. The importance of work engagement for business leadership has been outlined by Choi, Tran and Park's (2015) study.

Although these studies highlight the importance of workplace fun and work engagement for important work-related effects, inter-relationships between these variables are under-examined. Exploring possible moderstion and mediation effects in the workplace fun – work engagement relationships are necessary to fathom intricacies for better planning and executing management interventions at the workplace for sustained work performance and growth. In specific, there is dearth of studies, specifically within Pakistan, that have investigated how workplace fun and employee

engagement are related and variables that are possible moderators and mediators of this relationship. We believe that this is an important research gap that needs to be bridged, according to scholarly suggestions. Chan (2019) suggested that affective trust should be examined as a moderator of the relationship between workplace fun and work engagement, while its mediating impact has been confirmed (Sharma & Yadav, 2018). No study could be located that has examined the mitigating effect of affective trust on the said relationship. To bridge this notable research gap, the present study is guided by three aims: one, to examine the relationship between workplace fun and work engagement; two, to test a possible moderating role of affective trust on this relationship; three, to investigate a possible mediating role of psychological capital in the said relationship.

1.1 An overview of Pakistan's Hospitality Sector

Continuous, fierce global competition within the service industry firms pushes such organizations to surpass customer expectations to sustain competitive advantage (Schneider & Bowen, 2010). Specifically within developing economies, factors such as low compensation, job insecurity, and unpredictable economic changes (Cuyper, Piccoli, Fontinha, & DeWitte, 2018) plausibly threaten work engagement; hence, organizational efforts at creating engagement during work tasks is necessary. Towards this end, notable service sector organizations, such as Google, Marriott and Southwest Airlines have strategically integrated workplace fun in their environment in order to support their service quality through creating a constructive work culture for their employees (Fluegge-Woolf, 2014). These firms indicate the significance of integrating workplace fun in the work environment for service sector firms for

sustained competitive advantage and success. According to the Travel and Tourism Competitiveness Index 2017, the Pakistani tourism and hospitality industry ranks 124 out of 136 countries, which is clearly below average. While tourism and hospitality is a growing global industry, Pakistan's low rank on TTCI clearly indicates much investigation into factors that promise to uplift this important industry (Arshad, Iqbal & Shahbaz, 2018). According to Chan, (2010) an appealing, cheerful work environment would attract and retain good work talent that is important for firm success. Specifically for hospitality sector firms, forefront workers must be practical and cautious for effective customer interaction, (Li, Sanders & Frenkel, 2012; Tsaur, Hsu, & Lin., 2019) which suggests inculcation of workplace fun at workplace to attract and preserve good work talent through boosting fun at work.

Given the importance of workplace fun for organizational outcomes, as discussed earlier, we an aim to uplift this globally important sector. In view of this, the present study examines direct effect of workplace fun on work engagement, a possible mitigating role of affective trust on this relationship, and also explores psychological capital as mediator of the said relationship within the Pakistani tourism and hospitality sector. For sustained growth and survival amid a developing yet competitive economy, tourism and hospitality sector firms may design and build effective interventions in their workplace. Thus, this study paves the path for uplifting growth within the promising Pakistani tourism industry.

2. LITERATURE REVIEW

2.1 Workplace Fun

According to Lamm and Meek, (2009, p.614) fun at work includes the "…interesting, sociable, interpersonal, and recreational tasks and activities that create an interesting working environment". Composed of facets of enjoyable activities, peer socialization, and supervisor's encouragement for pleasurable activities, (Tews, Michel & Noe, 2017) fun work activities concern individual; or team-based socialization opportunities that the organizations creates for its employees (Karl, Peluchette, Hall-Indiana & Harland, 2005). Fun at work involves coworker's socialization that entails constructive co-worker interaction (Chiaburu & Harrison, 2008). Manager's support for fun essentially concerns the degree to which the management promotes fun and relaxation activities at work (Tews et al., 2014). Fun activities, such as planned parties, gaming events and outings, as well as unplanned, spontaneous acts such as jokes and humor with fellow workers foster a motivational reaction among employees (Nazir, Abdullah, Nasir, Shafie, Omar & Halim, 2019).

2.2 Work Engagement

Characterized by vigor, dedication, and absorption, Schaufeli et al. (2002, p.74) defined work engagement as "a positive, fulfilling, work-related state of mind." A positive, motivational construct conceived by Kahn (1990), work engagement is a psychological state that merges an employee's personal self and work role START HERE (Einarsen, Skogstad, Rørvik, Lande & Nielsen, 2018) with an aim to boost work competence. Vigor refers to the regular effort an employee exerts towards their job fulfillment and requires purpose and resilience; dedication involves enthusiasm about one's work-related tasks and necessitates high levels of commitment and work motivation; absorption entails psychological detachment from one's environment so that one is immersed in work-related tasks with high focus so that one is oblivious to time passing time. Thus, an engaged employee is passionate and engrossed in

work-related activities (Yalabik, Rayton & Rapti, 2017).

2.3 Psychological Capital

Composed of the four psychological states of self-efficacy, hope, optimism, and resilience, psychological capital is an employee's positive psychological state (Luthans, Avolio, Avey & Norman, 2007). Self-efficacy is the confidence in an employee to take up complicated tasks that enables the employee to exert effort towards success in achievement of those tasks. Hope is the direction in an employee towards goal accomplishment as well as the appropriate channelization of employee's efforts in the right direction for success. Optimism involves an employee's affirmative ambitions for present and future work success. Resilience is the employee's ability to bounce back from failures and endure hardships (Luthans, Avolio, Avey & Norman, 2007).

