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**4<sup>TH</sup>**  
**i-COME**  
INTERNATIONAL CONFERENCE ON  
MANAGEMENT & ENTREPRENEURSHIP



# PROCEEDINGS

## DIGITALIZATION & BUSINESS EMPOWERMENT

Swinburne University of Tecthnology,  
Sarawak Campus, Malaysia,  
22-24 July 2021

### Editors :

Eddy Madiono Sutanto, Halimin Herjanto,  
Jashim Khan, Jati Kusuma Ali,  
Evan Lau, Annie Stephanie Banikema,  
John Francis Diaz

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Malaysia



**UCTS**



# Proceedings

## **4<sup>th</sup> i-COME** **INTERNATIONAL CONFERENCE ON MANAGEMENT & ENTREPRENEURSHIP**

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## **PREFACE**

Digitalization in the 21<sup>st</sup> century continues to influence how organizations and businesses function and process. However, success in digitalization requires continuous co-operation, empowerment, and planning. Over the years, we have seen changes in digitalizing and empowerment in not just businesses, but also in the workplace. Such digitalization and empowerment are becoming more important where it continues to drive businesses to go global. It also increased the speed of business innovation and transformation, while offering new knowledge and stronger insights into how businesses function and operate in a globalized market.

The Business Management Program and *Jurnal Manajemen dan Kewirausahaan – JMK* (Journal of Management and Entrepreneurship) of Petra Christian University, Surabaya Indonesia in cooperation with the School of Business of Faculty of Business, Design and Arts, Swinburne University of Technology Sarawak Campus, Sarawak Malaysia host the Fourth International Conference on Management and Entrepreneurship (4<sup>th</sup> i-CoME) 2021. This conference is made possible with the support of several accredited journals (SCOPUS, ESCI, among many). The conference present seven keynote speakers from five different countries: Australia, USA, Malaysia, Indonesia, and New Zealand.

This conference also calls for research articles and papers from scholars, researchers, and students from all over the world. There are six sub-themes with various topics covering management and entrepreneurs topics. The conference is a forum where fellow academics share experiences, exchange knowledge, work hand-in-hand, and find managerial and entrepreneurial solutions for a better business world. The detailed information is available in the 4<sup>th</sup> i-CoME 2021 website: <http://i-come.petra.ac.id>

The objectives of the 4<sup>th</sup> i-CoME 2021 are to become scholar's forum to discuss a recent scholarly work, to become scholars' forum where scholars from all over the world can gather and network, and to discover new findings that can benefit the business management and entrepreneurship world.

Surabaya, Indonesia, 1 August 2021

Editor

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# THE EFFECT OF BRAND REPUTATION, BRAND RELATIONSHIP QUALITY AND SWITCHING COST TO BRAND LOYALTY

**Andrew Soeryohadi<sup>1</sup>, Michael Adiwijaya<sup>2\*</sup>, Hartono Subagio<sup>3</sup>, Halimin Herjanto**

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## ABSTRACT

In the current global era, progress is happening very fast, companies all over the world are competing to continue to survive and win in increasingly fierce business competition. One way for companies to win in the competition is to win the hearts of consumers, which will lead to customer loyalty to the brand of the company. This research was conducted to determine the effect of brand reputation, brand relationship quality, and switching costs on brand loyalty in Nike brand basketball shoes. The data collection technique in this study was using purposive sampling. While the data processing method was done using validity, reliability, and descriptive statistical analysis. For the data analysis method used was PLS-SEM which was a multivariate analysis technique consisting of analysis of outer model, inner model, and hypothesis testing. From the results of this study, it was known that brand reputation and brand relationship quality significantly influence brand loyalty in Nike brand basketball shoes. While switching costs proved to be able to moderate the relationship between brand reputation to brand loyalty and the relationship of brand relationship quality to brand loyalty significantly.

**Keywords:** *Brand reputation, brand relationship quality, switching cost, brand loyalty.*

## INTRODUCTION

The main goal for every company is not only to survive but also to win the intense competition through focusing into what customer needs and wants (Chadhiq, 2007). These type of company hope to provide customer convenience and stimulate repeat purchase behavior. This kind of customer behavior will lead to brand loyalty and will lead to the creation of revenue for company sustainability (Istijanto, 2009). Dick and Basu (1994) argued that the company must adopt certain unique strategy and approach for instance by emphasizing on brand reputation, utilizing customer relationship, and directing the entire company resources to improve customer loyalty.

A reputable brand plays significant role in determining consumer behavior in terms of product selection and it will lead to brand loyalty. Therefore, whenever the customers had received the product benefits or values then the customers tend to be loyal to the particular brand and tend to be less price sensitive (Wibisono, 2015). Nevertheless, several research findings showed the influences of brand reputation towards customer loyalty, on the contrary some other research showed the opposite findings. The company with a reputable brand somehow neglected its customers by making a certain services mistakes and as the consequences this will lead the customer to do brand switching (Ott, 2013). Aydin, Ozer, and Arazil (2005) explained that switching cost moderating the effect of reputable brand towards customer loyalty by reducing customer sensitivity on product performance evaluation.

Nike as one of the reputable brands worldwide is perceived highly by its loyal customer to increase their self-prestige or to gain a certain group status or symbol. Nowadays the customer has so many advantages in terms of information through the development of internet and technology, the customer can easily browse from A to Z regarding their favorable brand. As the consequences, the customers have more expectations toward the brand performances to fulfill their needs and wants. This research will investigate the effect of brand loyalty toward brand loyalty through brand relationship quality as the intervening variable and switching cost as the moderating variable by using Nike brand as the object study.

## **LITERATURE REVIEW**

### **Brand Reputation**

Brand reputation is the customer opinion either positive or negative towards a particular brand. The factors which affected brand reputation are the product quality, product performances, product advertisement, and product publication. Moreover, brand reputation plays significant roles to stimulate a positive customer expectation (Creed & Miles, 1996). In addition, Shandi (2011) stated that brand reputation as the customer base to evaluate brand reliability. Alam and Yasin (2010) added that previous customer experience, word of mouth, media publicity, and company public relation toward the brand are the factors impacting to brand reputation. Next, Aaker (1991) mentioned four indicators to measure brand reputation, they are memorability, uniqueness, personality.

### **Brand Relationship Quality**

According to Sheth and Mittal (2004) brand relationship quality is relationship oriented view of consumer brand interaction which are positively held, voluntarily engaged, long term and affectively intense (in short, brand-loyal relations) in nature. Keller and Kotler (2008) added there are five indicators to measure brand relationship quality, they are intimacy, self-concept connection, love/passion, interdependence, commitment, and quality partner. Brand relationship quality refers to the important perception to foster entire things related to the brand in purpose to win the intense competition, therefore the company may use brand relationship quality to increase market share as well as to increase profit and as foundation to support marketing strategy program (Sweeney & Chew, 2002).

### **Switching Cost**

Caruana (2003) explained switching cost as the cost which is occurred as the consequences of customer decision to do brand or product switching. Company can use switching cost as a tool to create barrier and to maintain its customers. There are three main important factors affecting switching cost, they are financial switching cost, procedural switching cost, and relational switching cost. In addition, Trijp (1996) argued two types of customer motivation to do brand switching, they are internal motives and external motives. The internal motives or true variety seeking behavior is a switching behavior in purpose to search for variation to avoid personal boredom, to fulfil the anxiety towards the new brand. Meanwhile the external motives or derived varied behavior is the switching behavior caused by other brand functional values for example the cheaper price, more product feature, etc.

### **Brand Loyalty**

Brand loyalty is the loyalty measurement towards a particular brand (Rangkuti, 2002). In addition, Hawkins and Mothersbaugh (2013) explained that brand loyalty made customer less price sensitive toward the changing of the price. Next Aaker (1991) divide brand loyalty into five categories; they are brand awareness, brand association, brand quality, brand asset, and brand loyalty. There are two methods in measuring brand loyalty; firstly, is attitudinal brand loyalty which refers to customer tendency to do product repeat buying in the future and to recommend the brand to other customers, secondly is behavioral brand loyalty which refers to customer activity to do product repeat buying in certain period of time and the tendency to spend the majority of customer income to buy the certain brand (Chahal & Mehta, 2010).

## **RESEARCH METHOD**

### **Sample and Data Collection**

This research is using quantitative research approach, non-probability sampling with purposive sampling method. There are 120 respondents which are collected based on these criteria; age between 18–40 years old, residing in Surabaya City, registered at a basketball community, using Nike brand at least six times when playing basketball within three previous months. The researcher visited several basketball communities in Surabaya City to collect the research data by distributing the questionnaire and interviewing the potential respondent.

### **Measurement**

The research using structural equation modelling through PLS to measure research variable. The research variables are Brand Reputation as independent variable, Brand Loyalty as dependent variable, Brand Relationship Quality as the intervening variable, and Switching Cost as the moderating variable.

**FINDINGS**

**Description Analysis**

The result for description analysis showed that the respondent perceived Nike brand as a good reputable brand, the respondents have a good brand relationship quality with Nike brand, the respondent loyal to Nike brand, and finally the respondents perceived high switching cost for Nike brand. There are rooms to be improved especially for brand relationship quality by improving customer trust and customer love toward Nike brand.

**Hypotheses Testing**

The research variables have meet the minimum requirement for validity and reliability testing. There are five hypotheses for this research:

*H<sub>1</sub>*: Brand Reputation affecting Brand Relationship Quality

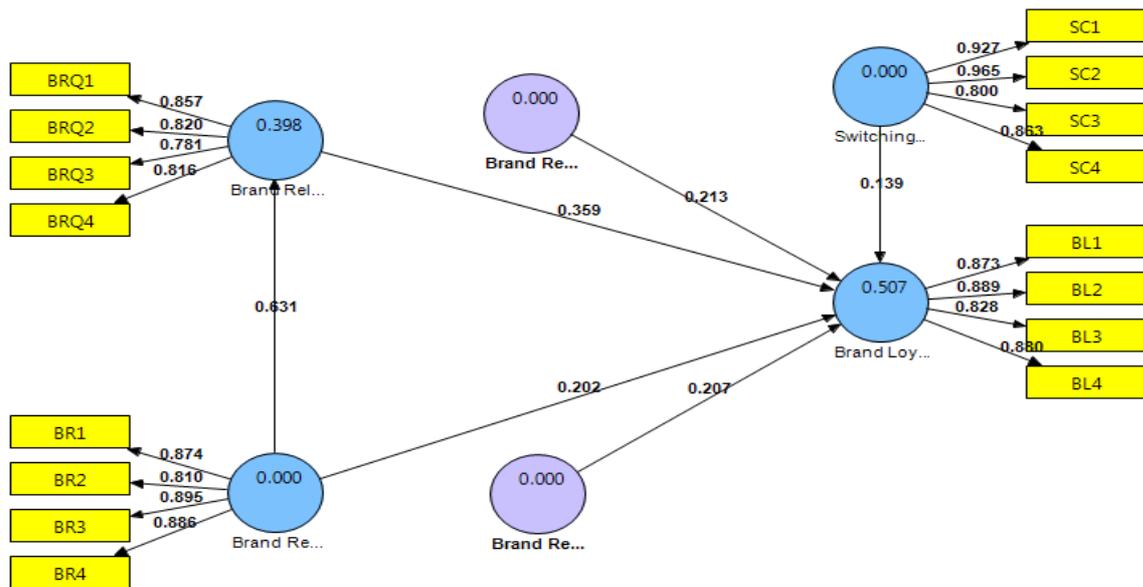
*H<sub>2</sub>*: Brand Reputation affecting Brand Loyalty

*H<sub>3</sub>*: Brand Relationship Quality affecting Brand Loyalty

*H<sub>4</sub>*: Switching Cost moderating the effect of Brand Reputation to Brand Loyalty

*H<sub>5</sub>*: Switching Cost moderating the effect of Brand Relationship Quality to Brand Loyalty

The research structural model can be seen on Figure 1.



**Figure1. PLS structural model**

Based on hypotheses testing, it can be concluded that those five hypotheses were significantly accepted.

**DISCUSSION**

Based on research findings showed that brand reputation significantly affecting brand relationship quality, the biggest loading factor score on brand reputation indicates that customer trust on Nike brand (product quality, store services) plays significant role in creating brand reputation. Nike management need to focus on its product quality and services to maintain its brand reputation in purpose to keep brand loyalty. This finding supported Seo and Park (2017) which explained that the company need to keep innovating in purpose to be the best it its product category and as the consequences it will lead to brand loyalty. Next brand reputation also affecting brand relationship quality, the higher Nike brand

reputation will increase the level of customer engagement or relationship toward the brand. Giovanis and Athanasopoulou (2016) argued that the company has to improve its product quality in order to keep brand reputation and it will stimulate brand relationship quality. The finding showed that customer has a high relationship toward Nike brand and also showed that customer switching cost is high which mean the customer face more cost if they switch from Nike brand to other footwear product brand. This finding is consistent with Aydin *et al.* (2005) who explained that the company has to create more barrier to exit for its customers.

## CONCLUSION

Brand loyalty is the main goal for every company by considering the benefits gained from this customer behavior. Brand reputation plays significant and very important roles in creating brand loyalty. The reputation can be improved by innovating product quality and product services. In addition, the company also need to focus on developing brand relationship quality through improving customer trust and customer love toward the brand. Finally, the company need to keep its performance in every aspect of the product in purpose to create the exit barrier both emotional and functional barrier. This barrier will increase customer switching cost and will impact to brand loyalty.

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# THE EFFECTS OF OWNERSHIP STRUCTURE AND BOARD OF DIRECTORS' CHARACTERISTICS ON EARNINGS MANAGEMENT

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## ABSTRACT

This research purpose was to obtain empirical evidence regarding the effect of institutional ownership, managerial ownership, foreign ownership, board of directors' meeting, board of directors' size, female board of directors, firm size, return on asset, leverage, and audit quality on earnings management. The Population of this research was all non-financial companies consistently listed in Indonesia Stock Exchange from 2017 to 2019. Purposive sampling was used to select 144 companies used as the research samples. Multiple regression and hypotheses test were used as the data analysis method. The result of this research statistically showed that firm size had negative effect on earnings management. Leverage had positive effect on earnings management. The other variables including institutional ownership, managerial ownership, foreign ownership, board of directors' meeting, board of directors' size, female board of directors, return on asset, and audit quality had no influence on earnings management in non-financial companies listed in Indonesia.

**Keywords:** *Earnings management, ownership structure, board of directors, characteristics, return on asset, audit quality.*

## INTRODUCTION

The rise of globalization in business and financial aspects cause the need to conduct comparative evaluation of reports between different countries (Jaggi & Leung, 2007). High reliance on financial information results in higher demand of quality reporting (Alareeni, 2018), as in financial statements should not include asymmetric information and earnings manipulation (Lawal, Nwanji, Opeyemi, & Adama, 2018).

Earnings manipulation is an act of management to manipulate earnings to report more favorable results (Beneish, 1999), and one of the methods include earnings management. Earnings management increases informational asymmetries between outsiders and insiders, causing adverse consequences including shareholders' wealth deterioration (Abad, Lucas-Pérez, Minguez-Vera, & Yagüe, 2017). Its pertinence leads to its popularity in being widely reviewed and evaluated in accounting literatures (Obigbemi, Omolehinwa, Mukoro, Ben-Caleb, & Olusanmi, 2016). This practice can occur in the preparation of financial statements using accrual basis (Gao, Gao, & Wang, 2017), and it is called accrual earnings management.

Several cases of known earnings management have occurred in Indonesia. The most recent one comes from a well-known Indonesian airline company, PT Garuda Indonesia Tbk (Hartomo, 2019). The case started in early April 2019 when the financial statement of 2018 was published, showing a net income amounted to USD 809.85 thousand despite its net loss in 2017 that amounted to USD 216.5 thousand. On the other hand, two commissioners of PT Garuda Indonesia believed the 2018 financial statement is not prepared in accordance with Financial Accounting Standard (PSAK). After several findings and processes, PT Garuda Indonesia was found recording accounts payable amounting to USD 239 million

from PT Mahata Aero Teknologi as revenue. The case ended with Financial Services Authority (OJK), Indonesia Stock Exchange, and Minister of Finance giving sanctions towards PT Garuda Indonesia, Kasner Sirumapea (a public accountant), and Tanubrata, Susanto, Fahmi, Bambang, and Partners Public Accounting Firm. From this case, it can be seen that earnings management is something that can be detected by of corporate governance, and by checking the possible abnormalities.

Due to cases of earnings management, the need to understand the determinants of earnings management emerged, including understanding of the nature of the factors, its affecting levels, and the direction of its influence (Dang, Hoang, & Tran, 2017). All of which are in order for financial statement users to obtain wider insights before making economic decisions. In developed countries, earnings management has been studied extensively; however, in developing countries like Indonesia, only a few studies have been conducted. This remain true especially for relation of topic specific to ownership structure and board of directors' characteristics as determinants toward earnings management. These situations hence motivate writer to conduct this research with the topic of earnings management and to obtain better insights regarding the influence of institutional ownership, managerial ownership, foreign ownership, board of directors' meeting, board of directors' size, female board of directors, firm size, return on asset, leverage, and audit quality on earnings management.

### **Agency Theory**

Firms were originally owned and managed by same parties, however as firms grew, agency divergence arose between agents and principals (Godfrey, Hodgson, Tarca, Hamilton, & Holmes, 2010), leading to firms roles as of contracts for agreements between different stakeholders (Megginson, 1997). This divergence causes agency theory emergence. Agency theory studies about agency problems arising from conflict of interest between principal and agents when both parties are utility maximizers (Linder & Foss, 2015). This occurs in an agency relationship where agents are under contact to perform service and decision making in the place of principals after authority delegation (Jensen & Meckling, 1976).

As agents are not the real bearer of wealth effects of their choices (Panda & Leepsa, 2017) and the existence of asymmetric information due to agents being closer to the firms operations, there is opportunity for agents to engage in self-interested behavior (Juhmani, 2017), which will incur agency costs (Bendickson, Muldoon, Liguori, & Davis, 2016). Jensen *et al.* (1976) defined agency costs as the sum of (1) the monitoring expenditures by the principal; (2) the bonding expenditures by the agent; and (3) the residual loss. One of practices made possible due to this issue, and in turn corroborate agency problems is earnings managements.

### **Earnings Management**

Earnings management is an practice by management to maximize loopholes in reporting standards with self-interested purpose at the costs of direct or indirect stakeholders (Obigbemi *et al.*, 2016). This unethical intentional practice cause financial statements alteration (Bello, 2011), which incite problem as stakeholders are being misled in the firms' underlying economic performance and adversely influences outcomes which depend on those information (Healy & Wahlen, 1999). Saona, Muro, and Alvarado (2019) considered earnings management as the direct consequence of agency problems.

There are several means for managers to engage in earnings management, including real and accrual earnings management. Roychowdhury (2006) pointed out real earnings management involves actual departures from normal operational practices, while accrual earnings management put more emphasize in exploiting accounting accruals (Anwar & Buvanendra, 2019). It is also called cosmetic earnings management as it doesn't involve actual cash flow consequences (Subramanyam & Wild, 2009).

### **Institutional Ownership and Earnings Management**

Institutional ownership defined as shares owned by institutional shareholders (Suwana, Purnomosidhi, & Mardiyati, 2017), usually in proportion compared to the firm's outstanding shares (Farooque, Suyono, & Rosita, 2013). It is considered as important governance mechanism (Anwar & Buvanendra, 2019), as institutions have higher monitoring power to prevent earnings management practices (San Martin Reyna, 2018).

Anwar and Buvanendra (2019) and Alzoubi (2016) found institutional ownership had a negative significant relation with earnings management. It means institutional ownership helps reduce earnings management, due to big institutional investors will actively monitor their investments. However, Pradipta (2019) and Asitalia and Trisnawati (2017) found insignificant relation between institutional ownership and earnings management in Indonesia. The same results were obtained in Indonesia by Firnanti (2017), Almalita (2017) and Guna and Herawaty (2010).

*Ha<sub>1</sub>*: Institutional Ownership has influence on earnings management.

### **Managerial Ownership and Earnings Management**

Managerial ownership is defined as shares owned by the firm's management in proportion to the outstanding shares (Mueller & Spitz-Oener, 2006), typically considered as corporate governance mechanism to prevent earnings management practices. As managers owned the firm's shares, their goals will align to shareholders' interest (Anwar & Buvanendra, 2019).

Anwar and Buvanendra (2019) found a significant negative relation between managerial ownership and earnings management. Contrary to that, Ilmas, Tahir, Asrar-ul-Haq, and McMillan (2018) found that managerial ownership had a significant positive effect toward earnings management. Meanwhile, Nugroho and Eko (2012), Asitalia and Trisnawati (2017), Yunietha and Palupi (2017), and Napitupulu (2012) found that managerial ownership did not show a significant effect on earnings management practices in Indonesia, due to the fact managerial ownership made up a small amount of total ownership.

*Ha<sub>2</sub>*: Managerial Ownership has influence on earnings management.

### **Foreign Ownership and Earnings Management**

Foreign ownership is the proportion of shares being owned by individuals or institutions that have foreign status in term of the firms' country (Sumilat & Destriana, 2017). Foreign investors are perceived as effective monitoring unit to prevent earnings management, due to their creativity in seeking information (Anwar & Buvanendra, 2019).

In line with that, Alzoubi (2016) and Alexander (2019) researches showed that foreign ownership has a significant negative impact on earnings management. However, Anwar and Buvanendra (2019) and Farouk and Bashir (2017) found otherwise, probably due to high monitoring costs incurred by foreign investors leading to bigger chance for management to do opportunistic behavior. Lack of managerial know-how, financial resources, and expertise of foreign investors, and possibility of foreign investors only interested in short-term returns might also affect these findings. The result obtained was different in Malaysian companies (Mohd Ali, Mohd Salleh, & Hassan, 2008), showing an insignificant relationship between foreign ownership and earnings management.

*Ha<sub>3</sub>*: Foreign Ownership has influence on earnings management.

### **Number of Board Meetings and Earnings Management**

Obigbemi *et al.* (2016) defined board meeting as the routine formal meeting held by board of directors to review performance, discuss policy issues, and address problems and other inquiries. Higher frequency of board meetings is often perceived as indicators of board members diligence. This diligence will create more powerful monitoring power, making operations and preparation of financial statements are more controlled, therefore lowering earnings management practices (Obigbemi *et al.*, 2016).

Obigbemi *et al.* (2016) and Ngamchom (2015) found positive significant relationship between number of board meetings and earnings management, indicating that board that use too much time in board meeting will then have less time to actually oversee management's performance (Jensen, 1993). On the other hand, Xie *et al.* (2003), Gulzar and Zongjun (2011), and Kankanamage (2016) found a significant negative relationship, showing that board acts as effective monitors. Alzoubi (2016) found insignificant relationship between board meetings and earnings management, indicating lack of effectiveness of board meeting due to the fact that daily duties restricts members time to set board meeting agenda.

*Ha<sub>4</sub>*: Board of Directors' Meeting has influence on earnings management.

### **Board of Directors' Size and Earnings Management**

Board of directors are those who have highest rank in internal management system, their tasks include supervising and controlling the management (Nugroho & Eko, 2011). Board size is the number of members in its board of directors. The impact of board size toward earnings management is not conclusive (Saona *et al.* 2019). Some suggests more board members mean more parties that act as monitoring units to prevent earnings management. Others argued smaller board size will be more dynamic. Their monitoring activities will be organized and aligned, making them more effective in lowering earnings management practices.

Gulzar and Zongjun (2011) found a significant positive relationship between board size and earnings management practices. On the other hand, Khosheghbal, Amiri, and Homayoon (2017) found that there is no significant effect of board size on earnings management of companies in Tehran Stock Exchange. The same result of insignificant relation between board size and earnings management was also found by Asitalia and Trisnawati (2017). In Indonesia, Yunietha and Palupi (2017) found insignificant relationship between board size and earnings management. On the contrary, Obigbemi *et al.* (2016) and Saona *et al.* (2019) found board size had a significant negative effect toward earnings management.

*Ha<sub>5</sub>*: Board of Directors' Size has influence on earnings management.

### **Female Board of Directors and Earnings Management**

Saona *et al.* (2019) defined female directors as the proportion of female board members in the board of directors. Female board of directors actively participate and present in a board of directors as one of the board members can lower earnings management, because female tends to be more sensitive toward ethical issues (Abad *et al.*, 2017).

Obigbemi *et al.* (2016), Ocak and Arıkboğa (2017), Temiz, Dalkılıç, and Hacıhasanoğlu (2018), Saona *et al.* (2019), and Gulzar and Zongjun (2011) found that the existence of females in board of directors had negative significant impact on earnings management. The possible reason is the fact that women tend have higher moral and more sensitive toward manipulative practices. However, a study conducted in Malaysian listed companies showed a different result that there is insignificant relation between female board members and earnings management (Abdullah & Ismail, 2016). The same result was obtain by Arun, Almahrog, and Ali-aribi (2015).

*Ha<sub>6</sub>*: Female Board of Directors has influence on earnings management.

### **Firm Size and Earnings Management**

Firm size is an indicator to determine the company capabilities to manage stockholders investment by improving their welfare, and it can be shown by the firm total assets (Farooque *et al.*, 2013). Bassiouny (2016) stated that bigger firm have stronger internal control which will result in lower earnings management practices. However, San Martin Reyna (2018) stated larger firms face greater expectation, heightening the pressure to deliver good performance in financial statements, making them inclined to conduct earnings management practices.

Uwuigbe, Uwuigbe, and Bernard (2015) and San Martin Reyna (2018) found a significant positive relationship between firm size and earnings management. This implies that growing firms have higher motivations to engage in earnings management practice because of the complexity of their transactions, believing that it is harder for users to identify overstatement. Another possible explanation is the bigger the firm, the more pressure the firm has to conduct earnings management. Contrary to those, Yasser and Soliman (2018) and Anwar and Buvanendra (2019) found a significant negative relationship between firm size and earnings management, Alareeni (2018) found that the relationship between firm size and earnings management are not significant. Bassiouny (2016), Juhmani (2017), Saniamisha and Tjhai (2019), and Llukani (2013) also got the same results.

*Ha<sub>7</sub>*: Firm Size has influence on earnings management.

### **Return on Asset and Earnings Management**

Return on asset is one of profitability ratio, measuring the capabilities of the management in generating earnings by utilizing its available assets (Yuliana & Trisnawati, 2015). Therefore it is usually measured by net income divided by total assets (Susanto, 2013). The underlying assumption of management wanting to get bonuses from their performance will cause management to pursue earnings management to obtain higher return on asset, causing return on asset to have positive correlation with earnings management. However, Susanto (2013) stated that investors do realize earnings reported in financial statement have susceptibility to management manipulation, therefore return on asset will not affect earnings management.

Florencia and Susanty (2019), Firnanti (2017), Guna and Herawaty (2010) found positive significant relation between return on asset and earnings management. Conversely, Alzoubi (2016) and Ali, Chen, and Radhakrishnan (2007) found negative influence between return on asset and earnings management. The reason is because of the fact that companies with already high return on asset as in profitability, there will be no motivation anymore for the management to conduct earnings management practices. However, Susanto (2013) and Chandra and Djashan (2018) found no correlation. The reason is because investors realize the possibility of manipulation in earnings reported in financial statement due to its accrual nature, so there will be no reason for management to be motivated based on this.

*Ha<sub>8</sub>*: Return on Asset has influence on earnings management.

### **Leverage and Earnings Management**

According to Mustamin and Usman (2019), financial leverage is a ratio used to determine how much the firm's assets are financed by debt. Leverage is a ratio between total liabilities and total asset, therefore the higher the leverage, the higher the total liabilities of a firm (Yuliana & Trisnawati, 2015). Khanh and Thu (2019) stated higher leverage shows higher liabilities, which might increase the

existence of debt covenants that the companies must abide to. This can pressure companies to manage their earnings to meet those debt covenants.

Uwuigbe *et al.* (2015), Juhmani (2017), and Chandra and Djashan (2018) found insignificant relationship between leverage and earnings management. There are many researches that obtained significant positive correlation as well. Bassiouny (2016) found a significant positive relation between financial leverage and earnings management. Yasser and Soliman (2018), San Martin Reyna (2018) and Anwar and Buvanendra (2019) also found significant positive relation between leverage and earnings management. The higher the leverage, the more associated companies with earnings management. The same result was also obtained by Mustamin and Usman (2019), in line with agency theory.

*Ha<sub>9</sub>*: Leverage has influence on earnings management.

### **Audit Quality and Earnings Management**

Suseno (2013) emphasized audit quality as the ability of an auditor to identify material misstatement in financial statements, and also the willingness of auditors to issue unbiased audit opinion based on the true audit results. Yasser and Soliman (2018) suggested that high quality audit is often associated with big four auditors, because they have greater number of clients leading to them having higher independence. In addition, big four auditors have more to lose and need to maintain their reputation. From the technical side, big four auditors have more resources and therefore can provide better services. Due to those reasons, big four auditors will conduct more thorough audit and discover earnings management practices during their audit.

Bassiouny (2016) and Yasser and Soliman (2018) found that firm's audit quality has insignificant impact toward earnings management, meaning that big four could not constrain earnings management practices in Egyptian companies. In Indonesia, Yunietha and Palupi (2017) and Napitupulu (2012) obtained the same result, indicating that earnings management remain unaffected regardless of whether firms audited by big four or non-big four auditors.

Uniquely, Lisboa (2016) found that audit from big four companies has significant positive impact toward earnings management. The reason possibly due to the fact that the samples were taken during financial crisis period. This could due to the fact that big four auditors have dependency on their clients, the firms. Anwar and Buvanendra (2019) and Guna and Herawaty (2010) obtained significant negative relation between big four auditors and earnings management, it means that big four auditors are likely to disclose material errors, leading to discouragement toward earnings management.

*Ha<sub>10</sub>*: Audit Quality has influence on earnings management.

### **RESEARCH METHOD**

The population used for this research is all non-financial companies listed in Indonesia Stock Exchange from 2017 to 2019. The samples are selected by purposive sampling based on criteria summarized below.

Table 1 shows that the population of this research are 436 non-financial companies consistently listed in Indonesia Stock Exchange from 2016 to 2019. After filtering the population with the criteria above, the number of companies that pass the filter and therefore will be used as samples in this research is 114 firms, which is equivalent to 342 data if multiplied by three years.

**Table 1**  
**Sample Selection Procedure**

Criteria Description	Total Firms	Total Data
Non-financial companies consistently listed in Indonesia Stock Exchange from 2016 to 2019	436	1,308
Not consistently published financial statements ended as of December 31 <sup>st</sup> from 2016 to 2019	(87)	(261)
Not consistently used IDR currency in the financial statements from 2016 to 2019	(1)	(3)
Not consistently disclose managerial ownership from 2017 to 2019	(179)	(537)
Not consistently disclose institutional ownership from 2017 to 2019	(12)	(36)
Not consistently disclose foreign ownership from 2017 to 2019	(43)	(129)
Number of sample firms used	114	342

Source: Data is obtained and processed from IDX ([www.idx.co.id](http://www.idx.co.id))

### Operational Definition of Variables and Measurement

The dependent variable of this research is earnings management. The proxy used for earnings management is the absolute value of discretionary accruals (ABSDACC) estimated through the performance-matched discretionary accrual model of Kothari *et al.* (2005), thereby adopting the same proxy with Anwar and Buvanendra's (2019) research. According to Alves (2012), this proxy is the most commonly used proxy for earnings management. Discretionary accruals (*DACC*) are calculated by following several steps. The first step is to find total accruals. Total accruals is considered as a prerequisite to run the regression (Anwar & Buvanendra, 2019). Cash flow approach is adopted to evaluate total accruals (*TA*). According to cash flow approach, *TA* is the difference between net income before extraordinary items (*NI*) and cash flow from operating activities (*OCF*). Therefore to calculate total accruals, the formula is as follows:

$$TA = NI - OCF$$

After total accruals are found, then the next step is to find the regression residuals from the equation below. The regression residuals obtain is considered as the discretionary accruals. The equation is as follows:

$$\frac{TA_{it}}{A_{it-1}} = \beta_0 + \beta_{1i} \left[ \frac{1}{A_{it-1}} \right] + \beta_{2i} \left[ \frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}} \right] + \beta_{3i} \left[ \frac{PPE_{it}}{A_{it-1}} \right] + \beta_4 ROA_{it} + \varepsilon_{it}$$

Where,

$TA_{it}$	Total accruals for the company <i>i</i> in the year <i>t</i>
$A_{it-1}$	Total assets for the company <i>i</i> at the end of year <i>t-1</i>
$\beta_0$	Intercept
$\beta_1 - \beta_4$	Coefficients
$\Delta REV_{it}$	Change in revenue for the company <i>i</i> between <i>t-1</i> and <i>t</i>
$\Delta REC_{it}$	Change in receivables for the company <i>i</i> between year <i>t-1</i> and <i>t</i>
$PPE_{it}$	Gross property, plant, and equipment for the company <i>i</i> in the year <i>t</i>
$ROA_{it}$	Return on assets for the company <i>i</i> in year <i>t</i>
$\varepsilon_{it}$	Residual for the company <i>i</i> in year <i>t</i>

### **Institutional Ownership**

Institutional ownership is the total percentage of common stock held by institutional shareholders (Anwar & Buvanendra, 2019). The same measurement was used in research conducted by Firnanti (2017). Institutional ownership is measured by ratio scale with the measurement as follows:

$$INS = \frac{\text{Common stock held by institutional shareholders}}{\text{Total outstanding shares}} \times 100\%$$

### **Managerial Ownership**

Managerial ownership is the total percentage of common stock directly owned by management (Guna & Herawaty, 2010). The definition from Nugroho and Eko (2011) is the same, that is common stocks owned by management which includes board of directors and board of commissioners. Therefore, managerial ownership is measured by a ratio scale and measured as follows:

$$MAN = \frac{\text{Common stock owned by management}}{\text{Total outstanding shares}} \times 100\%$$

### **Foreign Ownership**

Foreign ownership is the total percentage of common stock owned by foreign (non-resident) shareholders (Anwar & Buvanendra, 2019). The same measurement was used by Alzoubi (2016). Foreign ownership is measured by a ratio scale and measured as follows:

$$FOR = \frac{\text{Common stock held by foreign shareholders}}{\text{Total outstanding shares}} \times 100\%$$

### **Number of Board Meetings**

Number of board meetings is the frequency of board meetings held in a firm in the respective financial year (Obigbemi *et al.*, 2016). Board meetings is measured by a ratio scale, and the measurement for board of directors' meeting is as follows:

$$BMEET = \text{Number of board of directors' meeting in } t \text{ year}$$

### **Board of Directors' Size**

Board of directors' size is measured by the number of board members consisting a particular firm board of directors (Saona *et al.*, 2019). Board size is measured by a ratio scale and therefore the proxy used is as follows:

$$BSIZE = \text{Number of members in board of directors}$$

### **Female Board of Directors**

Female board of directors is the proportion of female board members in the board of directors of a particular firm (Saona *et al.*, 2019). The same proxy will be used in this research. Female board of directors is measured by a ratio scale and the measurement of female board of directors is as follows:

$$BFEM = \frac{\text{Number of female board members}}{\text{Number of members in board of directors}}$$

### **Firm Size**

Firm size is measured by the natural logarithm of total assets, according to Anwar and Buvanendra (2019) and Alzoubi (2016). Firm size is measured by a ratio scale and thus the proxy used to measure firm size is as follows:

$$SIZE = \text{Natural logarithm of total assets at year end}$$

### **Return on Asset**

Return on asset is measured by dividing total assets of the firm in the respective year with net income as in profit after tax of the same year (Anwar & Buvanendra, 2019) and (Alzoubi 2016). Return on asset is measured by a ratio scale and thus the proxy used to measure return on asset is as follows:

$$ROA = \frac{\text{Net Income (Profit After Tax)}}{\text{Total Assets}}$$

### **Leverage**

Leverage describes the relationship between total company's liabilities and total company's asset. Financial leverage is measured by the ratio of total liabilities to total assets (Anwar & Buvanendra 2019). Financial leverage is measured by a ratio scale (Alzoubi, 2016) and the proxy to be used as the measurement for financial leverage is as follows:

$$LEV = \frac{\text{Total liabilities}}{\text{Total assets}}$$

### **Audit Quality**

Audit quality is often associated with big four auditors (Yasser & Soliman, 2018). The same proxy was used by Anwar and Buvanendra (2019). In determining audit quality, big four auditors will be used as the proxy. If the firm is audited by big four auditors, then this variable will be coded as 1, otherwise audit quality (AQ) will be coded as 0. This research will follow the same proxy to measure audit quality. Audit quality is measured by nominal scale.

### **Data Analysis Method**

After the data is collected, the data is processed using analysis software. Data analysis method used in this research is multiple regression to examine the influence of several independent variables to one dependent variable in this context earnings management. The empirical model used in this research to test the hypotheses are:

$$ABSDACC = \beta_0 + \beta_1(INS) + \beta_2(MAN) + \beta_3(FOR) + \beta_4(BMEET) + \beta_5(BSIZE) + \beta_6(BFEM) + \beta_7(SIZE) + \beta_8(ROA) + \beta_9(LEV) + \beta_{10}(AQ) + \varepsilon$$

Where,  
*ABSDACC* = absolute value of discretionary accruals  
*β0* = intercept  
*β1-β11* = variable coefficients  
*INS* = institutional ownership  
*MAN* = managerial ownership  
*FOR* = foreign ownership  
*BMEET* = board of directors' meeting  
*BSIZE* = board of directors' size  
*BFEM* = female board of directors  
*SIZE* = firm size  
*ROA* = return on asset  
*LEV* = leverage  
*AQ* = audit quality  
*ε* = residual of

## FINDINGS

Descriptive statistics is used to showed about the mean, minimum, maximum, and standard deviation of the data collected. The result of descriptive statistics can be seen on Table 2.

**Table 2**  
**Descriptive Statistics**

	<i>N</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Mean</i>	<i>Std. Deviation</i>
ABSDACC	342	0.0000000	0.3306256	0.0528748	0.0516323
INS	342	0.0004902	0.9993591	0.7767548	0.2413272
MAN	342	0.0000001	0.8492501	0.0865933	0.1716691
FOR	342	0.0000018	0.9452213	0.2636469	0.2693380
BMEET	342	4.0000000	60.0000000	18.9400000	12.0370000
BSIZE	342	2.0000000	14.0000000	5.3500000	2.0220000
BFEM	342	0.0000000	0.6666667	0.1541420	0.1938457
SIZE	342	24.6236231	33.4945330	29.0982607	1.7815774
ROA	342	-1.4652625	0.4666014	0.0320537	0.1316290
LEV	342	0.0063616	1.5385151	0.4652092	0.2085841
AQ	342	0.0000000	1.0000000	0.3500000	0.4770000

**Table 3**  
**Correlation Coefficient Test**

Model	<i>R</i>	<i>R Square</i>	Adjusted <i>R Square</i>	Std. Error of the Estimate
1	0.272 <sup>a</sup>	0.074	0.046	0.050

a. Predictors: (Constant), *INS*, *MAN*, *FOR*, *BMEET*, *BSIZE*, *BFEM*, *SIZE*, *ROA*, *LEV*, *AQ*

b. Dependent Variable: *DACC*

## DISCUSSION

The *t-test* result shows significance level of institutional ownership (*INS*) is 0.070. It is above 0.050.  $H_{a1}$  is rejected. This means institutional ownership has no influence to earnings management. This might happen due to consistently similar level of institutional ownership throughout firms in Indonesia.

The *t-test* result shows significance level of managerial ownership (MAN) is 0.294. It is above 0.050.  $H_{a2}$  is rejected. This means managerial ownership has no influence to earnings management. This result may be due to the fact that managerial ownership level in Indonesia is small.

The *t-test* result shows significance level of foreign ownership (FOR) is 0.609. It is above 0.050.  $H_{a3}$  is rejected. This means foreign ownership has no influence to earnings management. Possible reasons include higher monitoring costs incurred by foreign investors, lack of insights from the foreign parties, or foreign investors more interested in short term gains.

**Table 4**  
***t*-Test Result**

Variable	<i>B</i>	Sig.	Decision
INS	0.000	0.070	$H_{a1}$ rejected
MAN	0.000	0.294	$H_{a2}$ rejected
FOR	-0.0001	0.609	$H_{a3}$ rejected
BMEET	-0.0001	0.692	$H_{a4}$ rejected
BSIZE	-0.001	0.446	$H_{a5}$ rejected
BFEM	0.018	0.199	$H_{a6}$ rejected
SIZE	-0.007	0.002	$H_{a7}$ accepted
ROA	0.021	0.365	$H_{a8}$ rejected
LEV	0.040	0.006	$H_{a9}$ accepted
AQ	0.006	0.356	$H_{a10}$ rejected

Dependent variable DACC

The *t-test* result shows significance level of board of directors' meeting (BMEET) is 0.692. It is above 0.050.  $H_{a4}$  is rejected. This means board of directors' meeting has no influence to earnings management, possibly due to no real correlation between the frequency of meetings to earnings management prevention.

The *t-test* result shows significance level of board of directors' size (BSIZE) is 0.446. It is above 0.050.  $H_{a5}$  is rejected. This means board of directors' size has no influence to earnings management. This means regardless of the board size, earnings management remain unaffected.

The *t-test* result shows significance level of female board of directors (BFEM) is 0.199. It is above 0.050.  $H_{a6}$  is rejected. This means female board of directors has no influence to earnings management, possibly due to low number of female board members existence in Indonesian listed firms.

The *t-test* result shows significance level of firm size (SIZE) is 0.002. It is below 0.050.  $H_{a7}$  is accepted. This means firm size has influence to earnings management. The negative coefficient showed that firm size has negative significant influence on earnings management. It means the bigger the firm, the lower the earnings management practices. Larger firms may have stronger internal control system and more competent internal auditors compared to smaller firms. This will lead to stronger corporate governance, helping in publishing reliable and high quality financial statement. Larger firms are also usually audited by big four, causing effective audit which will prevent earnings management better. Another reason would be due to higher reputation cost in larger firms. These three reasons prevent larger firms to engage in earnings management practices (Bassiouny, 2016).