2.4 Affective Trust

Affective trust is rooted in emotional attachment and reliance between individuals, (McAllister, 1995; Webber, 2008) thus is about "trust from the heart" (Chua, Ingram & Morris, 2008). It is differentiated from cognitive trust, as the latter entails the

impartial, logical appraisal of personal characteristics of another, (Dirks & Ferrin 2002; Yang, Mossholder & Peng, 2009) thus it is termed as "trust from the head" (Chua, Ingram & Morris, 2008). Meanwhile, affective trust is an inter-personal standpoint and is beyond external persuasion and causality (McAllister, 1995).

2.5 The Relationship Between Workplace Fun and Work Engagement

Workplace fun activities are productive for organizations because they involve social interactions (Becker & Tews, 2016). Workplace fun distinguishes between good and poor work performance, (Joyce, 2003; Owler, Morrison, & Plester, 2010) which suggests that an attractive, fun-based work culture paves the path for good work performance. Thus, a good number of studies have associated workplace fun with desirable outcomes including job satisfaction, (Karl & Peluchette, 2006) organizational commitment, (McDowell, 2004) as well as reduced anger, frustration, and turnover intentions among workers (Tews, Michel & Allen (2014). It is, therefore, rational to posit that fun activities at work offset an environment in which employees feel lively, energized, and absorbed in job-related activities, i.e. are engaged in work tasks. Along similar lines, some authors (Bolton & Houlihan, 2009; Plester and Hutchison, 2016) theoretically posited that a fun-based work culture should trigger work engagement, while the empirical evidence is deficient. Based on earlier literature suggestions that workplace fun is likely to positively affect work engagement, and toempirically examine the said relationship, the following hypothesis is suggested:

H1: Workplace fun will positively relate with work engagement.

2.6 Psychological capital as mediator of the workplace fun – work engagement relationship

As positive states at work boost work engagement, organizations encourage interactive, pleasurable activities (Nigah, Davis & Hurrell, 2012). Hence, workplace fun, humor and work engagement build a positive work culture (Plester & Hutchison, 2016; McManus, 2018; Muceldili & Erdil, 2016) where workers feel joyous, are relaxed, and experience higher energy levels. Such work motivation uplifts employee performance and contentment (Fluegge & Woolf, 2014; Nazir, Abdullah, Nasir, Shafie, Omar & Halim, 2019). It may, therefore, be posited that entertaining activities at work encourage positive psychological states. An important positive psychological state is psychological capital, initially theorized and tested in the organizational behavior field by Luthans (2002). A good number of studies have confirmed that psychological capital helps promote positive organizational behaviour (Avolio, Gardner, Walumbwa, Luthans & May, 2004). Empirical studies have proven a desirable relationship of psychological capital on job performance, (Luthans, Avolio, Avey, & Norman, 2007) and higher job satisfaction, work happiness, and commitment (Anglin, Short, Drover, Stevenson, McKenny, & Allison, 2018; Luthans, Avey & Patera, 2008; Luthans & Youssef, 2007; Anglin, Short, Drover, Stevenson, McKenny, & Allison, 2018; Tsaur, Hsu, & Lin, 2019).

According to Luthans et al., (2007) psychological capital boosts work resources to effectively employ competencies to facilitate work. In relation with work engagement, employees with higher psychological capital possess higher work engagement levels (Karatepe & Avci, 2017; Gupta, Shaheen & Das, 2019). In addition, there is sufficient empirical evidence indicating a pivotal role of psychological capital for task completion and job roles (Peterson, Avolio, Walumbwa & Zhang, 2011). Deducing from these studies, we argue that task completion and facilitation is only possible if employees are engaged in work, as employees with high psychological capital are vigorous, happily immersed in work, and have greater work dedication (Gupta, Shaheen & Reddy, 2017; Karatepe & Avci, 2017; Karatepe & Karadas, 2015). Likewise, Paek, Schuckert, Kim and Lee (2015) showed that psychological capital is related with work engagement, and that individuals with high psychological capital have higher levels of work engagement. Gupta, Shaheen and Reddy (2017) also claimed that high confidence, hope, optimism, and resilience build high levels of work engagement.

These studies suggest that positive psychological capital assists in building work engagement so that higher positive psychological state offsets higher work engagement. A positive relationship of psychological capital with workplace fun on the one hand and with work engagement on the other, implies that psychological capital is a possible mediator of the workplace fun – work engagement relationship. Psychological capital has been studied as a mediator of the relationship between work resources and work engagement, (Lewig, Xanthopoulou, Bakker, Dollard & Metzer, 2007) and Luthans, Avey & Patera (2008) suggested that psychological capital is a potential mediator between variables. Yet, empirical examination of a possible mediating role of psychological capital in the relationship between workplace fun and work engagement is lacking in current literature. Deducing from these studies and given its state-resembling nature, psychological capital may be conceptualized as a possible mediator of the workplace fun – work engagement relationship as it is a resource that facilitates task performance. Specifically, workplace fun activities are likely to boost self-efficacy, hope, optimism, and resilience in employees who will then experience higher levels of work engagement. Therefore, it may thus be postulated that:

H2: Psychological capital will mediate the relationship between workplace fun and work engagement.