The *t-test* result showed significance level of return on asset (ROA) is 0.365. It is above 0.050.  $H_{a8}$  is rejected. This means return on asset has no influence to earnings management. The reason is because investors realize the possibility of manipulation in earnings reported in financial statement due to its accrual nature, so there will be no reason for management to be motivated based on this.

The *t-test* result showed significance level of leverage (LEV) is 0.006. It is below 0.050.  $H_{a9}$  is accepted. This means leverage has influence to earnings management. The positive coefficient showed that leverage has positive significant influence on earnings management. It means the higher the leverage, the higher the earnings management practices. High leverage means higher proportion of the firm's assets being financed using liabilities, including debt. This might increase the existence of debt covenants that the companies must abide to, pressuring companies to make sure the performance look well and to meet those covenants (Khanh & Thu, 2019) Therefore, higher leverage increase the possibility of earnings management practices.

The *t-test* result showed significance level of audit quality (AQ) is 0.356. It is above 0.050.  $H_{a10}$  is rejected. This means audit quality has no influence to earnings management. Possible reason includes other characteristics of audit might affect earnings management more including audit tenure, industry specialization, audit committee characteristics, and audit tenure.

## CONCLUSION

Based on the result of this research which is conducted on 114 non-financial companies consistently listed in Indonesia Stock Exchange from 2017 to 2019, it can be concluded that firm size and leverage have influence on earnings management. Meanwhile, other variables including institutional ownership, managerial ownership, foreign ownership, board of directors' meeting, board of directors' size, female board of directors, return on asset, and audit quality have no influences toward earnings management.

In sum, findings of this study highlight the significance of firm factors, especially firm size and leverage. Firm size helps to prevent earnings management practice. Larger firms may have stronger internal control in place including organized corporate governance and internal audit, coupled with them having higher reputation cost to protect. These reasons cause larger firms to have lower earnings management practices. On the other hand, firms with higher leverage tend to practice earnings management. Such findings may occur as the existence of higher leverage may pressure firms to keep up performance by conduct earnings management to abide to the existing debt covenants. Opposed to the expectation, ownership structure and board of directors' characteristics have no influence on earnings management. The reasons could include low presence or impact of such variables in Indonesian companies and consistently similar level of the variables throughout the companies in Indonesia. The findings of this study recommend that both regulators and policy-makers need to consider firm factors and the different impacts they have on earnings management. At the same time, investors could make their future investing decisions by considering that firm size helps prevent earnings management whereas leverage increase the possibility of such practices.

This study only focuses on accrual-based earnings management, while there is another type of earnings management known as real activity-based earnings management as proposed by Roychowdhury (2006). In addition, several limitations exist in this research, including (1) the data of this research are not normally distributed; (2) this research contains heteroscedasticity problem; and (3) only two independent variables are found having influence on earnings management, weak correlation between independent variables and earnings management is also found as shown by the low adjusted *R-Square* (4.6%). Therefore, as a recommendation, future research could study the impact of ownership structure, board of directors' characteristics, and firm factors on real activity-based earnings management. Finally, the existing limitations may be overcome by adding data to obtain higher generalization to overcome normality issues and conduct transformation data procedures to solve heteroscedasticity problem.

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# FACTORS AFFECTING THE USE OF DIGITAL INFORMATION SOURCES FOR WORK PURPOSES AMONG RURAL ENTREPRENEURS

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## ABSTRACT

This study aimed to determine the factors affecting the use of digital information sources by rural entrepreneurs in Malaysia. Rural communities in Malaysia consisted of a quarter of the Malaysian population. In rural areas, the Malaysian government had embarked on digital initiatives of providing infrastructures to narrow the digital divide in Malaysia. To date, there were limited research on the use of digital information sources by rural community, particularly for the purposes of work-related information. Thus, it was imperative and timely to research on the factors affecting the use of digital information sources. The conceptual framework of this study was developed from cost-benefit theory. Data were collected from 423 rural entrepreneurs via a telephone interview survey. Collected data were analysed using partial least squares structural equation modelling.

**Keywords:** *Digital information sources, rural entrepreneurs, work-related.*

## INTRODUCTION

Information is one of the most important resources that is required in a knowledge-based economy such as Malaysia as it encourages the citizens to contribute to the country's socio-economic growth (Roztock, Soja, & Weistroffer, 2019; Woolcock & Narayan, 2000). Information leads to an increase in understanding and a decrease in uncertainty that affect an individual's behaviour, decision-making, and the outcome (Berger & Lafferty, 2017). In the current information age, information acquired from digital sources is more frequently used in urban area (Badarudin, Din, Prastyo, Musa, & Kasim, 2018). Information seekers from urban and rural community, may have different approaches to seek information (Dutta, 2009; Mshana, Hampshire, Panter-Brick, & Walker, 2008). According to Dutta (2009), urban dwellers highly prefer seeking information from digital sources as they are more effective and efficient. However, due to spatial barriers, rural dwellers prefer using traditional information sources. Information seekers view accessibility of information and quality of information as important in the process of information-seeking. Source accessibility refers to the time and effort required to access the information source that has the information needed and is available for use (Agarwal, Xu, & Poo, 2011; Zimmer, Henry, & Butler, 2007). Quality of information is largely dependent on information providers who produce and publish the information online or offline (Stohl, Stohl, & Leonardi, 2016). Information needs can be studied at both individual and organisation levels (Spink & Cole, 2006).

In organisations, the information needs for accomplishing a task affect and are affected by the environment within and outside the organisation. Therefore, it is important to understand individuals' information behaviour (Fidel & Pejtersen, 2004; Spink & Cole, 2006). Entrepreneurs gain knowledge from seeking information through multiple sources to enhance their task performance such as executing proper decision making and problem-solving in the organisation (Spink & Cole, 2006). Besides, personal factors also affect the information seeking behaviour of the information seekers. Information seekers calculate the cost in terms of monetary or effort to determine the sources to be used. If there are any barriers to the information, lack of knowledge, more hustle to reach the information, information seekers will look for an alternative source as it might not be worth the effort (Agarwal *et al.*, 2011; Xu, Tan, & Yang, 2006).

Limited studies have been conducted to understand entrepreneurs' information-seeking behaviour particularly in the rural context. Questions such as "Where does one seek for information in the rural

context?” and “Why does one choose a particular information source instead of other sources?” triggered plenty of researchers who are interested in organisational behaviour and information science (Case, 2016; Halili & Sulaiman, 2018; O'Reilly, 1980; Xu *et al.*, 2006). This study aims to investigate the above-mentioned questions by focusing on rural entrepreneurs in Malaysia.

In the year 2020, the Malaysian government released a government blueprint – Malaysia Shared Prosperity Vision (SPV 2030) with the objectives of: (i) development for all – restructuring economy, (ii) addressing wealth and income disparities – addressing inequalities and (iii) united, prosperous and dignified nation – nation building. The Malaysian government implemented digital infrastructure initiatives such as establishing telecentres and providing short courses for users to learn how to use the Internet (MyGovernment, 2020) to bridge the digital divide between urban and rural communities. There are 870 *Kampung Tanpa Wayar* (Wireless Villages) which was later renamed to *Pusat Internet Malaysia* (Malaysia Telecentre) built by the Malaysian government to ensure that the ICT infrastructures are available in the rural areas (MCMC, 2019). It is believed that entrepreneurship is an effective tool to boost the socio-economic status of developing countries. As such, various initiatives such as “*Karnival Usahawan Desa*” (Rural Entrepreneurial Carnivals) have been launched to encourage the rural communities to fully utilise the telecentres and help digitalise the entrepreneurs’ business (MalayMail, 2019).

In the recent studies on the information-seeking behaviour of the rural communities of Malaysia, it is found that rural dwellers use mostly traditional sources despite government initiatives of providing digital infrastructures (Ismail & Affandy, 2013; Omar, Omar, Kamaludin, Othman, & Yusoff, 2018; Yunan, 2011). Nevertheless, the recent literature has indicated that rural entrepreneurs are prone to use digital sources in spite of some limitations such as lack of funds to support ICT implementation, and language and literacy barriers (Ariff, 2020; Halili & Sulaiman, 2018; Yeong *et al.*, 2018). These findings further justified the need to conduct this study.

## LITERATURE REVIEW AND HYPOTHESIS

### Cost-Benefit Model

The cost-benefit model or cost-benefit analysis (CBA) is a progressive method that studies and compares the cost and benefits of the investment made towards a particular income (Maresova, Sobeslav, & Krejcar, 2017). When information is provided, information receiver will suffer some welfare loss such where the information receiver will attempt to minimise the losses in order to involve a fair trade-off between the quality of source of information (Ratchford, 1982). Whereas, Hauser, Urban, and Weinberg (1993) agreed that cost-benefit model is the optimum framework that seeks the benefits (which are also known as value) from information must be fair with the cost of obtaining the information. However, the costs do not just include welfare losses but also the accessibility to the information and the benefits of the information are the quality of the information (Fidel & Pejtersen, 2004; Woudstra, van den Hooff, & Schouten, 2016). Agarwal *et al.* (2011) argued that the decisions may vary with the use of cost-benefit model as the factors varies across people, tasks and environment. Woudstra *et al.* (2016) agreed by stating that people may have different level of acceptance of time and effort to receive the benefit, thus concluded that accessibility and quality of information received by information receiver varies according to time pressure information seekers.

Cost-benefit model is when the seeker identifies the potential gains and losses when using an information channel and selects the information source on a basis (Bronstein & Baruchson-Arbib, 2007). According to Wang, Sarkar, and Shah (2017), the perceived accessibility is known as the cost whereas the quality of the information is the benefit in a decision-making process. Individual would seek for the least effort in order to reach the highest quality decisions. In order for an information seeker to receive the information, the seeker is required to put in an effort to access the information source (Xu *et al.*, 2006). The difficulty in understanding the information is the cost to the information seeker in the cost-benefit calculation because the seeker tends to minimise the cost and potential loss associated with accessing the information with the use of digital sources (Agarwal *et al.*, 2011). Prior studies have used cost-benefit model to determine the information-seeking behaviour (Agarwal *et al.*, 2011; Xu *et al.*, 2006). This model enables the researchers to determine what sources and why the information seekers

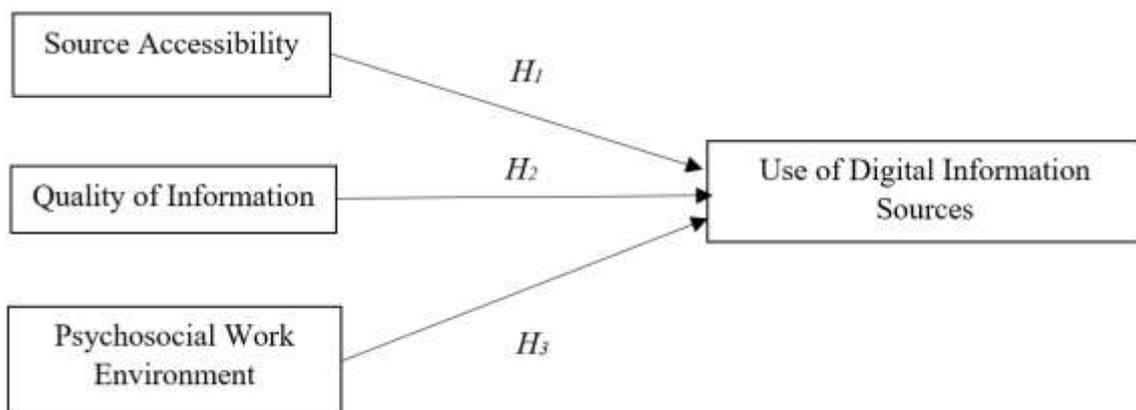
prefer particular source to other alternatives (Agarwal *et al.*, 2011). Other alternatives might require more effort and cost in order to receive the information hence information seeker will not use the source. Thus, cost-benefit model is integrated to identify how rural entrepreneurs in Malaysia select the digital information source to seek for work-related information.

### Traditional vs. Digital Information Sources

Sources of information can be classified into two major sources, which are mainly traditional sources and digital sources. In this research, traditional sources are defined as sources of information that is relayed through non- electronic imaging or sound (Johnson & Kaye, 1998). Traditional sources such as word of mouth are often used to receive information in a faster way. However, the credibility of information is scored in midpoint as it involves emotional contagion and affect infusion during the response process (Söderlund & Rosengren, 2007; Sulemani & Katsepor, 2007). The rural dwellers also heavily depend on word of mouth (Islam & Ahmed, 2012) as it is more convenient. Word of mouth is an information conversation between two or more people which has powerful impacts towards the behaviour of the person during decision-making process. Radio was rated as the most credible source as compared to other traditional sources among the rural folks (Kim & Johnson, 2009; Rodriguez, Kulpavaropas, Annamalai, Wright, & Evans, 2015) because the information broadcasted were found to be more truthful. On the other hand, according to digital sources are defined as a source of information that is transmitted through the electronic platform such as World Wide Web (WWW) and Internet (Schatz, 1997). Recent researchers found that the rural dwellers demonstrated lesser interest in using radio or television to receive information and they have turned to E-mails and social networks to receive information in a faster way (Camillo, 2020; KrzyżAnowska & Wawrzyniak, 2019). As the technology advances, both traditional information sources and digital information sources have merged leading to digital convergence (Chung, Boutaba, & Hariri, 2014). Digital convergence is “a take-over of all forms of media by one technology” (Mueller, 1999, p. 12) such as digital computers, smartphones, digital television, cloud and more (Vukanovic, 2018). The use of digital sources increases as information becomes more widely available and accessible.

### Hypothesis Development

In the present study, the conceptual framework was adapted from the Cost-Benefit model developed by Xu *et al.* (2006) and is presented in Figure 1.



**Figure 1. Conceptual framework of the study**

#### Source Accessibility

According to O'Reilly (1983), accessibility of source is the primary determination of use of the particular source. The characteristics of accessibility such as timeliness and effort forms opinions about the sources, thus affects the selection of information sources by the information seeker (Christensen & Bailey, 1997). According to prior research, it is found that source accessibility is one of the primary

factors determining the use of an information source (Gray & Meister, 2004; Zhang, 2014; Zimmer *et al.*, 2007). Previous studies found that information seekers tend to seek for information from people who they are more familiar with in their social networks (Hertzum, Andersen, Andersen, & Hansen, 2002; Woudstra, van den Hooff, & Schouten, 2012). According to Woudstra *et al.* (2016), information seekers are willing to trade off their time to acquire true and quality information. Besides, with little effort required, it is deemed that the information source has higher accessibility which can be accessed relatively fast (Woudstra *et al.*, 2016). There is a positive relationship between seeker's perceived accessibility to source and the selection of use of information source (Zhang, 2014). Source accessibility is one of the determinants for an individual to select whether to use the source. Therefore, this study hypothesises that:

*H<sub>1</sub>: Source accessibility positively influences the use of digital information sources for work purposes among the rural entrepreneurs in Malaysia.*

### **Quality of Information**

Quality information is which the information or literature provides sufficient details to use or the extent to successfully serves the purpose to information seekers (Kahn, Strong, & Wang, 2002). According to Knight and Burn (2005, p. 162), quality of information is “within the context of World Wide Web and its Search Engines,” and it highly depends on how the information provider produces the information, the storage and maintain the system for information providers and information seekers. A study conducted by Kim and Niehm (2009) concluded that information quality affects the value and loyalty towards the information source as a perception of the source is created. According to Agarwal *et al.* (2011), quality of information in the source is equivalent to how the source communicates with the seeker. Understand ability, accuracy, relevance and timeliness are the determinants of quality of information (Agarwal *et al.*, 2011; Gorla, Somers, & Wong, 2010; Xu *et al.*, 2006). An individual does not always get the highest quality information available. However, more individuals tend to prefer using information which has higher quality (Zimmer *et al.*, 2007). When the quality of the information is high, the seeker would choose to use the digital source as the information may increase the decision-making efficiency thus, leading to higher organisational efficiency (Gorla *et al.*, 2010). Hadi and Kusnandar (2018) and Abdul Hamid, Cheun, Abdullah, Ahmad, and Ngadiman (2019) demonstrate the considerably relationship between quality of information and the use of digital sources respectively. Therefore, this study hypothesises that:

*H<sub>2</sub>: Quality of information positively influences the use of digital information sources for work purposes among the rural entrepreneurs in Malaysia.*

### **Psychosocial Work Environment**

According to Kristensen, Hannerz, Høgh, and Borg (2005), psychosocial work environment is one of the most important work environment issues in the current and future societies. Nature of work has evolved in many ways ever since the digital era arises and transformation of traditional way of work environment to digital fields (Hoff & Öberg, 2015). The use of digital sources for work activities is known as the “new ways of working” (Nijp, Beckers, van de Voorde, Geurts, & Kompier, 2016), creating more flexible in terms of place and time-independent work environment (Christensen *et al.*, 2020). With flexibility at work due to existence of digital information sources have pros and cons towards the working employees. The cons are that employers may have higher expectations and urges on responses and results from the employees which causes “workplace telepressure” (Barber & Santuzzi, 2015; Christensen *et al.*, 2020). Besides, there may be obstacle when accessing the digital information sources, if there is low social support in the workplace, it causes techno-fatigue where employee feels that it is inefficient to use the digital information sources (Christensen *et al.*, 2020). On the other hand, the advantages of having digital information sources at workplace is that many work roles may potentially be boundary less (Kingma, 2018) where data transmission is accelerated and virtual access becomes applicable. If the employees are digital savvy, their self-confidence would be boosted in workplace.

Psychosocial work environment affects two contexts which are the workplace and individual. In workplace, it involves the nature and quality of workplace norms such as emotional demands for work, meaning of work and social support from colleagues at workplace (Hammer *et al.*, 2004; Kristensen *et*

*al.*, 2005). If the psychosocial work environment is positive and is filled with encouragement, the individual will face lower social risk and in fact gain more self-confidence to ask for feedback or re-perform (Tan & Zhao, 2003; Xu *et al.*, 2006). The relationship between psychosocial work environment and use of information sources is positive but indirect (Humphrey, Nahrgang, & Morgeson, 2007; Tan & Zhao, 2003; Xu *et al.*, 2006). Therefore, this study hypothesises that:

*H<sub>3</sub>: When the psychosocial work environment is positive, the use of digital information source for work purposes increases among the rural entrepreneurs in Malaysia.*

## **RESEARCH METHOD**

### **Sampling Procedures and Data Collection Methods**

The sampling frame in this research is obtained from the Ministry of Rural Development Malaysia or *Kementerian Pembangunan Luar Bandar* (KPLB). KPLB is the government organisation which provides a platform for rural entrepreneurs to improve their business by organising courses, events and competition to increase their business knowledge and skills and to provide them opportunities to expand their business. According to KPLB (2019), there are 1,128 rural entrepreneurs in Peninsular Malaysia, 100 in Sarawak and 41 in Sabah, a total of 1,269 rural entrepreneurs. However, after filtering out, only 813 rural entrepreneurs who provide contact number in the list. All the rural entrepreneurs on the KPLB list were selected to participate in this research as the number is manageable. This research acknowledges that not all rural entrepreneurs in Malaysia are registered with KPLB. However, the listing provided by KPLB is considered appropriate to represent the population of rural entrepreneurs in Malaysia. This study employs telephone interviews as the data collection method. The researcher contacted the rural entrepreneurs to explain the purpose of the research and seek their permission to participate in the survey. Ultimately, 423 respondents participated in the research over a 3-month period from 27 October 2020 to 2 February 2021.

### **Variables and Measurements**

#### ***Source Accessibility (ACC)***

This study examines source accessibility by the extent to which the digital sources improves the time, effort, distance and ease to approach. Four items adopted from Agarwal *et al.* (2011) to measure the use of digital information sources with a five-point Likert scale anchored from 1 – ‘Strongly Disagree’ to 5 – ‘Strongly Agree’. The same measures have been validated in prior studies (Agarwal *et al.*, 2011), it was therefore deemed suitable to use in this study.

#### ***Quality of Information (QOI)***

Perceived understand ability, ease of extracting useful information and ease of communication with the social media are the indicators for measuring quality of information. Four items are adopted from Lee, Strong, Kahn, and Wang (2002) to measure the quality of information. The items are measured with a five-point Likert scale anchored from 1 – ‘Strongly Disagree’ to 5 – ‘Strongly Agree’. The same measures have been validated in prior studies (Agarwal *et al.*, 2011; Lee *et al.*, 2002; Xu *et al.*, 2006), it was therefore deemed suitable to use in this study.

#### ***Psychosocial Work Environment (PWE)***

PWE is measured by work organization, interpersonal relations and leadership. Five items are adopted from Kristensen *et al.* (2005) and measured with a five-point Likert scale from 1 – ‘Strongly Disagree’ to 5 – ‘Strongly Agree’. Given prior studies have tested the PWE variable (Agarwal *et al.*, 2011; Kristensen *et al.*, 2005), it was therefore deemed suitable to use in this study.