2.7 Moderating effect of Affective Trust on the Workplace Fun – Work Engagement Relationship

We believe that both workplace fun and work engagement are likely to be impacted by affective trust because as trust is known to impact employee attitudes and work behaviors (Innocenti, Pilati, & Peluso, 2011). As workplace fun activities promote a comfortable, stress-free work milieu, (Tsaur, Hsu & Lin, 2019) such positive interpersonal experiences and social interactions are likely to prompt affective trust among employees (Newman, Kiazad, Miao & Cooper, 2014). Arguably, affective trust built on such grounds will fluctuate, (Dowell, Morrison & Heffernan, 2015; Hsieh & Huang, 2018) leading to variations in affiliations and bonding among individuals who are working in such an environment. Alterations in the type and regularity of such fun-based, affirmative social interactions is likely to generate affective trust, which in turn, will alter work engagement, because trust depends upon work relationships (Appelbaum, Bailey, Berg, & Kalleberg, 2000; Jiang & Probst, 2016). This implies that in the presence of high affective trust, workplace fun activities are more likely to trigger engagement in workers. Specifically, when affective trust is low, fun activities will help build engagement at work yet to a lower level. Therefore we propose that affective trust is a possible moderator of the workplace fun – work engagement relationship, such that the relationship is strongly positive when affective trust is high, and the relationship is workplace fun – work engagement relationship.

Affective trust has been dominantly conceptualized as a mediator between important variables, such as between procedural justice and organizational citizenship behavior, (Guh, Lin, Fan & Yang, 2013) leadership and its outcomes, (Xiaqi, Kun, Chongsen & Sufang, 2012; Guinot & Chiva, 2019) while few studies have proposed affective trust as a moderator of work relationships. With specific reference to the workplace fun – work engagement relationship, we were unable to locate any study that had examined affective trust as a moderator of the said relationship. Given the importance of affective trust for organizations, it is important to examine it as a possible moderator of the workplace fun – work engagement relationship, particularly given its notable importance within the service industry (Bloemer, Pluymaekers, & Odekerken, 2013; Johnson & Grayson, 2005). Based on a review of these studies, it is suggested that:

H3: Affective trust will moderate the workplace fun – work engagement relationship, such that the relationship will be strongly positive when affective trust is high and weakly positive when it is low.

2.8 Underlying Theory

We draw on the Self Determination Theory, (Deci & Ryan, 1985) a theory that offers a framework for understanding employee motivation and psychological needs, in order to explain inter-relationships between workplace fun, affective trust, psychological capital, and work engagement. The SDT suggests that employee need autonomy, competence, and relatedness. Employees with satiated needs are content, intrinsically motivated, experience high work engagement, and possess high well-being. We propose that creating a fun based environment gives a sense of ownership and autonomy, satisfying their innate needs and helps them stay engaged during work tasks through through boosting their self-efficacy, resilience, hope, and optimism levels (psychological capital).

3. THEORETICAL FRAMEWORK

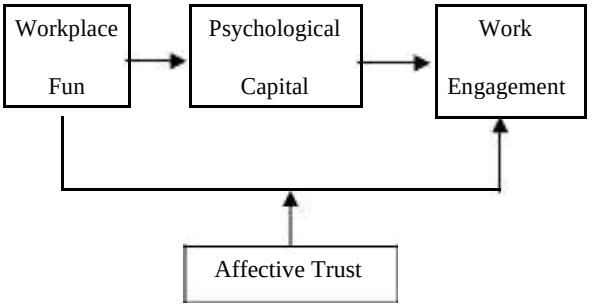

Figure 1: Theoretical Framework for the Study

4. MATERIALS AND METHODS

The study variables, i.e. workplace fun, psychological capital, work engagement, and affective trust are quantifiable and proven, their inter-relationships are investigated, and conclusions are deduced from these investigations. As such, we believe that the reality and the dilemma that this study aims to answer are objective, evident and quantifiable, thus this study assumes the positivism paradigm (Kaboub, 2008). Moreover, the present research is correlation-causal, hypotheses-testing type of study and employs the survey method with minimal researcher interference (Cooper, Schindler & Sun, 2006; Creswell, 2013). Population of this study is employees working in the hospitality industry of Pakistan, and non-probability convenience sampling method was the selected sampling strategy (Aker, Kumar & Day, 2001).

4.1 Measures

All research instruments used for this study had been tested and well-validated in earlier studies. The following research instruments were used to gauge study variables:

Workplace fun. It was measured using Tews, Michel & Allen's (2014), 14 item scale that consists of three dimensions of fun activities (5 items), coworker socialization (4 items), and manager's support for fun (5 items).

Work engagement. It was assessed using Schaufeli, Salanova, M., González-Romá & Bakker's (2002) nine item scale that comprises of three dimensions of vigor (3 items), dedication (3 items), and absorption (3 items).

Psychological capital. Luthans, Avolio, Avey & Norman's (2007) 12 items Psychological Capital Questionnaire (PCQ form) was employed. The PCQ consists of four dimensions of self-efficacy (3 items), hope (2 items), optimism (4 items), and resilience (3 items).

Affective trust. It was measured using McAllister's (1995) three item Affective Trust Measure.

All research instruments had a five point Likert-type scale with scale anchors ranging from '5' representing 'Strongly Agree' and '1' representing 'Strongly Disagree'. The research instrument comprised of two parts; the first part included the demographic data, while the second part comprised of items pertaining to the study variables. We used Statistical Package for Social Sciences (IBM SPSS Statistics Version 20) to analyze the study data.

4.2 Pilot Study

In order to assess language clarity and general ease of responding to the items, we carried out a pilot test using 50 respondents from among the study sample preceding the actual, full-fletch study. The research aim, purpose, and topic were explained to the pilot study respondents. We also confirmed privacy and secrecy of research data (Podsakoff, MacKenzie, & Lee, 2003). Following the pilot study results, we concluded that there were no problems related to understandability of the items, as English is well understood by white collar workers in Pakistan. As depicted in Table 1, all Cronbach's alpha values were greater than 0.7, signifying that all items of study variables were reliable and ready for final testing (Toth, Sakaguchi, Mikami, Hirose & Tsukuda, 2005).

Table 1
Results for the Pilot Study

Variable	Cronbach Alpha
Workplace Fun (14 items)	0.919
Work Engagement (9 items)	0.754
Psychoylogical Capital (12 items)	0.884
Affective Trust (3 items)	0.902

N=50

Next, data collection for the main study was arranged through personal distribution and administration of 259 copies of the research instruments among the study sample (Roscoe, 1975). Of those, we received 210 complete and usable replies that meant an effective response rate of 96.5 %. There were no missing values as the survey was self-administered. Then, we analyzed the demographic data, correlation analysis, followed by testing the study hypotheses using regression technique.

5. RESULTS

5.1 Demographic Profile

The demographic profile of 210 study respondents revealed that the majority of the respondents were from the 21 – 25 years age group (86%); 172 were men (68.8%) and 78 were females (31.2%); 106 had organizational tenure of one year or less (42.4%), and the majority were non-managers (80%). The complete demographic profile of study respondent is presented in Table 2.

Table 2
Demographic Profile of Study Respondents

Variable		Frequency	Percentage
Gender	Male	172	68.8
	Female	78	31.2
Age	21-25	86	34.4
	26-30	81	32.4
	31-35	48	19.2
	35-40	35	14.0
Tenure	Less than 1year	106	42.4
	2-4 years	96	38.4
	5-7 years	34	13.6
	8-10 years	12	4.8
	Above 10 years	2	0.8
Managerial position	Manager	50	20.0
	Non-manager	200	80.0
	Total	210	100.0

N=210

5.2 Correlation Analysis

In order to measure the strength and direction of correlations between study variables, correlation analysis was carried out. All bi-variate correlations and descriptive data are presented in Table 3.

Table 3
Bi-variate Correlations Among Study Variables

	Min.	Max.	Mean	SD	PC	WF	WE	AT
PC	2.25	5.00	4.00	0.67	(0.88)			
WF	1.36	5.00	3.95	0.90	0.46*	(0.95)		
WE	2.67	5.00	3.98	0.58	0.45*	0.47*	(0.71)	
AT	1.00	5.00	3.99	1.26	0.59*	0.46*	0.51*	(0.98)

N=210
*p<0.001.

WF=workplace fun, WE=work engagement, PC=psychological capital, AT=affective trust. Cronbach's alpha scores are displayed along the diagonal.

As Table 3 shows, workplace fun had a positive correlation with work engagement, (γ=0.471, p<0.01. Psychological capital, the hypothesized mediator had positive correlation with workplace fun, (γ=0.47, p<0.001) while and with work engagement, the dependent variable (γ=0.45, p<0.001). These correlations were in accordance with expectations and offered initial support for hypotheses 1 and 2. As expected, the hypothesized moderator, affective trust had positive correlation with workplace fun (γ=0.46, p<0.001) and with work engagement, (γ=0.51, p<0.01) which provided initial support for hypothesis 3. Hence, all bi-variate correlations were in line with expectation.

5.3 Hypotheses Testing

We used Preacher and Hayes' (2008) moderated-mediation Process model 5 to test study hypotheses. Table 4 presents the results from hypotheses testing. As suggested by H1, workplace fun and work engagement had a positive, significant relationship (β=0.29, R^2=0.37, F=37, p=.000) that supported H1.

Psychological capital would mediate the relationship between workplace fun and work engagement, according to H2. As may be seen in the following table, psychological capital mediates the relationship between workplace fun and work engagement (β=0.075, R^2=0.3766, F=37, p=.000), offering support for H2. Finally, H3 that had predicted a moderating effect of affective trust on the relationship between workplace fun and work engagement also finds support (β=0.62, R^2=0.3766, F=37, p=.000).

Table 4

Regression Results to test Study Hypotheses (H1, H2, H3)

	β	SE	p	LLCI	ULCI	R^2	F
WF	0.29	0.08	0.0	0.12	0.45	0.376	37.0
WF* AT	0.62	0.06	0.0	0.10	0.01	0.376	37.0
	0.10	04	0.0	0.02	0.19		
Direct effect of X on Y							
WF-PC-WE	0.02	.05	0.0	0.08	0.12		
	0.02 0.075	.06 .018	0.0	0.15 0.04	0.10 0.11		

Note: N=210.
WF= Workplace Fun, WE= Work Engagement,
PC= Psychological Capital, AT= Affective Trust

6. DISCUSSION

Intense rivalry, ongoing changes, and organizational problems of employee talent attraction and retention are challenges that the hospitality sector largely confront. Specifically for developing economies, these factors are of great concern, as the service industry is a worthy contributor to the national economy (Ahmed & Ahsan, 2011). Hospitality sector organizations of Pakistan, therefore, must, look for methods to attract, retain, and boost worker performance in

order to gain competitive advantage. Given such contextual milieu, the present study was guided by three aims: whether workplace fun positively relates with work engagement, whether psychological capital mediates the relationship between workplace fun and work engagement, and whether affective trust moderates the relationship between workplace fun and work engagement.