#### ***Use of Digital Information Source (USE)***

Use of digital information sources is defined as any activities done within the digital sources including information searching, transacting, navigating and visiting (DeLone & McLean, 2004). Use of digital sources is one of the most important aspects of an individual’s skillset (Lecheler & Kruike-meier, 2015). In this study, the use of digital information sources is measured by frequency of using the digital source to achieve different objectives (Zimmer *et al.*, 2007). Ordinal scale was used to rank the frequency of three digital information sources - social media, website and printed media.

## CONCLUSION

This study carried out a context-based research of the factor affecting the use of digital information sources for work purposes among the rural entrepreneurs in Malaysia. This study sought to identify how well the digital infrastructures were utilised after the Malaysian government embarked on few initiatives. The use of digital information sources and the factors affecting the use are incorporated in this study. Data were collected through telephone interview with 423 rural entrepreneurs who registered under KPLB. The research findings are important to policy makers in relevant government departments and agencies such as Ministry of Rural Development, in bridging the digital divide between rural and urban entrepreneurs. This study also provides better understanding of the digital information seeking behaviour of rural entrepreneurs on work purposes so that appropriate measures can be developed to improve the adoption of digital information sources among the rural entrepreneurs.

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# EMPLOYEE PERSONAL BRANDING AND CORPORATE BRAND EQUITY: A CRITICAL REVIEW

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## ABSTRACT

Personal branding is an intangible asset that individuals build and leverage to their advantage (e.g., ace deals, gain followers). In this paper, we raised the idea of personal branding through the lens of employees and how companies can leverage on the personal brand of their employees to enhance corporate brand equity. We substantiated our idea with a critical review of existing literature where maiden evidence was sought. Studies indicated that a personal brand was a person's brand much like a corporate brand was the brand of a company, and that it comprised (1) appearance, (2) behavior and (3) self-congruence. Extant research demonstrated that brand equity may be derived from (1) customers, (2) employees and (3) financial records. Our review of literature suggested the importance of personal branding of employees to corporate brand equity in practice, where making the right hire was recognized as important; literature, where empirical studies pointed to the significance of people representing the company; and finance, where stock prices were affected by the behavior of employees and representatives. It also illustrated that for the personal brand of an employee to have a positive effect on corporate brand equity, the factors necessary to be present were congruence between the personal and corporate brand, and the presence of internal branding by the corporation. Additionally, we explored where personal branding had negative impacts and conclude our review with an agenda for future research to take our idea forward.

**Keywords:** *Employee, personal branding, corporate brand equity, literature review.*

## INTRODUCTION

The concept of personal branding evolved from product and corporate branding, and is an individual's outward expression of identity, personality, values, skills, and abilities. The notion of people as personal brands that can bring value to a corporate brand is not new. Since the late nineteenth century, celebrity endorsements have been widely used in business especially in marketing communications (Kaikati, 1987). An early example associated Queen Victoria with Cadbury's Cocoa (Shennan, 1985). Clearly, a celebrity endorser that was credible based on their attractiveness, expertise, and trustworthiness, would have significant impact on a company's brand equity (Spry, Pappu, & Cornwell, 2011). Kotler and Levy (1969) argued that a person could be marketed like a product, citing an employee's attempt at impressing an employer as an example.

Presently, studies and research into the concept of personal branding is fragmented; but clearly, the concept of personal branding is significant and relevant to business success. This was evident in practice, finance, and literature. The integrative review pointed to a consensus on the elements that made up a personal brand, and factors that when present, positively affected the contribution of an employee's personal brand towards corporate brand equity.

Research found evidence that personal branding facilitated visibility and provided career advantages for celebrities (Rein, Kotler, Hamlin, & Stoller, 2006), in academia (Noble, Bentley, Campbell, & Singh, 2010), libraries (Gall, 2012), for athletes (Arai, Ko, & Kaplanidou, 2013), CEOs (Bendisch, Larsen, & Trueman, 2013; Peacock, 2007), in politics (Hughes, 2007; Omojola, 2008), finance (Vitberg, 2010) in modelling (Parmentier, Fischer, & Reuber, 2013), and for scientists (Hotez, 2018). The increasingly competitive business climate naturally produced new approaches to marketing, and thus, self-commoditization facilitated by branding of the individual (Hearn, 2008; Khedher, 2014b;

Lair, Sullivan, & Cheney, 2005). Gall (2012) suggested that personal branding worked well with relationship marketing and could be regarded as part of the same marketing package.

A better understanding of this concept is useful to job seekers and companies looking to hire. This also benefits customers who will enjoy better service and products from employees that are happy and motivated because they are the right fit for the service they render.

This paper aims to bring together the present fragmented interpretations of how the personal brands of corporate employees and representatives affect corporate brand equity; and in so doing discover what are essential elements to focus on for positive results in terms of corporate brand equity, and what to avoid. This understanding will be useful to corporate employees who want to be assets to their employers, to companies in hiring decisions and to in-house brand divisions. It not only provides insights for their brand building efforts, but also in avoiding the risks and costs of wrong hires and wasted branding expenditures.

The review indicated that elements of an authentic personal brand were appearance, behavior, and congruence with the self. A personal brand contributed to corporate brand equity when it was congruent with the corporate brand, and there was internalization of the corporate brand.

An area of interest for further study is a scale of measurement of congruence. There were studies into internal branding, for example (Appelbaum & Fewster, 2002) in the case of Southwest Airlines (Miles & Mangold, 2005) and Singapore Airlines (Chong, 2007), but few on a measure for congruence between the personal brands of employees with the corporate brand.

## **LITERATURE REVIEW**

Brand equity in literature is commonly known as the commercial value of the brand (Aaker, 1992, 1996; Ailawadi, Lehmann, & Neslin, 2003; Simon & Sullivan, 1993). There are presently three ways of measuring for brand equity namely, from customer responses to the brand (Keller, 2001; Yoo, Donthu, & Lee, 2000), (2) employee responses (King & Grace, 2009; Sirianni, Bitner, Brown, & Mandel, 2013; Tavassoli, Sorescu, & Chandu, 2014) and (3) financial reports (Simon & Sullivan, 1993; Wang, 2010)

As a term, personal branding was first seen in Tom Peters' FastCompany article where he opined that to be in business it was important to brand personally (Peters, 1997). The key aspect in a personal brand was that everyone had one, whether intended or unintended (Peters, 1997; Shepherd, 2005).

### **Elements of a Personal Brand**

Literature on personal branding largely focused on the study of branding individuals regarded as representatives of the brand (Rule & Ambady, 2008; Bendisch *et al.*, 2013), which included but were not limited to employees. An examination of extant studies and reviews on personal branding indicated the elements of a personal brand popularly referred to as authentic; comprised of managing the individual in terms of appearance (Lobpries, Bennett, & Brison, 2018), behaviour (Wentzel, 2009), and congruence of the brand with the self Khedher, 2015, 2019).

#### ***Appearance***

Corporate executives were described as generally in control of their professional appearance, as they were required to present themselves in the best light at work (Barrick, Shaffer, & DeGrassi, 2009; Rafaeli, Dutton, Harquail, & Mackie-Lewis, 1997). First impressions were found to be powerful communicators of personality information and predictors of performance (Rule & Ambady, 2008; Wong, Ormiston, & Haselhuhn, 2011).

The physical appearance of CEOs was often seen as a significant contributor of a company's performance (Rule & Ambady, 2008). The CEO may be viewed as a symbol, like an instrument for visual differentiation, especially if they looked unconventional (Bendisch *et al.*, 2013), like the casual way the CEO of Air Asia, Tan Sri Tony Fernandes dressed.

The use of avatars, animated characters that behave like customer service representatives, is now common among service companies (Cyr, Hassanein, Head, & Ivanov, 2007; Holzwarth, Janiszewski, & Neumann, 2006). A study revealed the characteristics, including the appearance of the avatar were significant in the determination of e-service quality (Etemad-Sajadi & Ghachem, 2015).

The element of sexuality in Instagram photographs, was also seen to be significant in the popularity of Olympic athletes (Geurin-Eagleman & Burch, 2016). The case for female athletes however, had been found to be objective earlier (Fink, Parker, Cunningham, & Cuneen, 2012) with skill and athletic competence taking precedence over sex appeal and physical appearance (Kane & Maxwell, 2011). These findings reflect that while some societal norms and values changed, others pertaining to physical appearance and attributes remain relatively similar. Physical appearance, in varying degrees, still matter (Lobpries, Bennett, & Brison, 2018).

### ***Behaviour - Service Quality***

Behaviour by employees in corporations may be referred to as customer service, to both internal and external customers. Service quality had long been studied as contributory to brand equity (Kao & Lin, 2016; Nella & Christou, 2014; Soni & Govender, 2018). The impact on the customer's impression of a brand from an employee's behaviour in interaction had also been observed in studies, with the impact stronger if the employee was regarded to be representing the brand, and weaker albeit still present, if the employee was regarded as a unique individual (Wentzel, 2009).

### ***Congruence with the Self***

It was proposed that personal branding was a construct that was multidimensional, comprising of six dimensions, that of cultural and social capitals, verbal communication, self-presentation, authenticity, and appearance (Khedher, 2015, 2019). Other studies also emphasised authenticity in personal branding (Harris & Rae, 2011) and CEO branding (Cottan-Nir & Lehman-Wilzig, 2018). This not only reinforced that appearance was an element of personal branding; but also that in order for the personal brand to be comprehensive it must include an understanding and presentation of the self together with its cultural and social 'capitals'.

### **The Dark Side of Personal Branding**

The concept of personal branding was not without its critics, who contended that a personal brand was developed just to satisfy the customer (Khedher, 2014a), and lacked authenticity (Shepherd, 2005). Some authors opined that customers were not fooled for long and a personal brand must be backed by quality work and action (Gall, 2012); while others believed it to be an exercise in self-packaging and marketing where image took precedence over substance (Lair et al., 2005). It was opined that personal branding was synonymous with creating an image specifically for the market (Hearn, 2008) and warned that those seeking to develop a personal brand were required to sacrifice personal privacy to be seen as authentic (Gehl, 2011).

### **Factors Necessary for the Personal Brands of Employees to Positively Affect Corporate Brand Equity.**

Extant literature, as discussed, pointed to three main elements from which an authentic personal brand may be derived; brand consistent appearance and behaviour; and brand congruence with the self-image. However, for a personal brand of an employee or corporate representative to have significant and positive effect on brand equity, congruence between the personal brand and the corporate brand that it represented, was important.

Additionally, internal branding also affected the contribution of the personal brands of employees to the corporate brand equity. Internal branding is the degree to which employees support the corporate brand (Miles & Mangold, 2004).

### ***Congruence with the Corporate Brand***

Having established that the personal brand of an organization's senior employees was a legitimate brand; and had significant impact on how a corporation was perceived (Balmer & Wang, 2016;

Bendisch *et al.*, 2013), it was found that for this to have a strategic and beneficial effect, it was necessary for the personal brand to be congruent with the corporate brand (Fetscherin, 2015; Martin, 2009; Ulrich & Smallwood, 2008)

### **Internal Branding**

Internal branding is said to be “the process by which employees internalize the desired brand image and are motivated to project the image to customers and other organizational constituents” (Miles & Mangold, 2004). Internal brand equity is the extent to which employees believe in the corporate brand vision and are willing act according to its best interests (Ghose, 2009).

Adoption of an internal branding strategy had been found to be advantageous (Appelbaum & Fewster, 2002) in the case of Southwest Airlines (Miles & Mangold, 2005). Internal branding was considered important (Berry, 2000; So & King, 2010) because to be congruent to the corporate brand, employees needed to know the message based on knowledge and internalization of the corporate brand (Wang, Tsai, & Tsai, 2014).

In this century, employees are increasingly “branded” with the ease of creating an online presence. Online brand promotion is easily accessible and far reaching, and there is much encouragement to self-brand for better career prospects and interview success, even before the employee joins the company (Brooks & Anumudu, 2016; Kucharska & Mikołajczak, 2018). It is thus imperative and advantageous to understand the concept of personal branding for businesses to benefit from it as a yet underutilized asset and avoid the potential risks that it can inadvertently present if misunderstood.

### **RESEARCH METHOD**

The paper adopted an integrative review of studies on personal branding to investigate its effects on corporate brand equity. It drew from studies and research about personal branding and explored the main elements that comprised an effective personal brand in terms of positively contributing towards corporate brand equity. It first explored evidence of the importance of the personal brands of company representatives or employees, to corporate brand equity. It then investigated in extant research and studies what elements constituted an effective personal brand, and what other, if any, elements would have to be present for a personal brand to be effective in positively contributing towards corporate brand equity. Conversely, the possible negative effects of personal branding were also discussed. It concluded with the results of the integrative review and areas for further research.

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# THE ROBUSTNESS OF BRAND PASSION AND BRAND LOYALTY IN SOCIAL MEDIA AND CONSUMER PURCHASE INTENTION TOWARDS LUXURY BRANDS

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## ABSTRACT

This study aimed to investigate consumers' luxury brand purchase intention in Bangladesh to close the identified research gap. The triangular theory of love and the media richness theory were employed as the foundation to develop the conceptual framework. The data were collected from 439 luxury brand consumers through online using purposive sampling technique, and estimated employing Partial Least Squares based Structural Equation Modeling. The findings depicted that firm-created social media communication (FCSMC) and user-generated social media communication (UGSMC) could not exert significant direct influence on consumer purchase intention while brand passion and brand loyalty played a significant indirect effect on the relationships between UGSMC and consumers' purchase intention, and FCSMC and consumers' purchase intention respectively. The results also articulated that consumers' purchase intention was influenced by brand loyalty and brand passion. Furthermore, FCSMC wielded a significant impact on brand loyalty and UGSMC, likewise, UGSMC carried a substantial direct influence on brand passion. Finally, the study was expected to hold a lead by offering valuable insights and enriching extant literature. The study findings were equipped to extend existing knowledge with diverse theoretical and practical implications for social media marketers, managers, scholars, and other relevant stakeholders.

**Keywords:** *Social media, brand passion, brand loyalty, purchase intension, luxury brands, Bangladesh.*

## INTRODUCTION

In the early 2000s, a modern mode of networking called social media was introduced (Almohaimmed, 2019). The advent of social media provides innovative opportunities for corporations and consumers to interact (Schivinski & Dąbrowski, 2013). Thus, generating promotional content in a variety of designs and circulating among audiences using diverse platforms become possible due to the resilience of social media (Poulis, Rizomyliotis, & Konstantoulaki, 2019). Social media communication falls into two forms: firm-created social media communication (FCSMC), and user-generated social media communication (UGSMC) (Hermaren & Achyar, 2018). In recent years, social media is considered as emerging, growing, and increasingly used communication channels for firms to be linked with existing and potential customers (Khadim, Hanan, Arshad, Saleem, & Khadim, 2018; Mukherjee, 2019). However, when firm-created communication exerts substantial impact, user-generated communication's effect, nonetheless, is judged to be poor on purchase intention (Morra, Gelosa, Ceruti, & Mazzucchelli, 2018). In light of this, marketers regularly measure customers' buying tendency as a framework to decide the intake for course of actions that contribute to strengthening return on marketing investment. Therefore, the understanding and knowledge about purchase intention can push the firms to design marketing promotions and strategies as per the audience's standard that surely expedites in thriving the companies' growth and profitability. On account of this, recognizing the social media's rapid acceptance and extreme reputation and its inevitable effects on strategic marketing decisions and buyer behavior, the consumer intention on these networks receive dominant research attention (Hajli, 2014; Mainardes & Cardoso, 2019).

For working out the same in an intensely competitive market, companies must prioritize the creation of good communication content to boost customers' passion and loyalty towards brands, which can shape

the buyers' shopping tendency. Likewise, comprehending and exploring the mediation effects of brand passion and brand loyalty has become imperative. However, a minimal insight undergoes examining the repercussions of brand passion and a dearth of conceptual framework leaves a fundamental gap in extant literature (Pourazad & Pare 2017). Hence, investigating brand passion is crucial to predict its effects (Gilal, Gilal, Gilal, Gon, Gilal & Tunio, 2021). Relevantly, in recent years, customer loyalty has evolved into an intensely reviewed phenomenon in the literature (Haque, Anwar, Moulan, & Abdullah, 2020) but advancement in elucidating a pragmatic method of brand loyalty is surprisingly minimal (Knox & Walker, 2001). Similarly, limited understandings are noted about how social media can affect consumers' potential buying intentions (Pangaribuan, Ravenia, & Sitinjak, 2019).

Thus, understanding the dynamics of company-customer interaction in the social media sense entails investigating the relevance and effect of diverse underlying constructs. In addition, the mediation effects of brand passion and brand loyalty between UGSMC and purchase intention, and FCSMC and purchase intention respectively can significantly contribute to extend the knowledge of this vibrant area of studies. Therefore, this research attempts to investigate the robustness of brand passion, and brand loyalty in social media on consumers' purchase intention towards luxury brands with a specific reference of Bangladesh.

Following all the procedures, this article turns with a systematic and rigorous literature review on the constructs used to develop the conceptual framework and corresponding hypotheses. Next, a detailed methodological aspect, results and discussions followed by conclusions, and implications are outlined. Finally, it concludes with notable limitations and future research directions.

## LITERATURE REVIEW AND HYPOTHESES

This study employed the triangular theory of love and the media richness theory as the theoretical foundation to build a conceptual framework. The triangular theory of love by Sternberg (1986, 1997) has explored the notion of brand passion (Ghorbanzadeh, Saednia, & Rahehagh, 2020). Pertinently, the majority of marketing theories relating to passion are based on this theory which is made up of three components, namely intimacy, passion, and decision/ commitment (Mukherjee, 2019; Pourazad & Pare, 2017; Pourazad & Pare, 2015). In purchasing behavioral context, intimacy is developed between the brands and buyers. Next, as a major dimension, passion forms a loving relationship between customers and brands (Pourazad & Pare, 2015).

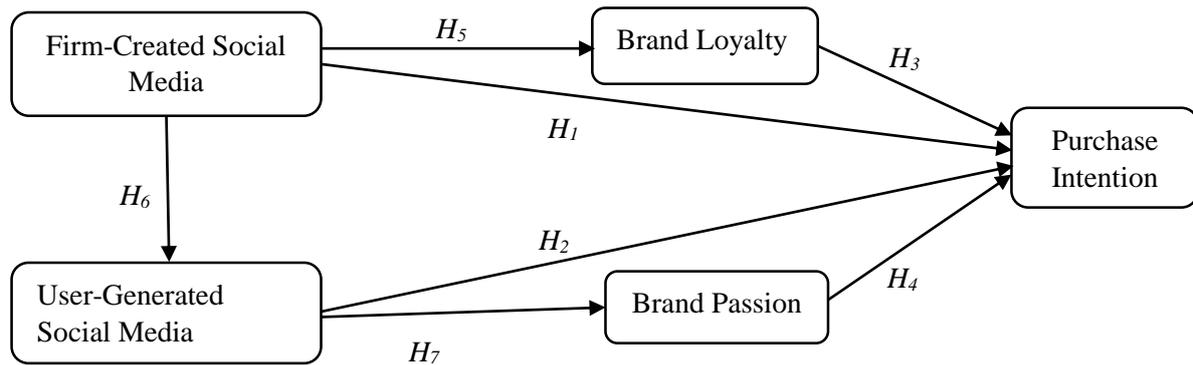
On the other hand, the theory of media richness is well-accepted in studying media usage which is also employed in many disciplines (Tseng, Cheng, & Teng, 2017). Enhancing communication performance by offering an ideal match between media and users' demands is the core theme of this theory (Daft & Lengel, 1986). According to the theory, richer media allow users to establish a swift and easy understanding of confusing messages, resulting in improved performance while leaner media demonstrate the vice versa results (Dennis & Kinney, 1998). For instance, the power and vividness of a specific medium are ranked differently from alternatives so that the degree of influence it exerts on audiences varies (Hasim, Shahrin, & Wahid, 2020). Hence, the suitability and effectiveness of each media are subject to a set of circumstances (Dennis & Kinney, 1998).

As previously stated, FCSMC and UGSMC are the two forms of social media marketing communication (Hermaren & Achyar, 2018; Mukherjee, 2019). FCSMC is a dynamic and dominant form of marketing communication that aids firms in building, nurturing, sharpening and sustaining the relationship with the target market (Poulis *et al.*, 2019). It refers to campaigns that are initiated and originated in social media by the direct effort of a firm (Mukherjee, 2019). Prior studies acknowledge that FCSMC significantly influences consumers' purchase intention (Soewandi, 2015; Poulis *et al.*, 2019; Schivinski, 2011; Morra *et al.*, 2018). However, Schivinski and Dąbrowski (2013) have contradicted this statement. FCSMC also have a great influence on brand loyalty (Khadim *et al.*, 2018; Poulis *et al.*, 2019; Hermaren & Achyar, 2018; Soewandi, 2015), while the outcome of other studies claims that there are no significant relationships between FCSMC and brand loyalty (Mainardes & Cardoso, 2019; Schivinski & Dąbrowski, 2013).