According to the study's findings, all three study hypotheses were supported. Results pertaining to the first hypothesis suggest that workplace fun positively relates with work engagement. This implies that pleasurable, recreational activities at work offer a positive, supportive work environment that facilitates employees in building engagement during work tasks. With regards to the hospitality industry, several challenges are faced by hospitality sector firms that are likely to hamper their work engagement. Lengthy work hours, unsupportive job surroundings, recurrent work rotations, compensation discrimination, prejudices, tight deadlines, pressurizing projects and work assignments are environmental factors that possibly reduce employee engagement during work tasks (Eek & Axmon, 2013). Our finding implies that through integrating fun behaviours during work, hospitality sector firms may develop work engagement in employees, which is important for work performance (Karatepe, 2013). These findings concur with earlier studies that found similar results, as they concluded that organizations that successfully implement activities based on fun, amusement, and social interaction boosts employee social awareness, enhances work relationships, and helps in work tasks' management (Karatepe & Karatepe, 2009; Kuruüzüm, Anafarta & Irmak, 2008; McManus, 2018; Nazir et al., 2019; Plester & Hutchison, 2016).

With regards to the second hypothesis, our finding that psychological capital mediates the relationship between workplace fun and work engagement, pointing to a desirable impact of psychological capital in building work engagement. Earlier literature has suggested that an organizational environment typified by positive, social interactions and relationships paves the path for worker morale, drive, enthusiasm, and purpose for tasks, (Maassen, van Oostveen, Vermeulen, & Weggelaar, 2021) enabling employees to be engrossed in work through uplifting employees' self-efficacy, hope, resilience, and optimism related to work tasks. Through building such positive psychological states, employees feel constructively motivated, are immersed in work tasks, as they are able to channelize their efforts for fulfillment of job duties and responsibilities (Karatepe & Karadas, 2014: Luthans & Youssef 2007). Employees are able to affirmatively cope through difficulties during work, as they are able to maintain engagement during work tasks through pleasurable, collective activities organized at work that positivity uplift employee psychological state, that in turn has a positive effect on employee work engagement. These findings agree with earlier literature that has highlighted the significance of psychological capital work performance within the hospitality industry (Darvishmotevali & Ali, 2020) . With specific regards to the mediating effect of psychological capital, a good number of studies have concluded a mediating effect of psychological capital for important outcomes (Fontes & Russo, 2021). Thus, our findings correspond to results from earlier studies.

Pertaining to results from testing the third hypothesis, our finding that affective trust moderates the relationship between workplace fun and work engagement indicates that affective trust strengthens the relationship between workplace fun and work engagement. In specific, when affective trust is high, the relationship between workplace fun and work engagement is strongly positive, while it is weakly positive when affective trust is low. The finding that the relationship between workplace fun and work engagement is moderated by affective trust may be explained on basis of the inter-employee socio-emotional exchange and subsequent shared appreciation, as affective trust is relational and is based on inter-relationships (Colquitt, LePine, Piccolo, Zapata, & Rich (2012). Moreover, affective trust depicts the assurance and bonding that employees have in each other, is rooted in involvement and sentiments that employees share (Dowell, Morrison, & Heffernan, 2015). Hence, affective trust is built upon inter-individual, collective encounters. In this way, affective trust fluctuates and changes as social interaction vary. Therefore, when this inter-employee social interactions are high, affective trust is high, leading to a stronger positive impact of workplace fun on work engagement, versus when affective trust is low, which results in a weaker positive impact of workplace fun on work engagement. Earlier studies have suggested affective trust as a favourable moderator of important work-related relationships, (Mushonga, 2018) which is in concurrence with our findings.

Overall, our findings that workplace fun positively relates with work engagement, psychological capital mediates this relationship, and that affective trust moderates this relationship are in line with the positive organizational behaviour theory (Luthans, Luthans, & Chaffin, 2019). The positive organizational behaviour theory advocates that positive psychological capacities and states are essential for boosting work performance. Recreational activities organized at work build psychological capital that comprises of self-efficacy, hope, optimism, and resilience. Affective trust, which is a positive construct, strengthens the relationship.

6.1 MANAGERIAL IMPLICATIONS

Managers at workplace need to plan and arrange pleasurable, recreational activities during work to help employee unwind from work pressures and feel connected to the organization. Birthday gatherings, workshops, trainings recreation, employee recognition meetings, friendly competitions, and family events should be planned to support workplace fun. These activities augment social, interactive relationships at work, and create encouraging feelings among employees that enhance favourable development of employee psychological capital and work engagement. These fun-based, social interactions are particularly beneficial for hospitality industry managers and workers, given the work pressures and competition, as they would help build employee self-efficacy, hope, optimism, and resilience that would further boost work engagement, whilst building affective trust alongside.

6.2 LIMITATIONS

This study tests interrelationships between workplace fun, psychological capital, affective trust, and work engagement using a cross sectional study design. Thus, the causality in these relationships cannot be ascertained unless a longitudinal study design is undertaken to test the relationships. Secondly, this study is specifically targeted towards the hospitality industry; hence the results cannot be generalized across other sectors such as the manufacturing sector.

6.3 FUTURE RECOMMENDATIONS

Future research may examine other positive psychology variables that may moderate and mediate the relationship. For instance, cognitive trust may strengthen or weaken the workplace fun – work engagement relationship, as employees may cognitively appraise the work situation that may enhance work engagement. Another suggestion is conducting a longitudinal study to confirm causality in the inter-relationships tested in the present study.