On the other side, UGSMC leaves exemplary implications for marketing managers and practitioners as an ongoing and emerging media form on the internet (Schivinski, Lukasik, & Dabrowski, 2015). In particular, UGSMC is pointed out as architecting and disseminating the communication content and message directly by social media users within a social networking environment (Poulis *et al.*, 2019; Hajli, 2014; Mukherjee, 2019). By posting the brands' pertinent information and experiences, customers actively generate communication on diverse online platforms (Hajli, 2014). UGSMC typically involves product-linked user discussions on distinct social media platforms (Mukherjee, 2019). Although studies have advocated that UGSMC have a substantial impact on consumers' purchase intention (Mayrhofer, Matthes, Einwiller, & Naderer, 2020; Schivinski *et al.*, 2015; Pangaribuan *et al.*, 2019; Soewandi, 2015), the study of Schivinski and Dąbrowski (2013) have claimed that there is a negative relationship between these constructs. Nevertheless, UGSMC has a strong influence on brand passion (Mukherjee, 2019).

The firm's social media communication is considered as a powerful weapon which insists user for generating social media content (Mukherjee, 2019). Previous studies also demonstrate that FCSMC is capable to influence users for generating social media communication (Godes & Mayzlin 2009; Mukherjee, 2019). Brand loyalty and brand passion are used as key constructs of this study. Brand loyalty refers to the buying act that must take place at least twice at certain time durations (Jacoby & Kyner, 1973). Broadly, a merger of positive attitudes, enthusiasm to recommend to others, commitment to stay with brands and repeat purchase behavior is defined as brand loyalty (Sadasivan, Rajakumar, & Rajinikanth, 2011). The brand passion is the customer's deeper affection towards the brand (Mukherjee, 2019). In psychology, passion is highly associated with interpersonal feelings (D'lima, 2018; Pourazad & Pare, 2017). In general, a purchaser's eagerness, excitement, or alike infatuation with a valued brand is referred to as brand passion (D'lima, 2018). Previous empirical studies acknowledge that consumers' purchase intention is strongly influenced by brand loyalty (Mainardes & Cardoso, 2019; Schivinski & Dąbrowski, 2013; Almohaimmeed, 2019; Malik *et al.*, 2013; Soewandi, 2015; Poulis *et al.*, 2019), and brand passion (Mukherjee, 2019; Gilal *et al.*, 2021). Therefore, the empirical evidence from different studies, discussions, and arguments lead to the following hypotheses:

- H*<sub>1</sub>: Firm-created social media communication has a significant direct influence on consumers' purchase intention towards luxury brands.
- H*<sub>2</sub>: User-generated social media communication has a significant direct influence on consumers' purchase intention towards luxury brands.
- H*<sub>3</sub>: Brand loyalty has a significant direct effect on consumers' purchase intention towards luxury brands.
- H*<sub>4</sub>: Brand passion has a significant direct effect on consumers' purchase intention towards luxury brands.
- H*<sub>5</sub>: Firm-created social media communication has a significant direct effect on brand loyalty towards luxury brands.
- H*<sub>6</sub>: Firm-created social media communication has a significant direct effect on user-generated social media communication towards luxury brands.
- H*<sub>7</sub>: User-generated social media communication has a significant influence on brand passion towards luxury brands.
- H*<sub>8</sub>: Brand loyalty significantly mediates the relationship between firm-created social media communication and consumers' purchase intention towards luxury brands.
- H*<sub>9</sub>: Brand passion significantly mediates the relationship between user-generated social media communication and consumers' purchase intention towards luxury brands.



**Figure 1. Conceptual framework**

## RESEARCH METHOD

In measuring the proposed conceptual framework, the measurement items of this study were modified whose reliability and validity had been tested in the relevant literature of this area of study. The survey instrument consists of five latent constructs, and the items on the study constructs of firm-created social media communication, user-generated social media communication, brand passion, and purchase intention were adopted from the study of Mukherjee (2019), and brand loyalty from the study of Yadav and Rahman (2017). The data was collected from the consumers of luxury brands through online using purposive sampling technique. In total, 439 complete responses were received, and estimated using Partial Least Squares Structural Equation Modeling (PLS-SEM). According to the suggestion of Hoyle (1995), the sample size used in this study met the minimum sample to perform PLS-SEM. The survey instrument used a six-point Likert rating scale where 1 = *strongly disagree*, and 6 = *strongly agree*.

## FINDINGS

In the measurement model (Table 1), the current study performs factor loading, Cronbach's Alpha (CA), composite reliability (CR), and average variance extracted (AVE) to establish the convergent validity (Fornell & Larcker, 1981). The results exceeded different threshold values; thus, the convergent validity of the study met all three requirements.

**Table 1**  
**Results of Measurement Model**

Construct	Item	Factor Loading	CA	CR	AVE
Brand Loyalty (BL)	BL1	0.82	0.76	0.86	0.67
	BL2	0.85			
	BL3	0.78			
	BP1	0.79			
Brand Passion (BP)	BP2	0.76	0.77	0.85	0.59
	BP3	0.68			
	BP4	0.71			
	FCSMC1	0.79			
Firm-Created Social Media Communication (FCSMC)	FCSMC2	0.76	0.72	0.83	0.54
	FCSMC3	0.68			
	FCSMC4	0.71			
	PI1	0.86			
Purchase Intention (PI)	PI2	0.83	0.80	0.88	0.71
	PI3	0.84			
	UGSMC1	0.75			
User-Generated Social Media Communication (UGSMC)	UGSMC2	0.74	0.79	0.81	0.52
	UGSMC3	0.68			
	UGSMC4	0.70			

Note: No one item was deleted as loading composite reliability was greater than 708.

Furthermore, discriminant validity was assessed by using the test suggested by Henseler, Ringle, and Sarstedt (2015) HTMT criterion as a superior method. This suggests that the threshold value of below 0.85 between two study constructs is acceptable to establish discriminant validity. The HTMT.<sub>85</sub> (see also Table 2) means that the result is below the recommended critical value of 0.85 for each group-specific model estimation. Thus, the discriminant validity of the study was met.

**Table 2**  
**HTMT Result**

	<b>Brand Loyalty</b>	<b>Brand Passion</b>	<b>FCSMC</b>	<b>Purchase Intention</b>	<b>UGSMC</b>
Brand Loyalty					
Brand Passion	0.61				
FCSMC	0.56	0.51			
Purchase Intention	0.62	0.85	0.49		
UGSMC	0.66	0.62	0.79	0.56	

**Structural Model**

The bootstrapping procedure was performed to test the path relations using 5000 subsamples which ensure the significance between the relationships of the study constructs (Hair, Hult, Ringle, & Sarstedt, 2017). The results in Table 3 explain that the direct effects of BL and BP on PI were positive and significant, and the results of FCSMC on BL, FCSMC on UGSM, and UGSMC on BP were also positive and significant. Therefore, hypotheses H3, H4, H5, H6, and H7 were supported. However, the direct effect of FCSMC on PI, and UGSMC on PI were negative and insignificant. Thus, hypotheses H1, and H2 were rejected. On the other hand, the indirect effects (mediation effects) of BL on the relationships between FCSMC and PI, and the indirect effects of BP on the relationships between UGSMC and PI were positive and significant. Therefore, hypotheses H8 and H9 were supported.

Next, the predictive relevance of the structural model was further evaluated by using the blindfolding procedure (Hair *et al.*, 2017; Ringle *et al.*, 2015). More specifically, the ratio of variance in the endogenous construct was assessed by using the coefficient of determination ( $R^2$ ), which was predicted from the independent variables. The study also assessed the cross-validated predictive relevance by using the criterion of Stone-Geisser’s ( $Q^2$ ). In addition, the effect sizes ( $f^2$ ) that specified the extent of the relative influence of a particular independent variable on a dependent variable was substantial (Chin, 2010), and the PLSpredict technique was also performed in this study. These results are shown in detail in Table 3, and Table 4.

**Table 3**  
**Results of Hypotheses Testing**

<b>Direct Effect</b>	<b>Beta</b>	<b>S.E.</b>	<b>t-Value</b>	<b>P-Value</b>	<b>LLCI</b>	<b>ULCI</b>	<b>Decision</b>	<b>f<sup>2</sup></b>	<b>R<sup>2</sup></b>	<b>VIF</b>	<b>Q<sup>2</sup></b>
H <sub>1</sub> : FCSMC -> PI	0.06	0.05	1.13	0.13	-0.02	0.14	Rejected	0.00	0.50	1.53	0.35
H <sub>2</sub> : UGSMC -> PI	0.06	0.05	1.35	0.09	-0.02	0.13	Rejected	0.00		1.70	
H <sub>3</sub> : BL -> PI	0.17	0.05	3.23	0.00	0.08	0.26	Supported	0.04		1.48	
H <sub>4</sub> : BP -> PI	0.54	0.05	11.96	0.00	0.46	0.61	Supported	0.41		1.44	
H <sub>5</sub> : FCSMC -> BL	0.41	0.05	8.86	0.00	0.33	0.49	Supported	0.21	0.17	1.00	0.11
H <sub>6</sub> : FCSMC -> UGSMC	0.56	0.04	14.20	0.00	0.48	0.62	Supported	0.45	0.31	1.00	0.16
H <sub>7</sub> : UGSMC -> BP	0.46	0.04	11.64	0.00	0.39	0.52	Supported	0.27	0.21	1.00	0.12
<b>Mediating Effects</b>	<b>Beta</b>	<b>S.E.</b>	<b>t-Value</b>	<b>P-Value</b>	<b>LLCI</b>	<b>ULCI</b>	<b>Decision</b>				
H <sub>8</sub> : FCSMC -> BL -> PI	0.07	0.03	2.84	0.01	0.04	0.13	Supported				
H <sub>9</sub> : UGSMC -> BP -> PI	0.25	0.03	8.36	0.00	0.19	0.38	Supported				

\*\*p < 0.01, \*p < 0.05, LL= Lower Limit, UL= Upper Limit, and S.E. = Standard Error.

The PLSpredict technique (Shmueli *et al.*, 2019) was employed to assess the prediction relevance of the endogenous constructs. As shown in Table 4, the majority of BL, BP, PI, and UGSMC values had lower prediction error (i.e., RMSE, and MAE) than the linear model, except for BL1, BL3, BP1, PI1, UGSMC2, and UGSMC4 which suggest that BL, BP, PI, and UGSMC had high prediction power (Shmueli *et al.*, 2019).

**Table 4**  
**Results of PLSpredict**

Items	PLS-RMSE	MAE	Q <sup>2</sup>	LM-RMSE	MAE	Q <sup>2</sup>	PLS-LM RMSE	MAE	Q <sup>2</sup>	Predict Power
BL2	1.000	0.758	0.132	1.010	0.763	0.114	-0.010	-0.005	0.018	High
BL3	1.003	0.783	0.099	0.997	0.779	0.110	0.006	0.004	-0.011	
BL1	1.057	0.815	0.099	1.051	0.810	0.110	0.006	0.005	-0.011	
BP1	1.102	0.898	0.104	1.097	0.876	0.114	0.005	0.022	-0.010	
BP2	1.160	0.935	0.073	1.165	0.919	0.064	-0.005	0.016	0.009	
BP3	1.244	0.984	0.057	1.247	0.986	0.053	-0.003	-0.002	0.004	
BP4	1.315	1.037	0.064	1.326	1.038	0.049	-0.011	-0.001	0.015	
PI1	1.152	0.892	0.085	1.161	0.893	0.072	-0.009	-0.001	0.013	
PI2	1.112	0.868	0.063	1.116	0.869	0.058	-0.004	-0.001	0.005	
PI3	0.965	0.718	0.118	0.962	0.700	0.123	0.003	0.018	-0.005	
UGSMC1	0.873	0.674	0.168	0.876	0.679	0.160	-0.003	-0.005	0.008	
UGSMC2	0.865	0.691	0.150	0.861	0.685	0.159	0.004	0.006	-0.009	
UGSMC3	0.856	0.679	0.145	0.860	0.677	0.137	-0.004	0.002	0.008	
UGSMC4	0.868	0.670	0.160	0.858	0.656	0.180	0.010	0.014	-0.020	

Note: BL (Brand Loyalty), BP (Brand Passion), PI (Purchase Intention), and UGSMC (User-Generated Social Media Communication).

## DISCUSSION

The findings illustrate that FCSMC and UGSMC do not have significant direct effects on consumers' luxury brand purchase intention, while brand loyalty, and brand passion significantly influence purchase intention. Furthermore, FCSMC has a significant direct effect on brand loyalty and UGSMC, and similarly, UGSMC is also having a direct effect on brand passion. The study further explained that brand loyalty and brand passion have a great role to mediate the relationships between FCSMC and purchase intention, and UGSMC and consumers' luxury brand purchase intention respectively.

## CONCLUSION

The study examines consumers' intention to purchase the luxury brands in the context of Bangladesh. After rigorous applications of all steps, the study estimates PLS-SEM and finds mixed results which extends the extant literature of this area of studies. The findings offer a comprehensive understanding that would be advantageous for luxury brand practitioners. The study will also help brand managers and decision-makers in creating firms' communications and managing user-generated communications. This research is not free from common limitations. This study was investigated through online, while the outcome from the off-line investigation (physical investigation) may vary. Furthermore, the current study was investigated on luxury brands only in Bangladesh, thus, a cross-country investigation among different similar countries (i.e., Indian, Malaysia, Sri Lanka) including other industries may produce different results.

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# ENTREPRENEURIAL INTENTION OF STUDENTS OF THE FACULTY OF INDUSTRIAL TECHNOLOGY, PETRA CHRISTIAN UNIVERSITY

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## ABSTRACT

An entrepreneur is a person who carries out entrepreneurial activities characterized by being clever or gifted in recognizing new products, determining new production methods, arranging operations management for new product procurement, marketing them, and managing the capital of their operations. The data was collected by conducting interviews with students majoring in FTI class of 2014 & 2015. The total population was 543, then took a sample of 141. Data processing was carried out by validity testing, reliability testing, and relationship testing. The motivation variables consist of Need for Achievement, Locus of Control, Self-Efficacy, Sense of Autonomy. The results obtained were that 19 respondents wanted to become an employee, 34 respondents wanted to become entrepreneurs, and 88 respondents wanted to become an employee after graduation and gradually become entrepreneurs. The motivations of becoming an entrepreneur were Self-Efficacy and the Need for Achievement. The batch of 2014 students wanted to continue their parents' business, wanted to be free, had flexible time, and got more income, while the 2015 batch students preferred to be an employee as their career path.

**Keywords:** *Need for achievement, self-efficacy, locus of control, sense of autonomy.*

## INTRODUCTION

Petra Christian University students, especially the Industrial Technology Faculty, have been provided with technopreneurship courses during their studies to learn about creating innovations and market and sales ideas. The Faculty of Industrial Technology, Petra Christian University, considers entrepreneurship a critical professional path, holding technopreneurship classes. The debriefing that Petra Christian University has carried out has supported students to become entrepreneurs. However, many students still do not understand the impact that will occur in the future because they tend to open a business based on trends or suggestions from their parents without knowing their motivation to do so. Research on entrepreneurial motivation has never been carried out before exploring entrepreneurship aspirations in prospective Petra Christian University graduates, so it is unknown what kind of planning needs to be made to support the growth of entrepreneurial graduates of Petra Christian University. This research will be conducted for students of the Faculty of Industrial Technology, in batches 2014 and 2015, Petra Christian University, to find out the desire of students to open a business after graduating from college.

The problem that arises from this background is students' doubt in choosing a job after graduating from college. This problem will be investigated further to determine the relationship between student characteristics and motivation in becoming entrepreneurs. The formulation of the problem in this study can be detailed: (a) How many students want to become employees, employees then gradually become entrepreneurs, or immediately become entrepreneurs after graduating from college? (b) Why do students want to become entrepreneurs? (c) How is the relationship between student profile/characteristics and motivation to become entrepreneurs?

The objective of this research is to find out (a) how many students want to become employees, become employees then gradually become entrepreneurs, and immediately become entrepreneurs, (b) the motivation of students to become entrepreneurs, (c) the relationship between student characteristics and motivation to become entrepreneurs.

## **LITERATURE REVIEW**

### **Entrepreneurship**

An entrepreneur can combine resources, labor, raw materials, and other assets to produce a more excellent value than before and introduces change, innovation, and new challenges. Hisrich (2001) argues that entrepreneurship is defined as a dynamic process of creating additional wealth by individuals who bear the main risk in terms of time capital and career commitments or providing value for some products or services. Products or services may or may not appear unique, but by sharing the means, an entrepreneur will generate value by accepting and placing the required skills and resources.

### **Motivation**

Motivation is the primary drive that drives a person to behave. This urge is in someone who moves him to do something in accordance with the impulses in him. The motivation that arises because of intrinsic and extrinsic factors has indicators, namely the desire to succeed, the encouragement and need for entrepreneurship, hopes and aspirations for the future, the appreciation in entrepreneurship, the existence of exciting activities in entrepreneurship (Uno, 2008). According to Handoko (2000), a situation in a person encourages individuals to carry out certain activities to achieve business goals. The person's efforts are made based on his capital and abilities in every effort, can take or face risks in doing business, and his efforts can be an example for others. According to some experts, the theory of entrepreneurial motivation is as follows:

### ***Need for Achievement***

McClelland (1952) states that individuals with a high Need for Achievement are more likely to carry out activities or tasks with a high enough level of responsibility, ability, effort, and risk to achieve the expected results, including feedback, clear on its performance. The indicators of the Need for Achievement variable consist of working hard, having the courage to take risks, never giving up, being responsible, and having fun trying new things. These indicators were obtained from the journal Afifah (2015), which was later revamped to make this questionnaire. All indicators are used to make questionnaire statements because these indicators can represent what the researcher expects.

### ***Self-Efficacy***

According to Bandura (1977), self-efficacy is a belief in a person's ability to organize and take the actions needed to produce achievement. High self-efficacy in a person makes that person like things that are challenging and balanced with high endurance to achieve the desired goals. Therefore, individuals with a high level of self-efficacy will do their best to achieve the things they want. The indicators of the Self-Efficacy variable consist of self-confidence, courage, never giving up, having a way to achieve goals, being able to make decisions under any circumstances, requiring supervision in carrying out activities. This indicator comes from Janantin (2015) which then made changes to the questions on the questionnaire.

### ***Locus of Control***

Locus of control is a form of self-control, namely the extent to which a person believes that they control their destiny or the belief that someone can control themselves over events, events they are experiencing, or affect them. A person who has an internal locus of control has confidence in himself, can control what happens to them, manage, direct their life, and be responsible for any achievement that will be accepted. Whereas someone more dominant with an external locus of control will have confidence that controlling all aspects of his life and whatever he receives comes from outside forces, comes from a fate such as luck/luck and opportunity (Robbins, 2001). The indicator of the Locus of Control variable consists of the belief that success comes from oneself, beliefs in fate, believes that success can be achieved by working hard. This indicator was also obtained from the journal Afifah (2015), which was then reorganized to make questions on this questionnaire. All indicators are used to make questionnaire statements because these indicators can represent what the researcher expects.

### ***Sense of Autonomy***

Sense of Autonomy is the individual's desire for freedom. Many researchers have made observations on the role of entrepreneurship which requires freedom. From the owner's point of view, many of them enjoy being bosses in their business because they want the freedom to do things their way (Kuratko & Hornsby, 2009). The indicators of the Sense of Autonomy variable consist of a sense of independence, high leadership, and individualism. This indicator comes from Sriati (2015) which then made changes to the questions on the questionnaire.

## RESEARCH METHOD

### Variable Determination

The following variables are thought to influence the desire to become an entrepreneur. The variables in this study are Need of Achievement, Locus of Control, Sense of Autonomy, and Self-Efficacy.

### Population and Sample

The population of this research is students from the Faculty of Industrial Technology 2014 and 2015 batches which are divided into four majors, namely Electrical Engineering, Mechanical Engineering, Industrial Engineering, and Informatics Engineering. The total population of the 2014 batch is 543 people, with details in Table 1.

**Table 1**  
**Number of Population**

Department	2014		2015	
	Male	Female	Male	Female
Electrical Engineering	16	1	23	1
Mechanical Engineering	55	1	52	1
Industrial Engineering	53	34	68	21
Informatics	78	21	109	17

The sampling technique is a systematic sampling method. The number of samples is determined by a quota system, i.e., a quarter of the number of male and female students from each department in the Faculty of Industrial Technology. They are 2014 and 2015 batches of 141 people, with details in Table 2.

**Table 2**  
**Number of Samples**

Department	2014		2015	
	Male	Female	Male	Female
Electrical Engineering	4	1	6	1
Mechanical Engineering	14	1	13	1
Industrial Engineering	13	9	17	5
Informatics	20	5	27	4

### Questionnaire Development and Distribution

Questionnaire questions are made into two parts: the respondent's profile and questions about variables that affect entrepreneurs' desire to be entrepreneurs. The indicator assessment will use a Likert scale of one to five (1 = strongly agree and 5 = strongly disagree). The questionnaire was tested first to identify deficiencies in the questionnaire and revised if necessary. Then, the distribution of the questionnaires was carried out in the classroom and the laboratory of Petra Christian University.

### Data Processing

Questionnaires that have been filled out will be sorted to determine whether the truth of filling out the questionnaires by the respondents is then recapitulated to get answers from the respondents. The answers were collected and processed using the SPSS tool. The tests carried out are the Validity test by

comparing the *R-count* value with the *R-table* and the Reliability test by seeing whether the Cronbach's Alpha value is greater than 0.6 or not. Crosstab analysis is done by describing the relationship between the characteristics of respondents with entrepreneurial motivation.

## FINDINGS

### Profile of Respondents

Table 3 shows the profiles of 141 respondents in some categories. The 88 of 141 students (62.4%) want to become employees after graduation and gradually become entrepreneurs later. The number of students who want to become entrepreneurs (34 students) is more than students who want to become employees (19 students). This phenomenon may be influenced by the parent's occupation, who mostly an entrepreneur. They are as many as 103 out of 141 students (73%).

**Table 3**  
**Respondent Profile**

Category	Sub-category	Frequency	Percentage
Profession after graduation	Employee	19	13.5
	Entrepreneur	34	24.1
	Employee then entrepreneur	88	62.4
Batch	2014	67	47.5
	2015	74	52.5
Department	Electrical Engineering	12	8.5
	Mechanical Engineering	29	20.6
	Industrial Engineering	44	31.2
	Informatics	56	39.7
Sex	Male	113	80.1
	Female	28	19.9
Parent's occupation	Not Entrepreneur	38	27
	Entrepreneur	103	73

Table 4 is a table that shows the results of respondents who answered strongly agree and agree on the Need for Achievement statement. From the table, it is known that the statement "responsible" gets the highest percentage.

**Table 4**  
**Distribution of Need for Achievement Indicators**

Indicators	Frequency	Percentage of Total Sample
Hardworking people	120	86.1
Dare to take risks	60	42.6
Criticism doesn't make you give up	122	86.5
Never give up realizing dreams	119	84.8
Responsible	129	91.5
Achieving success by trying new things	118	83.7

Table 5 shows the percentage of students on statements on Locus of Control. The table shows that the statement "desire is achieved with hard work" gets the highest percentage.

**Table 5**  
**Distribution of Locus of Control Indicators**

Indicators	Frequency	Percentage of total sample
Success depends on yourself	122	86.5
Success does not depend on fate	101	71.6
Desire achieved with hard work	135	95.7
Not relying on other people's help	111	78.8
Desires are achieved not because someone set	71	50.4
Fate does not determine success	98	69.5

Table 6 shows the percentage of students on the statements on the Self Efficacy variable. The statement with a high percentage value is "able to solve the problem."

**Table 6**  
**Distribution of Self Efficacy Indicators**

Indicators	Frequency	Percentage of total sample
Confident	104	73.8
Not afraid to try new things	104	73.8
Able to make decisions under pressure	98	69.5
Able to solve problems	128	90.8
Have a way to reach the goal	124	88.0
Thinking yourself better than others	67	47.5

Table 7 shows the percentage of students on the statements on the Sense of Autonomy variable. The table shows that the statement "likes flexible working hours" gets the highest percentage.

**Table 7**  
**Distribution of Sense of Autonomy Indicators**

Indicators	Frequency	Percentage of total sample
Like flexible working hours	115	81.8
Happy to work without rules	85	60.2
Like to give commands	54	38.3
Prefer to act alone	104	73.8
Happy to decide for myself	69	49.1
Enjoy working alone compared to group	40	28.3

Table 4 – Table 7 then compared the averages to find out which motivational variables have the most influence on entrepreneurship. Successively, the percentage of the most influential variables in entrepreneurial motivation is Need for Achievement (79.2%), followed by Locus of Control (75.4%), Self-Efficacy (73.90%), and Sense of Autonomy (55,3%).

## DISCUSSION

### Validity and Reliability Tests

The validity test was carried out for four variables to determine whether each indicator was feasible to use by comparing the *R-count* with the *R-table*. The degree of freedom is  $141-2=139$ , and the *R-table* with an *alpha* of 5% is 0.2. Therefore, the indicator of each variable will be said to be valid if it has an *R-count* > 0.2.

The *R-count* of the Need for Achievement variable shows a value between 0.4-0.7 so that all indicators are feasible to use. Likewise, the *R-count* of the Locus of Control variable shows a value between 0.4-0.6 so that all indicators are feasible to use. Similarly, the *R-count* of the Self-Efficacy variable ranges

from 0.5-0.7, and the *R-count* of the Sense of Autonomy variable ranges from 0.5-0.6. Thus, all indicators are valid.

The reliability test aims to determine how the measurement results can be trusted because it has a high level of consistency. Reliable or not can be known by looking at the *Cronbach Alpha* value that is greater than 0.6. The *Cronbach Alpha* values of the four variables are 0.8 for Need for Achievement, 0.8 for Locus of control, 0.8 for Self-Efficacy, and 0.8 for Sense of Autonomy. All values are greater than 0.6, so it can be said that the measurement results are reliable.

### **The Relationship between Respondents Characteristics and Motivation Variables**

The subsequent comparison is made by making a table that compares the characteristics of the respondents with the four motivational variables, namely Need for Achievement, Locus of Control, Self-Efficacy, and Sense of Autonomy.

Students who choose to work as employees after graduation point out Need for Achievement motivation (32.3%), then Locus of Control (25.9%), Self-Efficacy (23.8%), and Sense of Autonomy (18.1%). On the other hand, students who want to become entrepreneurs have different motivations, namely Self Efficacy (28%), Need for Achievement (28%), Locus of Control (22.8%), and Sense of Autonomy (21%). Finally, students who want to become employees first and then become entrepreneurs have motivations, namely Need for Achievement (28.9%), Self-Efficacy (27.6%), Locus of Control (23%), and Sense of Autonomy (20.63%). Thus, the three characteristics of students have a different order, although they are similar between employees only and employees who became entrepreneurs later.

Male students in answering statements on the questionnaire were dominant on motivation for Need for Achievement (30.2%) and Self-Efficacy (26.4%), followed by Locus of Control (23%) and finally Sense of Autonomy (20.4%). On the other hand, female students were more dominant in the motivation of Self Efficacy (29.5%), Need for Achievement (28.3%), followed by Locus of Control (23%), and finally Sense of Autonomy (19.2%).

Industrial Engineering students have 29.7% and 29.6% for Self-Efficacy and Need for Achievement motivations, respectively. Students of Informatics, Mechanical Engineering, and Electrical Engineering have something in common, i.e., having a high percentage score on Need for Achievement in the first place and Self-Efficacy in the second place.

Comparisons were also made on the characteristics of the force on the motivation variable. The results obtained are that the 2014 and 2015 batches have the same motivational variables, namely Need for Achievement and Self Efficacy, which have a high percentage value. These values were 29.7% and 27.7% for the 2014 batch and 28.7% and 26.9% for the 2015 batch.

Both parent's backgrounds as entrepreneurs and non-entrepreneurs have the same relationship with the motivational variable, namely, Need for Achievement in the first rank and Self-Efficacy in the second rank. The values obtained are 28.8% (Need for Achievement) and 27.86% (Self-Efficacy) for entrepreneurs as parent's backgrounds and 29.3% (Need for Achievement) and 27% (Self-Efficacy) for non-entrepreneur backgrounds.

Given the large number of students interested in becoming entrepreneurs after graduating from college and students who become employees first and then become entrepreneurs, it is necessary to provide business courses to either managing an existing business or starting a new business.

### **CONCLUSION**

The results showed that as many as 13.5% (19 people) wanted to become employees, 24.1% (34 people) wanted to become entrepreneurs, and 62.1% (88 people) wanted to become employees first and gradually become entrepreneurs.

The dominant entrepreneurial motivation variable is Need for Achievement in the first place, Self-Efficacy in the second, Locus of Control in the third, and Sense of Autonomy in the fourth and fourth.

Respondents who choose to become employees only and employees first then become entrepreneurs have the same significant motivation, i.e., Need for Achievement motivation, while respondents who want to become entrepreneurs have Self-Efficacy motivation.

The motivation for male students to work is the Need for Achievement, while the inspiration for female students is Self-Efficacy.

Students of Mechanical Engineering, Electrical Engineering, and Informatics have "Need for Achievement" motivation, while Industrial Engineering students have "Self-Efficacy" reason.

Characteristics of students interested in becoming entrepreneurs after graduate from college are those who want to be free, have flexible time, and earn more. They come from the 2014 batch and have Self-Efficacy and Need for Achievement motivations.

To develop respondents who choose to become entrepreneurs, the Faculty of Industrial Technology may hold some business classes about handling existing businesses and starting a new business from scratch.

Students interested in becoming employees try to pursue a career path and want to gain experience. Students from 2015 batch are more dominantly interested in becoming an employee.

Students interested in becoming employees first and then becoming entrepreneurs have a reason, namely wanting to find experience and capital. In addition, the motivation is the same as that of respondents who want to become employees, namely Need for Achievement and the second-highest Self-Efficacy.

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# DETERMINING THE TOURISM AREA LIFE CYCLE (TALC) OF BANGLADESH: AN APPLICATION OF BUTLER'S TALC MODEL

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## ABSTRACT

The application of Tourism Area Life Cycle (TALC) in the tourism industry was not a new phenomenon in the global context. Still now, the concept is applied to various aspects of tourism studies encompassing coastal areas to mountains. Despite the immense importance of TALC, a little application of this model was evident in the context of Bangladesh. Recently, the country recommended to become a developing nation from a Least Developed Country (LDC). Among many others, the tourism industry played one of the key roles to contribute to this development; as evidence, the country had 4.4% contribution to the national GDP (WTTC, 2020). However, TALC of the tourism industry in Bangladesh is unexplored yet. Therefore, this study applied Butler's TALC model to determine the current stage of Bangladesh's tourism industry in TALC. Initially, secondary data analyzed using SPSS version 20.0 for determining the stage. Then the stage had been validated through the TALC variables checklist and 10 in-depth interviews taken from officials (additional directors) of the Bangladesh Tourism Board (BTB) and academicians of University of Rajshahi (RU), Bangladesh. The study found that the tourism industry of Bangladesh was now retaining in the development stage. The variables of the development stage-well defined tourist market, declining nature of local involvement and control of development, up-to-date facilities by external organizations, expansion of artificial facilities proved the stage validity. This suggestive study may act as a theoretical and practical guideline to formulate effective tourism policies for boosting the tourism industry in the upper stages of TALC.

*Keywords: TALC model, Bangladesh, Secondary data.*

## INTRODUCTION

The life cycle is the stages of life. Every object has different life stages and each stage has distinct attributes or nature. The objects start life from the introductory point and it ends through declining. If we think about any product, it is firstly introduced in a market and lastly reached to decline stage passing other two stages-growth and maturity (Armstrong, Adam, Denize, & Kotler, 2014). As aforementioned, each object has a life cycle, tourism destination is not out of this. A tourist destination does not become well-known to all first. Tourists get involve with the destination and gradually it becomes popular to all. Several development activities around the destination are implemented to serve the tourist. The development activities and better tourist service help destinations to attract the maximum tourist. But once upon a time, the destination loses the tourist attraction which forces the destination to be declined unless it takes further innovative activities to keep it alive. Burtler (2006) marked these steps and dynamism as Tourism Area Life Cycle (TALC) and established as the most applied theories in growth and transformation of a destination (Hall, 2006).

Each stage of TALC holds some specific and distinctive characteristics of a tourism area or destination which act as supportive tools to the Destination Management Organizations (DMOs) to adopt different strategies according to the posed character and situations of the stage (Bamba, 2018). Hall (2006) stated that TALC focuses to define a destination, to explore the forces that forced destination change and to analyze the change of a destination and its markets. So, the policymakers and government accepted the TALC as the model of easy planning approach for different varieties of destinations (Petrevska & Collins-Kreiner, 2017). The model guides everyone to understand the evolution and development of a destination and also is a standard framework for researchers and Least Developed Countries (Odum, 2020).

Bangladesh is a least developed country who recently recommended to graduate as a developing country. The beauty of the country recognized and branded her as a beauty queen (Sardar, Hossain, Hossain & Islam, 2020) and Beautiful Bangladesh (Tinne, 2013). As a tourism destination, Bangladesh is blessed with varieties of tourism products like archeological tourism, beach tourism, eco-tourism, agri-tourism, culinary art, ethnic tourism etc. The beauty of various tourism products and the hospitality of citizens attract tourists from home and abroad. In 2019, the country received 336.8 million USD from 125 million international tourists (Calderwood & Soshkin, 2019). At the same time, leisure spending was 88% of total spending (WTTC, 2020). The data is supposed to satisfactory but she has huge potentiality which could attract more tourists. Effective tourism policy and proper action plans could help the country to attract more tourists. Recently, Bangladesh formed a group of national and international experts for preparing an effective national tourism master plan. The determination of the present stage of Bangladesh in tourism could help the experts to prepare an effective plan. Unfortunately, the stage is not literally explored yet in Bangladesh. The Butlers' TALC model could act as a mechanism to identify the present stage of Bangladesh as a tourism destination as the model explains a destination in six different phases (Kruczek, Kruczek, & Szromek, 2018). Thus, this study is an attempt to persue the Tourism Area Life Cycle of Bangladesh and could act as a grounded study for preparing the national tourism master plan.

### Research Objectives

The broad objective of this research is to determine the Tourism Area Life Cycle of Bangladesh. The specific objective- to identify the distinctive attributes of different phases of TALC in context of Bangladesh and to analyze the attributes of Bangladesh TALC and tourist arrival data are supportive to the broad objective. Moreover, the study is proposed some strategies for graduating from the determined stage of the TALC.

### LITERATURE REVIEW

The TALC could be a new concept in Bangladesh but it is widely applied since the 1980s. The TALC research is also enriched with a huge number of works of literature (Petrevska & Collins-Kreiner, 2017). The concept was first introduced by R.W. Butler in 1980 (Butler, 2006) and also later reviewed by him (Odum, 2020). Later, the concept is applied to sustainable tourism (Hovinen, 2006), community-based tourism (Setiawan & Wiweka, 2018), scenic spots (Bao & Zhang, 2006), national parks (Boyd, 2006), and also to heritage sites (Butler, 2006). According to Burtler (2006), the TALC is comprised of seven stages and each stage has its distinctive attributes. The stages are extensively discussed by tourism scholars (Jones, 2012; Kruczek et al., 2018; Kubickova & Li, 2017; Odum, 2020; Pathak, 2014; Petrevska & Collins-Kreiner, 2017; Uysal, Woo, & Singal, 2012).

The **Exploration** is the first stage of TALC in which visitors are basically get attraction to natural, cultural and historical places. This stage is also characterized by limited tourists, casual visits, unstructured tourist facilities and high involvement of local residents. In the second stage, the visitors increase in regularity basis and they highly interact with local communities. As a result, tourist and host communities expect organizational support from the government and local administration for good transportation and supportive facilities. The destination also advertises in a small scale. Burtler (2006) marked it as the **Involvement** stage. In the third stage name **Development**, specific tourist group(s) is formed for the destination and advertising is run targeting the group. The control of the host communities starts to vanish and transfers to external organizations that provide exclusive and modern facilities to the tourist. The natural and cultural attractions of a destination renovate with man-made facilities and the physical appearance of the destination noticeably changes with modern infrastructure and accommodation. The **Consolidation** stage is the fourth stage of TALC which is characterized by increasing number of visitors (but the rate of increase is declined), tourism-dependent local economy, wide range of marketing and advertising policy, Franchise and Chain based service in the tourist area. In this stage, host communities become unhappy with the large scale of visitors and service deprivation. As a result, they face some restrictions in the tourist area. The next stage of TALC is **Stagnation**. The main attributes of this stage are the maximum number of visitors which will

match (sometimes exceed) the maximum capacity, established but unstable destination image, rely on revisit intention of the tourist, high level of artificial facilities, renovation in natural and cultural attractions of the destination and frequent changes of Ownership. The unexpected stage of TALC is the **Decline** stage. In this stage, the destination loses its competitive strength and appeal. As a result, visitors hardly visit the destination except on vacation. In this stage, the involvement of the local community increases and they get a chance to enjoy or buy the facilities at lower prices. The tourist infrastructures and facilities convert to the non-tourist establishment. So, it demotivates the tourist to visit the destination. Finally, it becomes an obsolete tourist destination. The last stage of TALC is **Rejuvenation** which means energizing the declined destination. The rejuvenation could be implemented in two ways- add high demand contemporary artificial facilities and develop unexplored nature-based resources. The newly developed facilities become attractive to the tourist and holiday visit become popular again. But the facilities will prioritize the contemporary taste and preferences of the tourist. However, the rejuvenated destination does not pose large-scale competitiveness, synergistic efforts of government and nongovernment are essential to make the destination again attractive and lively.

Among the aforementioned stages, it is not evidenced that as a tourist destination in which stage the country Bangladesh is residing and which attributes the country are owned. Thus, this study will fill the gap determining the stage of TALC.

## RESEARCH METHOD

The mixed-method (qualitative and quantitative) approach is applied in this study to make the research more accurate and reach its objectives. The quantitative approach helped to determine the TALC of Bangladesh and the specific stage in the TALC, whereas the qualitative approach was adopted to validate the stage's checklist.

### Types and Sources of Data

This study collected both primary and secondary sources of data. The secondary data was collected from the National Tourism Organization (NTO) of Bangladesh. The data consist of the total annual international tourist arrivals statistics. The tourist arrival data is the most acceptable and reliable source for determining the TALC (Petrevska & Collins-Kreiner, 2017) as the model analyzes on the basis of the number of tourists and time. Whereas primary data was collected through 10 in-depth interviews. The interview is conducted from the three Assistant Director (AD) of the Bangladesh Tourism Board (NTO) and seven academicians and researchers in the field of tourism. The respondents were purposively selected as they are well known and explored the tourism scenario of Bangladesh. A semi-structured questionnaire is prepared on the basis of the checklist of the specific stage of the TALC for conducting the interview. The respondents are expressed their opinion only on that specific stage.

### Data Analysis Procedure

The secondary data have analyzed using SPSS version 20.0 for determining the TALC and stage. Then the stage has been validated through the TALC attributes checklist. The discussed checklist of Burtler (2006) is mainly grounded as the checklist of this study. Moreover, the relevant literature (Bamba, 2018; Boyd, 2006; Odum, 2020; Petrevska & Collins-Kreiner, 2017; Russo, 2006) of TALC guided the checklist. The in-depth interview is conducted emphasizing the checklist of the in which Bangladesh is retaining. Further, the interview is analyzed through the thematic analysis technique (Braun & Clarke, 2006; Fereday & Muir-Cochrane, 2006).

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# OPERATIONAL RESILIENCE of SMEs in OVERCOMING CRISES: CASE STUDIES IN PALU- INDONESIA

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## ABSTRACT

This research was conducted to explore the operational resilience of SMEs in Palu-Indonesia who have not experienced natural disasters for too long and are facing the COVID-19 pandemic. This research was conducted by focusing on several cases. The researchers explored two crisis events, namely the extent of their activity during natural disasters and during pandemics. The results of this study showed that the operational resilience of SMEs in Palu-Indonesia is quite high and able to improve their efforts to rise after natural disasters and survive during the pandemic. This study had already used several case studies so this is a drawback. To fill the gap, more researches were needed with different research methods in order to produce and strengthen the theory of SME resilience in efforts to deal with the crisis. The results of this study could be used as a reference by policy makers in formulating the operational resilience of SMEs to deal with possible future crises.

**Keywords:** *Operational resilience, SMEs, Palu-Indonesia.*

## INTRODUCTION

Indonesia has a large area and population so that it can provide great opportunities for SMEs to develop. SMEs have proven their role when the monetary crisis hit Indonesia in 1998. SMEs were able to prove that they could survive the storm of the crisis at that time. For example, the events of 2018 that were experienced by three regions in the province of Central Sulawesi, namely Palu, Sigi and Donggala, can provide evidence of how SMEs in these areas were able to recover after natural disasters (Rajindra, Anggareni, Yani, & Akkas, 2020). This is the next piece of evidence that shows how SMEs in disaster-stricken areas can bounce back (Rajindra *et al.*, 2020). The effort of SMEs in disaster areas can also be used as a reference for resilience practices.

Disasters are events caused by nature or by human error such as, landslides, earthquakes, tsunamis and landslides are natural disasters. Disasters caused by nature or human negligence can cause harm to the environment and the economy. The territory of Indonesia is geologically located at the confluence of three active tectonic plates, namely the Indo-Australian plate in the south, the Eurasian plate in the north and the Pacific plate in the east (Surjono, Yudono, Muluk, & Wardhani, 2020). The three plates collide and move include the Indo-Australian plate is moving North, and the Eurasian plate is moving to South. This movement creates earthquake paths, a series of active volcanoes and faults (Kuswandi, Erwindi, Hadian, & Muslim, 2020). This condition makes the Indonesian region prone to disasters. Earthquakes and volcanic eruptions can always occur at any time. Rajindra *et al.* (2019) identified three regions in Central Sulawesi, such as, Palu, Sigi and Donggala experienced three disasters (earthquake, tsunami, and liquefaction) on September 28, 2018. This terrible disaster had impact 432,45 Ha and around 2000 residents with property damage (Palu, 2019). The report of Ministry of Public Works and Housing (2018) shows that the impact of natural disaster in Palu City caused the number of people died about 2,256 and people were injured around 4,612. This report also found that people were displaced around 223,751 and 1,309 were

disappeared. In addition, disaster in Palu 2018 also affected 68,451 houses, 256 schools, 327 worship buildings, and 45 health facilities.