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Employee Green Behavior through the Lens of Perceived CSR for Environment

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Abstract

Environmental CSR has become an inevitable to attain the organizational sustainability, therefore employees are encouraged to have pro environmental behavior at work as they have a key role to implement the environmental CSR initiatives. This article investigates the relations between Perceived Environmental CSR and Employee Green Behavior through the moderating effect of Green HRM in hotel industry. The data from 469 respondents of five star hotels was analyzed through SEM and AMOS software. The finding of study indicate the positive relationship between hypothesizes and results suggest that having implementation of environmental CSR by the organization have positive impact on in job green behavior of employees. While green HRM practices strengthen this relationship by hiring, training, rewarding the green behavior. If the hotel industry desires to grow it needs to involve environmental strategies through leadership and HRM collaboration.

1. Introduction

Tourism and environment are closely associated (Pennisi, L. A. 2018). The literature on tourism industry in the past has less focused on environmental disaster (Quintás, M. A et al., 2023). However the sudden eruption of COVID-19 realized the organizations to be prepared for environmental disasters. The hotel industry is considered for negative impact on the environment, due to the generated waste, high carbon dioxide emissions, and the massive consumption of resources (Manomaivibool, P., 2015). In recent, the increasing global awareness and pressure about environmental concerns is realizing organizations to focus on environmental sustainability. Therefore, the scholars and environmental practitioners are drawing the attention of business to heed the call of environmental responsibility (Katz et al., 2022). The hotel industry is an essential part of tourism industry and has a direct impact on external environment (Kasim, A., & Scarlat, C. 2007) which effect to its internal and external stakeholders' satisfaction. However, despite having international certifications hotel industry is a victim of green washing and blamed for not matching their environmental sustainability (Chen, H., Bernard, S., & Rahman, I. 2019) and the literature of hotel industry posits less exploration of green behavior of employees (Arshad et al., 2021).Similarly, the contribution and awareness of hotel employees and managers are also needed to be involved as they lack environmental issues (Dipietro & Pennisi, 2008). This workplace-specified behavior is known as Employee Green Behavior, which plays a vital part in the environmental stability efforts taken by an organization (Ones & Dilchert, 2012) as the organizational sustainable goals can hardly be achieved without contributing to green behavior at different hierarchal levels (Ones et al 2018). These behaviors are performed in the organizational context and include energy conservation, recycling initiatives, waste disposal, etc. (Wilkerson *et al.*, 2008) and is under discussion of researchers' and practitioners since last decade (Zacher, H, 2023).

The hotel industry provides employment to over 319 million people around the world. The hotel industry leaves an enormous footprint of 21% on the environment Grosbois, (D., & Fennell, D.,2011) and with the growing operations worldwide, the hotel industry is responsible for approximately 1% carbon

emission globally (Sustainability Hospitality Alliance, March 2020). This report has further stressed the need for the hotel industry to reduce the levels of carbon emission by 90% per room by the year 2050. Similarly in 2019, International Finance Corporation (IFC) published a report "Green Buildings", which estimated that there is an opportunity of $ 1.5 trillion for the investors by building sustainable hotels by 2030 as these initiatives build the stakeholders'' trust. Similarly, the employees' perception regarding their hotel's CSR initiatives influences their attitudes, leading them to participate in green behaviors (Luu, 2021). Green HRM also help role for building Green Employee Behavior. Environmental knowledge can also be developed by organizing a green culture at the hotel premises. The green practices can be effectively communicated to the employees even during the hiring process (Ismael *et al.,* 2022). Green HRM practices are unavoidable in recent times and support employee green behavior in almost every irganization. According to Gurmani et al. (2021) in recent the organizations also train employees before appointing them at a specific designation so that they can apply green practices at their workplace.

Since each passing day, the environmental sustainability is gaining attention globally caused by environmental change and degradation (Aguinis, H., & Glavas, A, 2012) especially in the service industry Therefore, the hotel industry is facing an aggressive competition in this regard. They require more environmental competencies to meet the environmental challenges. There is need to investigate if CSR can impact employee green behavior (De Roeck and Farooq 2018). The organizations have realized the importance of environmental initiatives and environmental behavior. So, the foremost motivation of this study is to investigate the employee behavior for environment in the hotel industry as it is less explored in the hospitality industry (Hatipoglu *et al.,* 2019) and less addressed in developing countries especially in Pakistani (Sajjad et al., 2018). Literature on CSR with employee Green Behavior has been implored by Nasir Ansari, J. A., & Irfan, S. (2023) in oil and gas, manufacturing and information technology and is suggested to investigate in hotel industry as well. Similarly Green HRM has been studied in different dimensions from green recruitment, selection, training, green employee relations and green performance management etc. Cesário et al., 2022). However, Impact of Green HRM as moderator between Perceived Environmental CSR and Employee Green Behavior need to be further investigated as the industry is largely less informed about the values of sustainable practices (Khan 2012)

Theoretical Background, Perceived Model and Hypotheses Development

2.1 Ability Motivation Theory

The under discussion theory deals with regard to employee motivation and improvement in performance at work. The organization that desires to grow its employees' skills through motivation can achieve its goals effectively. As discussed earlier the global stance of organizations is getting changed due to emerging need of sustainability. Following the green HRM practices like selecting the right person, rewarding for green, green trainings for employees etc. and opting environmental initiatives as CSR can build proactive on job green behavior of its employees to obtain the desired level of environmental sustainability for organizational success. Further, if the employees are involved through green HRM they get more committed to environment (Saeed et al, 2019).