Then, SMEs in Palu City had to face another non-natural disaster in early 2020. Some of them had to close their businesses again due to strict health protocols during the Covid-19 pandemic. The closure of this business resulted in workers having to be laid off and some of them having to be laid off. In addition, SMEs must adapt to the threat of the COVID-19 pandemic on their businesses. Therefore, social media is their choice to market SME products or services in order to reduce contact with their consumers. However, not all of this can be done by SMEs, some of them who already have technological literacy are able to quickly adapt so that their businesses can continue to operate during the pandemic.

This article is structured to solve problems related to the extent to which SMEs can manage operational resilience after natural disasters then have to adapt to the current pandemic. This study was able to collect data from several SMEs who survived from disaster and reopen their businesses.

## **LITERATURE REVIEW**

### **Resilience**

The essence of resilience is the ability to withstand external and internal threats. This definition of resilience has evolved substantially toward individual resilience rather than business resilience. Connor and Davidson (2003) published a resilience scale consisting of 25 statistically proven data items globally. The Connor-Davidson resilience scale then developed from 25 data items to only 10 items (Campbell-Sills & Stein, 2007). This last 10 item scale has also been validated by the next researcher, namely Lauridsen, Willert, Eskildsen, and Christiansen (2017). These items had been validated in different countries and culture. The development of this scale can be seen in the following Figure 1.

### **SMEs Business Resilience**

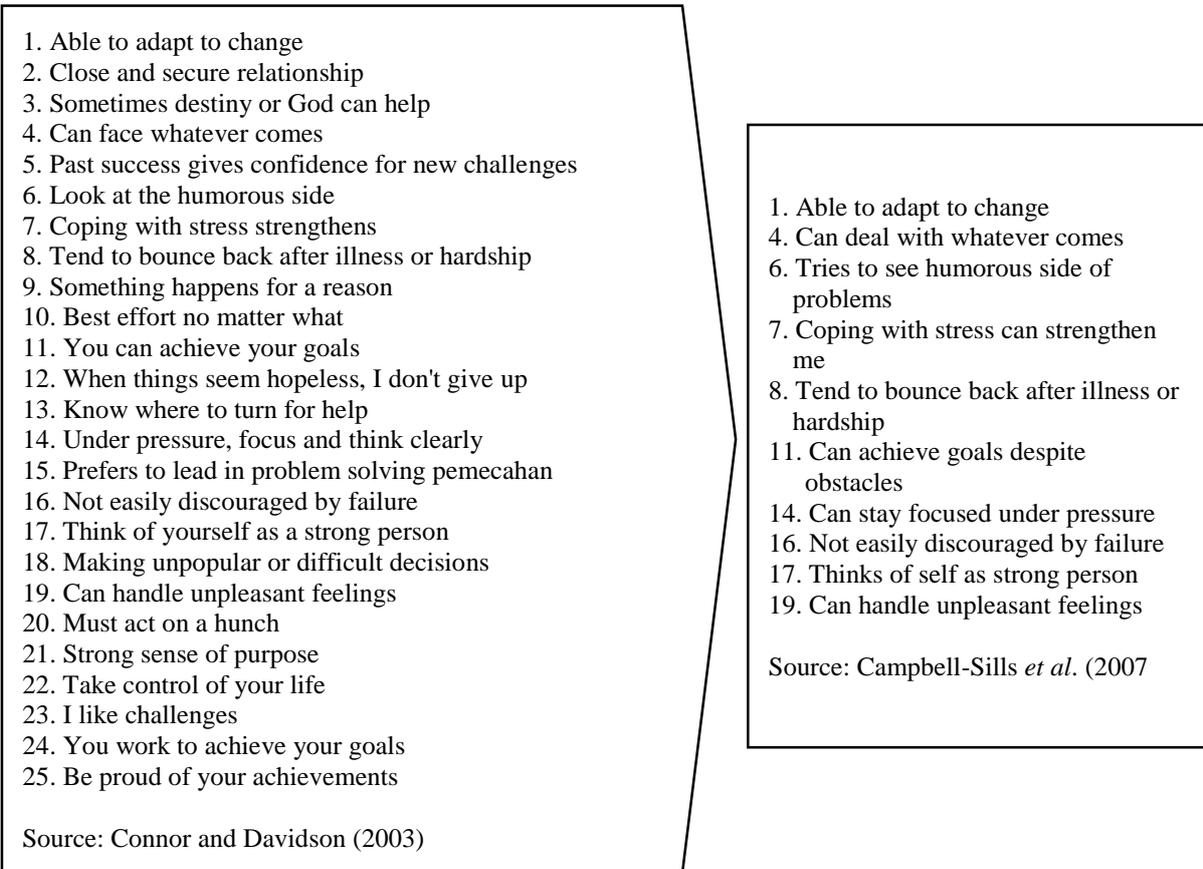
Branicki, Sullivan-Taylor, and Livschitz (2018) stated that the ability of SMEs to overcome external threats and disturbances and be able to see opportunities for renewal and reinvention. The adaptability that organizations have in restoring post-disaster business (Coates, Alharbi, Li, Ahilan, & Wright, 2020). To achieve business priorities directed at reducing the impact of natural disasters and maintaining the sustainability of business products and services (Sausser, Baldwin, Pourreza, Randall, & Nowicki, 2018). The ability of businesses to face major risks in general can provide opportunities for business recovery from the great strengths of their business operations (Wedawatta & Ingirige, 2012). Business recovery related to internal business processes include: self-development, control systems, organizational culture, organizational justice and cohesion with others (Zehrer & Leiß, 2019). They also stated that external business processes can also affect business recovery, among others: access to material resources and access to existing supply chains.

### **Operational Resilience**

Some researchers focus on the input part and some focus on the output (Essuman, Boso, & Annan, 2020). The expert's view from the input side, states that resilience is the ability to effectively respond to disturbances, when viewed from a way of holding back and recovering from the impact of disturbances (Chowdhury, Quaddus, & Agarwal, 2019). The resilience scale used to measure includes: flexibility, stock, visibility, preparation for disruption, agility, collaboration, integration, and information sharing (Chowdhury *et al.*, 2019). Experts who look at the output side state that the level of resilience cannot be ascertained if there are no disturbances (Scholten & Schilder, 2015). Elements of resilience from the output point of view include: ability to reduce disruption, recovery, adaptability, transferability (Scholten & Schilder, 2015).

In general, businesses cannot be separated from other activities, both upstream and downstream (Essuman *et al.*, 2020). Business resilience (internal) can be influenced directly or indirectly by other business activities (external). The ability of business resilience that runs effectively upstream and downstream can affect business (internal) resilience in the supply chain (Essuman *et al.*, 2020). The

same thing happens if business (internal) resilience can be run effectively, it will affect resilience in other parts of the supply chain from upstream to downstream (Essuman *et al.*, 2020).



**Figure 1. The development of resilience scale**

## RESEARCH METHOD

The purpose of this qualitative descriptive study is to explore, describe and understand the condition of SMEs in Palu City after the 2018 Earthquake, Tsunami and Liquefaction, the ability to survive SMEs in the face of post-natural disasters and how SMEs operational resilience. According to Colorafi and Evans (2016), a descriptive study was carried out to obtain the conditions experienced from an individual or group event.

Direct semi-structured interviews are suitable because they allow accessibility to participants and the depth of knowledge that will emerge from the descriptive data collected. For this reason, demographic data was collected to get an overview of the participants. One of the reasons for conducting a qualitative descriptive study was that participants were given the opportunity to provide an overview of their experiences in managing business operations after the natural disaster in Palu.

The sample of this study was determined by certain criteria by using semi-structured interview techniques. This study succeeded in collecting data on 3 SMEs by not displaying name and address profiles for the reason of protecting the participants' personal data. The pattern of questions used at the time of the interview included: opening, following up, probing, determining, interpret, and close (Kvale & Brinkmann, 2009).

To examine the operational resilience of SMEs following a disaster, this study used a descriptive qualitative technique. This study focuses on small and medium-sized enterprises (SMEs) in the recovery phase and during pandemic COVID-19, which continue to confront several challenges following natural catastrophes. As a result, to measure the operational resilience of SMEs, this study

used a desk review and case study methodology. The case study was carried out by interviewing three SMEs and examining the improvements that enabled them to withstand a natural disasters and unnatural disasters Creswell and Poth (2017), a case study, it is claimed, focuses on many specifications such as persons, cultural groupings, or life profiles. This study examines the impact of SMEs' owner/founders' innovative ambidexterity on company resilience. This research examines and interviews SMEs that have effectively transitioned following a tragedy. Respondents in this study were interviewed using semi-structured questions regarding their practice and experience with operational resilience. In this case study, data is gathered from a variety of sources to provide an in-depth picture of a situation (Creswell & Poth, 2017). Therefore, the subject in this study is explained through important and detailed events.

The data from interviews and observations were evaluated using an interpretative method in this study. This study also highlights themes from prior literature and research findings linked to dynamic capacity and company resilience. Creswell and Poth (2017) demonstrated that case study data analysis necessitates the use of numerous data sources to identify evidence at each stage of the case's progress. As a result, data analysis focuses on answering the study objectives.

Following that, we code comparable text parts. We examine the data to discover how the incident occurred given the circumstances. Then, in order to better understand the process, we compared the coding system to a literature study. Previous research has demonstrated that a qualitative descriptive technique provides subjective judgments that are confirmed and supported by explicit citations from participants (Bradshaw, Atkinson, & Doody, 2017; Pratt & Yeziarski, 2018). By matching the interview findings with separately coded source triangulation, the triangulation approach was utilized to assure accurate data gathering. Case studies need thorough verification using triangulation and member checks to assist researchers in determining the quality of the data by examining and comparing it.

## FINDINGS

Participants in this study consisted of three SMEs who were willing to participate. Researchers deliberately chose informants to get an overview of the condition of SMEs in Palu City after the natural disaster. Informants consist of religious businesses with age and gender dominated by SMEs under the age of 40 years. The case study was founded in the range 14–31 years. In addition, the number of employees in each SMEs is also quite varied. The profile of each SMEs participant involved in this study can be seen in Table 1.

**Table 1**  
**Participant Profile**

Characteristics	Case 1	Case 2	Case 3
Age	53	20	56
Gender	male	male	female
Types	processing	retail	small restaurant
year of establishment	20	14	31
number of employees	7	3	4

## Case Studies

### *Input - Base Resilience (IBR)*

This study adopts important aspects of resilience based on inputs, namely flexibility, stock, visibility, preparation for disruption, agility, collaboration, integration and information sharing (Chowdhury *et al.*, 2019).

**Table 2**  
**Interview Result (Input-Base Resilience)**

<b>Variables Identified</b>	<b>Post Natural Disaster (Earthquake, Tsunami, and Liquefaction) 2008</b>	<b>During Pandemic Covid-2019</b>
flexibility	SMEs check for damage and adjust raw materials and some open businesses faster than other businesses	SMEs have limitation during pandemic
stock	Inventories of raw materials are reduced, making it difficult for SMEs to stock up	SMEs can have an enough inventory
visibility	SMEs adjust according to the conditions they face	SMEs apply social media to be more visible expand their product/service
preparation for disruption	SMEs have no preparation	SMEs have no preparation
agility	SMEs can operate again quickly, and some are difficult to get up	SMEs adapt their business during pandemic
collaboration	SMEs maintain collaborations with their suppliers	SMEs collaborate with their suppliers
integration	Business integration cannot be carried out by SMEs	SMEs difficult to integrate
information sharing	SMEs tend to reorganize relationships with suppliers	SMEs have been applying several social media

Source: Chowdhury *et al.*, 2019

### ***Out -Base Resilience (OBR)***

Aspects used on resistance ratings based on the output consists of ability to reduce distraction, recovery, adaptability and transferability (Scholten & Schilder, 2015).

**Table 3**  
**Interview Results (Output-Base Resilience)**

<b>Variables Identified</b>	<b>Post Natural Disaster (Earthquake, Tsunami and Liquefaction) 2008</b>	<b>During Pandemic Covid-2019</b>
Ability to reduce distraction	SMEs do not have the capability to act to deal with external disturbances such as disasters	SMEs could not control this external pandemic factors
Recovery	SMEs can recover their business after a disaster despite the different pace of continuing their business	SMEs need to adjust their operational
Adaptability	SMEs have diverse capabilities in adapting	SMEs must follow the health protocol
Transferability	The capabilities of SMEs differ in terms of transferability	SMEs have no capacity

Source: Scholten and Schilder, 2015

## **DISCUSSION**

Discussions about the origin of the resilience construct are still debated by experts. Part of the potential debate leads to the concept of resilience in terms of the different elements and levels of analysis. This study can provide an explanation of the extent to which operational practices are carried out by SMEs to survive disasters. This study can also illustrate that SMEs are very vulnerable in dealing with disasters. SMEs that require raw materials supplied by many suppliers will be able to affect the resilience of their operations. High operational disruption causes uncertainty and the need for information processing also increases. Therefore, there is a need for increased operational certainty and stability even though the level of operational efficiency may fluctuate (Ivanov, 2018).

When operational disruptions increase, awareness of disruptions also increases, and this situation will encourage companies to be more effective. This situation requires companies to be able to detect disturbances to minimize the impact and costs. Inefficiency will occur when companies mistakenly set high operational resilience while operational disruption is low (Wong, Lirn, Yang, & Shang, 2020).

The impact caused by the natural disaster in 2018 caused SME operations to stop their operations for several weeks. After that, some of them did not open again, but there were also SMEs that were able to operate again. All stakeholders expect SMEs to quickly rise and restore their businesses, but not all SMEs have this capability (Dasanayaka & Wedawatta, 2014). The limitations of SMEs are the main factor for getting back up. SMEs' operational resilience practices vary in the face of disasters and their decisions are influenced by input and output aspects (Dahlberg & Guay, 2015). Disaster events can affect the condition of the infrastructure of the disaster area so that it takes time for recovery. The type of business can affect the ability of SMEs to re-open a business.

Based on the input-base, there are various operational resilience measures taken by SMEs in dealing with disasters, including: flexibility, stock, visibility, preparation for disruption, agility, collaboration, integration and information sharing. In the aftermath of the disaster, SMEs not only face personal problems related to family conditions but also have to deal with the affected business conditions. Appropriate operational actions must be taken to reduce the impact on the business in order to be able to reopen the business being run. This study shows that SMEs in certain types of businesses must temporarily suspend their business before reopening. Meanwhile, operational resilience based on output consists of the ability to reduce distraction, recovery, adaptability, and transferability. SMEs generally have limited resources in running their business. These limited resources can affect the speed with which SMEs can reopen their businesses after the disaster. They generally face difficulties in adapting to new circumstances because they previously did not have the mitigation to deal with disasters.

## CONCLUSION

This study has many shortcomings including a case study that examined several three cases. The follow-up study approach is in the form of hypothesis formulation followed by test treatment of the hypothesis. In addition, there are still limited studies on the investigation of the operational resilience of SMEs in areas that have experienced catastrophic natural disasters and pandemic COVID-19. The results of this study can be used as a reference in conducting further studies to investigate the operational resilience faced by SMEs to overcome disasters in the future.

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# HOW COVID 19 PANDEMIC AFFECTS THE ENTREPRENEURIAL SPIRIT OF STUDENTS

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## ABSTRACT

Entrepreneurship has reached the world of education. Today many campuses have developed incubation centers to attract and develop student entrepreneurship. The fact that students own a business even with working in a company is nothing new at present. During the COVID-19 pandemic, many students lost their jobs and turned to open companies to survive. Internal and external factors influence the entrepreneurial spirit of students. This study examined the internal factors that encourage students to start their businesses before and after the COVID-19 pandemic, such as self-efficacy, motivation, competition in building creativity. The research was done on the foundation of the main data of surveying of 350 students from seven tertiary institutions in Jakarta and West Java. The test of hypothesis was using the Model of Structural Equation Model (Lisrel-SEM). The findings showed that self-efficacy affected students' competence and motivation in entrepreneurship. Their competence influenced student motivation to entrepreneurship, and in the end, creativity is influenced by competence and motivation. In this study, self-efficacy directly negatively affected creativity but had the indirect one through competence and motivation.

**Keywords:** Self-efficacy, competence, motivation, creativity.

## INTRODUCTION

Entrepreneurship is not a new thing in Indonesia's education, but its existence is increasingly becoming a concern, and technological developments support virtual transactions. The story of digital marketing has created new entrepreneurs interested in starting a business with the ease of marketing. Digitalization opens opportunities for the entrepreneur (Ramaswamy & Ozcan, 2018). Many students have businesses that are run online, but not all the companies they run are successful. Many challenges must be faced in starting and developing a business. Especially in the covid-19 pandemic, many people have been left out of work and must create their businesses to survive. This also happened to students who partly experienced the same thing. For students who already had a business before the pandemic, they must strive to develop their business with the increasing number of new competitors, as the covid-19 pandemic demands mindset, which is entrepreneurial to deal with the development (Ratten & Jones, 2020), and in connection to the pandemic, the skill and knowledge of being an entrepreneur is demanded far more than before due to the fact that its way can motivate positive as well as creative way of thinking (Krauss *et al.*, 2020). Entrepreneurial spirit is defined as business behavior characterized by innovation, proactiveness, and risk taking (Miller, 1983).

The passion for starting a business from students arises due to several factors that influence it. First, the students' entrepreneurship mindset is caused by entrepreneurial education and students' entrepreneurial intention (Handayati, Wulandari, Soetjipto, Wibowo, & Narmaditya, 2020). These include knowledge of entrepreneurship and self-efficacy and family factors that significantly impact student's entrepreneurial intention (Hutasuhut, 2018). A previous study's findings also found that competence is needed for entrepreneurship (Bauman & Lucy, 2021). Then, self-efficacy triggered competence (Rama & Sarada, 2017), as well as a strong and positive antecedent of competence (Shih, 2004). Supporting this is Kremer, who said that the most important determinant of motivation is competence (Kremer, Robinson, & Rostapshova, 2013). It examines the relationship between three psychological factors as elements that build students' entrepreneurial spirit, namely self-efficacy, competence, and motivation which will ultimately encourage creativity. A predictor of a become entrepreneur is creativity (Teixeira, 2011).

A prior study found that self-efficacy constitutes a strong condition for performance which is creative because self-efficacy adds motivation to give weight stress and priority on the own actions and thinking

(Bandura, Freeman, & Lightsey, 1999). Bandura states that motivation participates in determining self-efficacy. Meanwhile, Vancouver gives a different view that Self-efficacy was related in a negative way to motivation (Vancouver & Kendall, 2006), as well as extrinsic motivation can hamper creativity (Amabile, 2013). This study puts forward a conceptual model to develop the entrepreneurial spirit of students by proposing the variable self-efficacy as a drive to trigger competence and motivation to do entrepreneurship. In addition, how competence determines motivation to increase student creativity as an entrepreneur. This study wants to identify how the connection among motivation, self-efficacy, and competence increases students' creativity in entrepreneurship.

## **LITERATURE REVIEW AND HYPOTHESIS**

### **Entrepreneurship Education**

As part of university teaching, entrepreneurship has been integrated in the curriculum. In entrepreneur education, students are equipped by learning how to maximize their competencies to open new opportunities. Entrepreneurship education is a learning process with the outcome to get a piece of knowledge, skill, and how to act as an entrepreneur (Kakouris & Liargovas, 2021). Entrepreneurship is defined by many universities as part of the graduate's competence to create jobs when entering community life. Entrepreneur education provides job opportunities for students and graduates as self-employment (Davey, Plewa, & Struwig, 2011). For students, to start entrepreneurship is rather tough, psychological encouragement is needed such as their confidence of their capability to make it happen. The campus's help or support can be one of the motivations for the students to start their own business. Entrepreneurship education is a process to open students' minds to recognize opportunity, self-esteem, knowledge, and skill (Iacobucci & Micozzi, 2012).

Entrepreneurship education's is not merely to produce intentions of entrepreneurial activities but also to be able to create the support the students need. The entrepreneur education provides students with a comprehension of the market analysis, pitch a business plan, and increase their confidence to show entrepreneurial tasks (Shinnar, Hsu, & Powell, 2014). Prior studies show that entrepreneur education plays an important factor in students' entrepreneurship intention (Wegner, Thomas, Teixeira, & Maehler, 2020). In addition, students' intention to become an entrepreneur is increased by their entrepreneurial skill through personal attitudes and subjective norms (Gieure, Benavides-Espinosa, & Roig-Dobón, 2020). Entrepreneurship education facilities and a rise in conducive culture student self-efficacy in entrepreneurship (Elnadi & Gheith, 2021).