2.2 Employee Green Behavior

As an individual the green behavior encompasses environmental friendly actions that employees perform at their work which are mostly related to their emotions and feelings. Employee Green Behavior (EGB) is a personal trait like OCB (Katz et al., 2022) whereas meticulous employees are more likely found engage with ethics and organizational goals (Kim et al. 2017). While CSR is usually related to efforts that reduce harm to society and environment including resource conservation ,environmental protection etc. (De Roeck & Farooq, 2018). The literature posits that environmental CSR is a major factor developing employee emotions for green (Ahmed, M et al., 2020). According to social exchange theory the individuals returns what they perceive. The hotels that advertise their green efforts get the attraction of employee having green behavior because the employees' perception of ECSR (Afsar et al., 218). The development in environmental CSR initiatives can be motivation for employee green behavior that help achieving sustainability and better organizational performance (Nasir Ansari, J. A., & Irfan, S. 2023).Therefore; it can be suggested that:

H1. Perceived Environmental CSR is positively related to the Employee Green Behavior

2.3 Green HRM and Employee Green Behavior

According to Suganthi,(2019) higher the involvement of organizations in the environmental initiatives the higher corporate image and social status. The businesses that urge to achieve environmental benefits are required to create an appropriate working condition that can help employees to incorporate the environment friendly practices at work(Kim et

al., 2020). Green HRM is another main factor for developing employee green behavior and motivating them for green initiatives aligned with their organizational vision (Roscoe et al., Citation2019). Shafaei *et al.*, (2020) describe Green HRM as strategic partner involved in developing and executing training and practices related to environmental CSR and it further covers green recruitment and selection, green training and appraisal based on green behavior. Employee are the main source to apply environment friendly practices (Hart and Dowell, 2011). Environmental CSR also have a positive impact on employee wellbeing and by approaching environmental CSR the organizations show their concern for employee environmental wellbeing (Khattak,et al., 2021). Taking Green HRM as a strategic tool enhances the sustainability of organization through employees' involvement and make them feel good by elevating employees' awareness and commitment for going green (Cesário et al., 2022). Further Green HRM arouses employee morale and organizational image and has impact on employee behavior (Saeed et al 2019)

H2: Green HRM moderates the relationship between Perceived Environmental CSR and

Employee Green Behavior

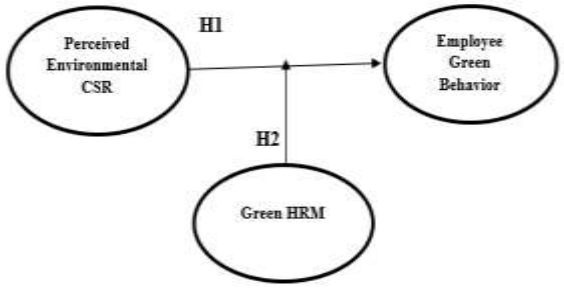

Fig1. Perceived Model

3. Methodology

3.1 Measures

The aim of research was to investigate the association between Perceived Environmental CSR and Employee Green Behavior through the moderation effect of Green HRM. The questionnaire was designed two sections. First section consisted of demographic questions whereas second section carried with five Likert scale for three variables Six item scale of Dumont et al.,(2017) was adopted to analyze the moderation of Green HRM that consists the inquiry about green selection, providing green training for knowledge and attitude development, contribution of employee green behavior for job appraisals, setting green organizational goals, rewards for green behavior and promotion based on green behavior.

Employee on Job Green Behavior was with 7 items of Safari et al., (2018) that include bringing new ideas for addressing environmental issues, taking part in environmental related activities, sharing knowledge for environmental issues, turning off office equipment to save energy, encouraging others for resource conservation at work, encouraging others for keeping environment clean at work, and encouraging reduce use of paper work was adopted as dependent variable. Perceived Environmental CSR was taken as independent variable. 3 items were adopted from Turker (2009) as Participation of organization in activities aim to protect and improve the quality of the natural, investment of organization to create a better life for the future generations and implementation of special programs that minimize its negative impact on the natural environment.

The data was collected through self-administered survey on 5 Likert scale from employees of 5 star hotels of twin city of Rawalpindi and Islamabad as they have formalized CSR and HRM system. Total 500 questionnaire were distributed 475 were retuned and 469 were found valid and were kept for data analysis.

3.2 Results and Hypothesis Testing

3.2.1 Reliability test and correlation analysis

The reliability of scale items was checked through Cronbach alpha. The reliability of Employee Green Behavior was 0.76, Green HRM was of 0.69 and Perceived Environmental CSR was found 0.61. All results fall in the acceptable range of Cronbach alpha. The correlation between the variables was also found good as mention below in Table 1 .

Variables	Mean	S.D	Employee Green Behavior	Green HRM	Perceived Environmental CSR
Employee Green Behavior	3.6	.58	1		
Green HRM	3.3	.48	.677	1	
Perceived Environmental CSR	3.6	.53	.620	.548	1

Table 1. Correlation is significant at the 0.01 level (2-tailed).

3.2.2 Confirmatory Factor Analysis

The survey was analyzed on SPSS descriptive analysis of data as correlation and skewness and kurtosis. The structural equation modeling (SEM) was employed using AMOS software The hypothesis were tested on AMOS as confirmatory factor analysis (CFA) as in figure 2 and analysis of structural model as in figure 3.

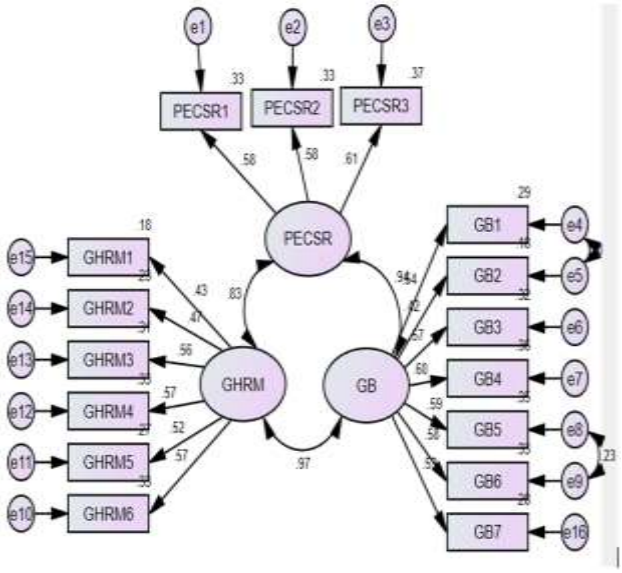

Fig 2. Confirmatory Factor Analysis

Confirmatory Factor Analysis in figure 2 depicted that item retained has factor loading FL between 0.42 to 0.61 respectively and are significantly correlated with each other. Further the model fit results are also in acceptable range i.e. CMIN/DF= 3.3, GFI= 0.92, AGFI= 0.89, CFI= 0.88, and RMSEA= 0.07 which shows the model fit acceptable.

3.2.3 Confirmatory Factor Analysis

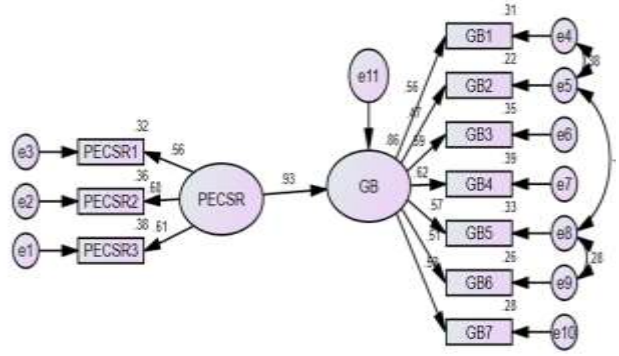

Fig 3 Structural Model for latent Variables

The results of structural model for latent variables PECSR and GB in figure 3 are also in acceptable range i.e. CMIN/DF= 2.9, GFI= 0.96, AGFI= 0.93, CFI= 0.94, and RMSEA= 0.06 which shows the model fit acceptable for the H1 Perceived Environmental CSR is positively related to the Employee Green Behavior

3.2.4 Moderation Effect

The moderation analysis was done to observe causal relationship between predictors with dependent variables and established covariance among these three predictors. The results of Green HRM practices as moderator was having positive impact on the relationship of independent and dependent variables as shown in figure 3.

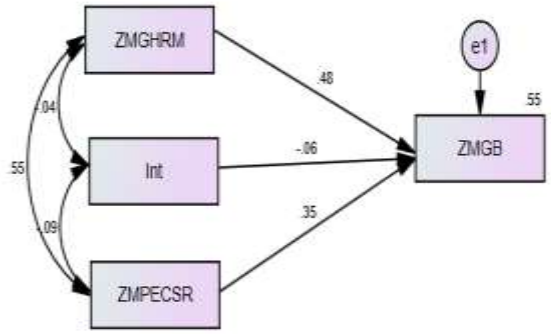

Fig 4. Moderating Effect

The results show a significant positive relationship between interaction term and Employee Green Behavior as beta value .047 P value .045.

		Estimate	S.E.	C.R.	P
ZMGB	<---	ZMPECSR	.350	.037	9.414	***
ZMGB	<---	ZMGHRM	.484	.037	13.074	***
ZMGB	<---	Int	-.047	.023	-2.006	.045

Table 2: Regression Weights for moderation

4. Discussion

The under-discussion study was an attempt to investigate the relationship between employee-perceived environmental CSR and employee in Job Green Behavior in the hospitality industry. It is commonly observed that fewer people care about green behavior on the job in countries where the people are less rained for resource conservation. Based on the hypothesis it has been observed that perceived Environmental CSR has a positive relation with employee Green Behavior on Job as they follow the leadership. Similarly, Green HRM strengthens this relationship as well. The results clearly justify how the leadership initiatives for environmental CSR impact employee green behavior through the vision and mission for CSR. CSR for the environment is desired by the external stakeholders as organizations' operations affect society and society's desire to return

back to it through resource conservation and employee behavior in Job play a great role in the implementation of environmental CSR. Therefore it is suggested to organizations to involve green training and policies in their regular features to improve employee green behavior. The results promote the concept of micro CSR element for environment and add to the theoretical contributions environmental management through AOM theory which is less related with employee behavior. The study proposes implications for the managers of the hotel industry of Pakistan. The study aims to expand the literature on the untested constructs in the Pakistani hotel industry. The managers shall be able to make use of their position to make their employees complement their hotel's measures for environmental sustainability by participating environmental CSR. The results incorporate that how a perceived behavior is required to enhance the eco-friendly efforts of the professionals working in the hotel industry. This study contributes to the micro-CSR by observing the perception of employees for environmental CSR of the hotel industry. To sum up it is proposed that Green HRM should have unconditional support from higher management and leaders and mangers need to integrate the green efforts collectively so that employees' perception for environmental CSR shall be able to contribute for employee green behavior at work.

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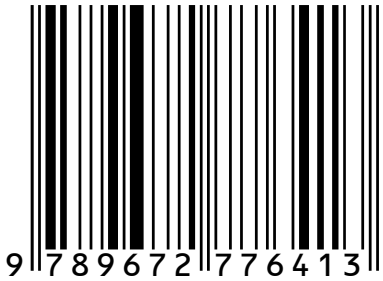

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