### **Self-Efficacy**

What Self-efficacy refers to is people's comprehension and trust in the capacity to be successful in doing from having a willingness to the final result (Hechavarria, Renko, & Matthews, 2012). Bandura states that self-efficacy is the belief of people of their capacity to produce performance in levels that have been designated that test give impact over events that provide impact their lives (Bandura, 1997). In entrepreneurship context, self-efficacy is attributed to the belief of running and starting a new business (Newman, Obschonka, Schwarz, Cohen, & Nielsen, 2019). The rise of students' self-efficacy is due to the knowledge they have obtained on running entrepreneurship. Concerning education of entrepreneurship, self-efficacy is the ability of students to do their own business and be ready to face any problems that arise in the process. Self-efficacy allows them to be prepared to meet all challenges in competition. As conveyed by Gibson that Self-efficacy constitutes the belief that one can give good performance in each situation (Gibson & Dembo, 1984).

Self-efficacy in this research is used as a variable affecting variables of competence, creativity and motivation since belief in one's ability is the important factor that triggers other variables. Self-efficacy is central to human behavior because it links virtually everything of people's lives aspects, giving the basis for motivation for humans and accomplishment and well-being, that is, personal (Schunk & Pajares, 2002). Aspects of self-efficacy consist of levels related to task difficulties encountered, namely generality, which is the thought of capacity reflected by individuals in dissimilar contexts of task through their cognitive, behavioral, affective, and strength. In this case, it is the power of someone's beliefs about their capabilities. Self-efficacy is linked to confidence in one's competence (Bandura, 1997).

Motivation of students for conducting entrepreneurship comes from the belief in their capabilities, having no confidence will lower their motivation. The entrepreneur self-efficacy is a source of motivation that entrepreneurs have to carry out their intentions to start a business (Wilde & Hsu, 2019). Bandura strengthens that how the belief in individuals operates in their abilities and knowledge to act. Self-efficacy gives motivation source of how to face life's hardships (Bandura, 1991). Strong self-efficacy is the basic capital for an entrepreneur to face the challenges faced in business competition.

### **Competences**

Competence is a combination of knowledge, skills, and personality attributes of everyone so that they can improve their performance. Competence can be identified from a person's way of thinking and acting as an accumulation of his expertise and knowledge. Hager and Gonzi state that competence in relation to knowledge is skills, abilities, and attitudes shown in a tactfully picked out set of practical duties which are professional of a right generality level (Hager & Gonzi, 1996). Understanding competence holistically can be interpreted as meeting complex demands (Mulder, Weigel, & Collins, 2007). Competence is the strength that students have in dealing with the obstacles they face. Competence is an essential factor that entrepreneurs must own to predict entrepreneurship and characteristics that allow entrepreneurs to face their business risks (Kyndt & Baert, 2015). It is significant for the performance and survival of SMMEs (Zizile & Tendai, 2018).

Volery states that competence is studied and accomplished through training, learning, and practice (Volery, Mueller, & von Siemens, 2015). Student competence results from student learning obtained through repeated training and education and is usually determined in a competency test. The competence model used in this study adapted model proposed by Tucker that; first, knowledge refers to information and learning that rest in a person; second, skill is linked to the ability of the person to person's ability to perform a specific assignment; third, concept of self and values is linked to a person's attitudes, self-image and values; image; fourth, traits are linked to physical characteristics and responses which are responses to situations and information; and fifth, the motive is emotions, desire, psychological needs, or similar impulses that prompt action (Tucker & Cofsky, 1994).

The competence of an entrepreneur in running a business, such as knowing what business to do, managing finances, managing time, and how to face competition. As strengthened by Lenka and Agarwal that competencies possessed by entrepreneurs include how to initiate, creativity, self-confidence, lead, take risks, empathize, interpersonal in running a business (Lenka & Agarwal, 2017). Entrepreneurs will be successful if they have the ability and desire to learn in the face of new challenges and the development of innovation and technology that develops rapidly and continues to develop themselves. The hypothesis proposed in this study:

*H<sub>1</sub>*: Self-efficacy substantially affects students' competence.

### **Motivation**

Motivation is a situation in ourselves that is longing for a change, either in the self or the environment (Maslow, 1943). Motivation also defines as the point that makes us do or not do something (Broussard & Garrison, 2004). For example, if you become an entrepreneur because of the motivation that drives you to do the work, you will be happy with your work because he feels appreciated or recognized. It is understandable because of the high drive to produce something according to the set target. Motivation constitutes dynamic and diverse because everyone will have different reasons for the same behavior. What is known as the Self-Determination Theory or SDT is a theory that studies motivation and human personality. This theory explains two sources of human motivation: intrinsic and extrinsic motivation and how both affect individuals' cognitive and social development. In other words, this theory focuses on how social and cultural factors facilitate a person's willingness and initiative and the quality of his work (Ryan & Deci, 2000). Motivation which is intrinsic was also divided into value beliefs, mastery approach and individual interest (De Barba, Kennedy, & Ainley, 2016). Extrinsic motivation is the satisfaction obtained from outside the individual (Ryan & Deci, 2000).

Motivation in entrepreneurship is diverse and influences pursue existing entrepreneurial opportunities or conduct business processes (Shane, Locke, & Collins, 2012). Self-efficacy internal motivation source or the ability to self-referent. Self-efficacy can be the cause of motivation in a productive process of venturing. Entrepreneurial self-efficacy is formed and reformed by contingent activities in series, causing entrepreneurs to adapt and modify their planned targets, resources used at different strategies or stages to cope with hardships (To, Guaita Martínez, Orero-Blat, & Chau, 2020). Maslow's theory divides human needs into five hierarchies; 'physiological conditions, safety demand, love demand, esteem demand, and the demand or need for self-actualization (Maslow, 1943). The motivation to become an entrepreneur is a psychological aspect and the desire to be recognized socially by the environment. The hypothesis proposed in this study:

*H<sub>2</sub>*: Self-efficacy substantially affects students' motivation.

### **Creativity**

Creativity is defined and operated differently depending on different points of view (Krmplis & Valtanen, 2010). According to Merriam Webster, Creative is having the quality of something created rather than imitated. Creativity attempts to generate original, new, unexpected, and valuable pieces of work (Sternberg & Lubart, 2014). Similar opinion mentioned by Lee and Seo that feature of creativity are originality, problem-solving, and thinking ability (Lee & Seo, 2006). In a social context, creativity is described as an interaction between process, environment, and talent in producing a product (Plucker, Beghetto, & Dow, 2004). To start a new business, entrepreneurs need an idea (Davidsson, 2017).

Entrepreneurial creativity can express ideas and ideas through creative thinking to create something that demands concentration, hard work, and perseverance. Ideas generated by students can develop and materialize with the support of culture and the environment, in this case, the help of the campus environment where they gain knowledge as mentioned by Del Monte and Pennacchio that creativity determined by an entrepreneurial culture and a supportive social environment (Del Monte & Pennacchio, 2020). The more creative people use the opportunities that exist, the better the business results.

The building blocks of creativity are fluency (number of solutions), flexibility, and originality of solutions and ideas (Jankowska & Karwowski, 2015). Creativity is measured based on indicators developed by Vandeleur and friends that creativity is divided into two; First, the direct indicator of Creativity consists of generating ideas, experimenting, and persistence. Second, an indirect indicator of creativity consists of interaction between groups, pre-knowledge, cultural influences, motivation, values, and self-esteem (Vandeleur, Ankiewicz, de Swardt, & Gross, 2015). Then, Newman and others researched the self-efficacy impact on creativity in work with positive results (Newman, Tse, Schwarz, & Nielsen, 2018). Self-efficacy that is creative believes that one can generate ideas which are creative and be an antecedent of creativity (Tierney & Farmer, 2017; Qiang, Han, Guo, Bai, & Karwowski, 2020). Creativity is generated through a combination of entrepreneurial motivation and cognition (Amabile, 2013). The hypothesis proposed in this study:

*H<sub>3</sub>*: Self-efficacy substantially affects students' creativity.

*H<sub>4</sub>*: Self-efficacy substantially affects students' motivation through competence.

*H<sub>5</sub>*: Self-efficacy substantially affects students' creativity through competence.

*H<sub>6</sub>*: Self-efficacy substantially affects students' creativity through motivation.

*H<sub>7</sub>*: Competence substantially affects students' motivation.

*H<sub>8</sub>*: Competence substantially affects students' creativity.

*H<sub>9</sub>*: Competence substantially affects students' creativity through motivation.

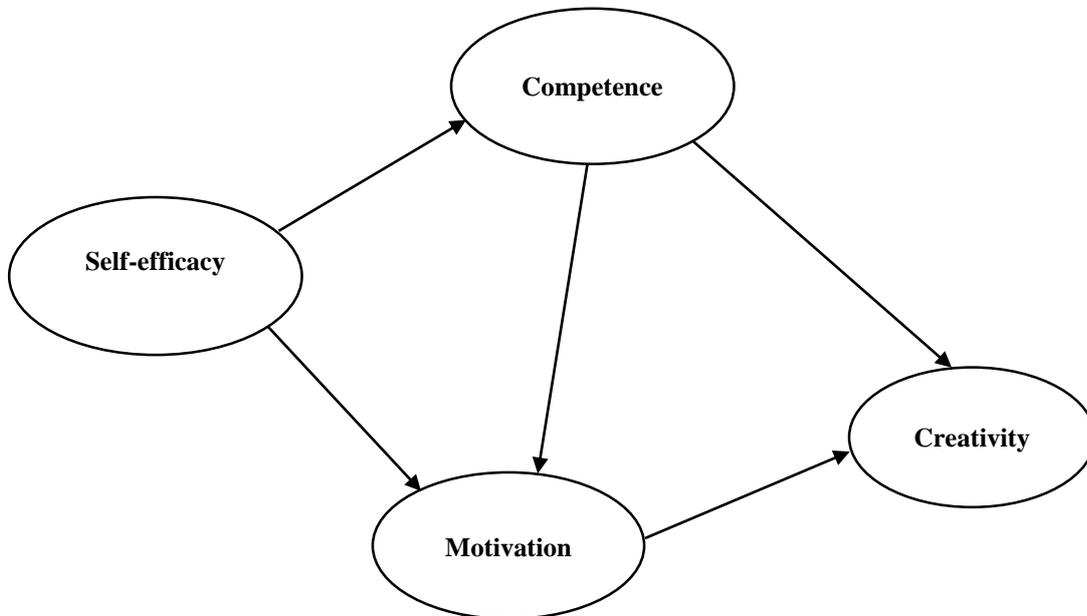
*H<sub>10</sub>*: Motivation substantially affects students' creativity.

## **RESEARCH METHOD**

### **Instrument of Survey**

The instrument being implemented in the questionnaire is designed for a study of Self-Efficacy on Competence, Creativity, and Motivation. It includes 20 indicators (SELF-COM-MOT-CRE). Respondents show approval with every item on a 5-point Likert scale starting from fully agree (5) to disagree (1) totally. The scores, which are (4 or 5), show agreement with the item and a response that is positive toward the assessed variables. Furthermore, the starting data were gathered through a pilot study to

ensure the instrument's quality. A total of 20 respondents were sent back. The test results indicated that the value of corrected item-total correlation was over the critical value for the degrees of correlation of freedom  $\alpha = 0.05$ . It was 0.44 serving as a guideline for the minimum value to be stated as its validity. Additionally, the reliability test conducted Cronbach's alpha with  $\geq 0.70$  (Hair, Jr., Hult, Ringle, & Sarstedt, 2014). The variables were all stated as reliable and valid.



**Figure 1. Conceptual model**

**Data Collection**

The research data were gathered from seven colleges in Jakarta, Bogor, and Bandung. 395 randomly chosen samples as population-representative, voluntarily filling the questionnaire (Comrey & Lee, 1992). An outlier examination which is multivariate was done by SPSS version 25 by putting the distance of Mahalanobis into consideration. This research utilized an online questionnaire of which reliability and validity were tested before its distribution to respondents who are the target. The questionnaires were distributed to 450 respondents, only 395 sent them back (response rate: 87.70%).

The survey was carried out from March 2021 up to May 2021. The analyses of the research were based on the method, which is quantitative (Sekaran & Bougie, 2013). The exogenous variable, namely Self-Efficacy, while variables which were endogenous constitute Competence, Motivation, and Creativity. The respondent profile is illustrated in Table 1.

The respondents' profiles' analyses indicate that most respondents are female 65%. 70% of respondents' age above 20 years old means that most of them are final year students. 57% of the students live in Jakarta. Most of them did not have other jobs except entrepreneurs as an impact of the COVID-19 pandemic caused their lost position. Interestingly, this research is the number of students who come from entrepreneurial families as same as the number of students who did not come from parents as entrepreneurs. It strengthened by the information that they become an entrepreneur 21% after the pandemic. Most of the respondents stated that the COVID-19 pandemic harmed their business.

**Table 1**  
**Descriptive Respondents**

<b>Gender</b>	Frequency	Percentage (%)
Male	121	35
Female	229	65
<b>Age</b>		
< 20	98	30
>20	252	70
<b>Residence</b>		
Jakarta	201	57
Greater Jakarta	131	37
Other than Greater Jakarta	18	5
<b>Parents' occupation</b>		
Entrepreneur	175	50
Non- entrepreneur	175	50
<b>Having Other/Side-Job</b>		
Yes	124	35
No	226	65
<b>Time to start being an entrepreneur</b>		
after pandemic	75	21
before pandemic	275	79
<b>pandemic's effect on entrepreneurship</b>		
positive	75	21
negative	275	79

**Data Analysis and Test Results**

In Structural Equation Modeling (SEM) analysis there are two steps. The first one was to examine the reliability and validity with the Pearson correlation-coefficient of product-moment as well as alpha method of Cronbach. The step number two included the analysis of data by SEM. The analysis of second-generation is of multivariate technique is conducted to measure the connection among latent mediator, mediator effects, independent, dependent variables, and testing models (Latan & Ramli, 2013). SEM is compulsory to decide outliers, multivariate normal distribution, confirmatory and multi-collinearity factor analysis (CFA). CFA is conducted before the complete final model setting.

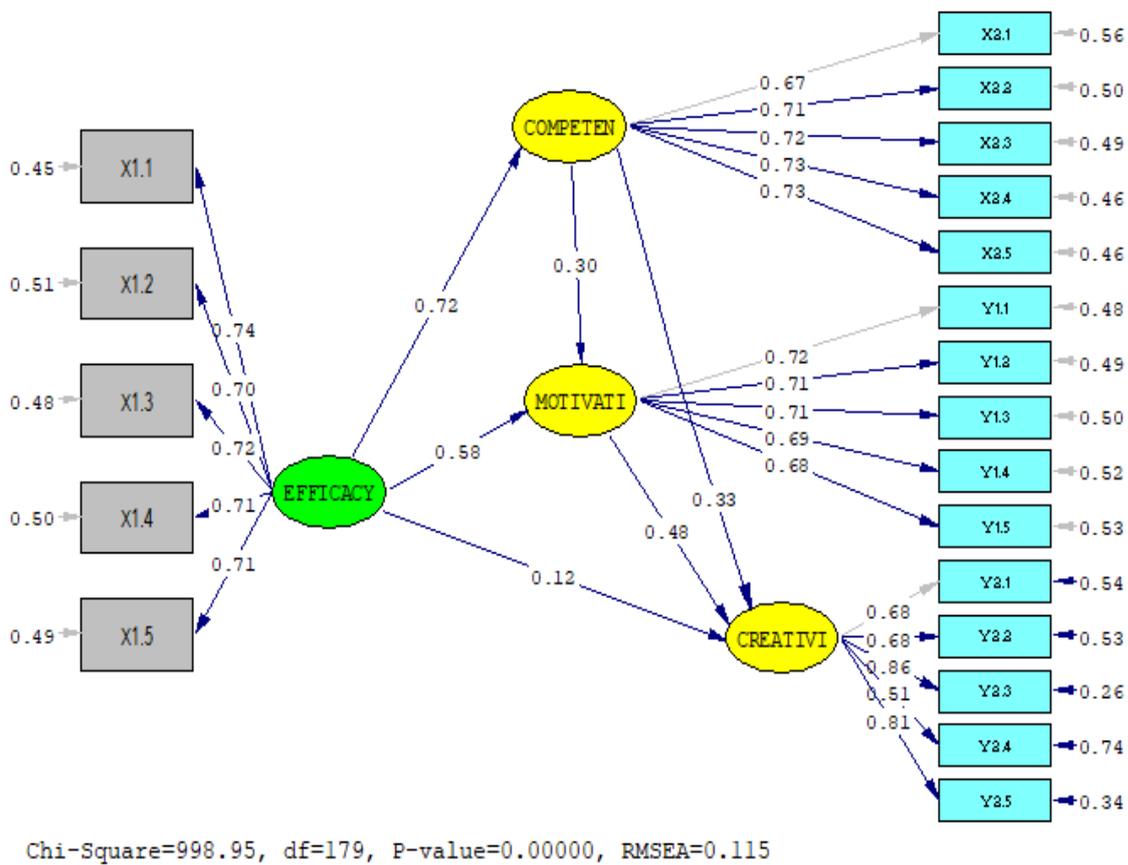
The software platform used for SEM was LISREL and the version is 8.8. The outlier which is multi-variate was assessed on SPSS 22 software, and it resulted in the fact that the Mahalanobis test of distance value was higher than Chi-square value table (45.31). Thus, 45 respondents were eliminated from 395 respondents. Deviation of the presumption of multivariate data normality is measured by the matrix, which is asymptotic covariance (Jöreskog, Olsson, & Wallentin, 2016).

The gathered data were put to analysis utilizing CFA to see each indicator's dimensions by giving a test on the fit goodness, reliability, and model validity. Therefore, when finished with the test, RMSEA was  $\leq 0.08$ , NNFI) was  $\geq 0.90$ , CFI was  $\geq 0.90$ , IFI was  $\geq 0$ , and the RMSR was  $\leq 0.08$ . The analysis of validity of model was examined by a standardized loading factor value  $\geq 0.50$ . Then, the analysis of reliability of model was examined by reliability of construct  $\geq 0.70$  (see Table 3). At the same time, all other fit indices meet the recommended Value. Thus, this model provides evidence of a good fit of the strong model (Steiger, 1980). The fixed CFA result is shown in Table 2.

**Table 2**  
**Confirmatory Factor Analysis**

Goodness of FIT	Result	Note
RMSEA	0.093	close fit
NFI	0.94	good fit
NNFI	0.94	good fit
CFI	0.95	good fit
IFI	0.95	good fit
RFI	0.93	good fit
RMR	0.041	good fit
Standardized RMR	0.08	good fit
GFI	0.81	close fit
AGFI	0.77	close fit

**Hypotheses testing**



**Figure 2. Standardized path coefficients Research Model (p<0.05)**

**Tabel 3**  
**Construct Average Variance Extracted, Reliability and Discriminant Validity**

Source	Variable and Scale Items	Standardized Loading	Error Variance	Error	Construct Reliability	Average Variance Extracted	Discriminant Validity	
Bandura (1997)	SELF1	The knowledge I have helps in running my business	0.7	0.27	1.06	<b>0.87</b>	<b>0.69</b>	<b>0.83</b>
	SELF2	The expertise I have helps in running my business	0.71	0.32				
	SELF3	I believe that I can be an entrepreneur	0.69	0.26				
	SELF4	I can face challenges in entrepreneurship	0.74	0.16				
	SELF5	I am interested in owning and running my own business	0.59	0.05				
Tucker and Cofsky (1994)	COM1	I have an interest in entrepreneurship	0.54	0.12	0.47	0.93	0.83	0.91
	COM2	I started my own business as a sideline for my current job	0.62	0.08				
	COM3	I am an entrepreneur to develop my insight	0.7	0.07				
	COM4	I am an entrepreneur to be appreciated by my environment	0.71	0.08				
	COM5	I get involved in entrepreneurship as a form of self-actualization	0.74	0.12				
Ryan and Deci (2000)	MOT1	I run my business because I believe in my abilities.	0.72	0.15	0.52	0.93	0.83	0.91
	MOT2	I start the business based on my own initiative.	0.76	0.07				
	MOT3	The business I am running suits my interest.	0.55	0.12				
	MOT4	Efforts were made based on the desire to get appreciation from my environment.	0.79	0.08				
	MOT5	The business that I do is an effort to earn income	0.69	0.10				
Vandeleur <i>et al.</i> (2015)	CRE1	The business idea that I have comes from observing my environment	0.68	0.11	0.43	0.94	0.86	0.93
	CRE2	The business idea I have comes from my experience	0.68	0.06				
	CRE3	My business idea is the result of my persistence to make it happen	0.86	0.08				
	CRE4	I got a business idea from a discussion with a friend who has the same interest	0.51	0.12				
	CRE5	I make business ideas come true with the belief that I have the ability	0.81	0.06				

The software of LISREL 8.80 is chosen to examine the model and all hypotheses that are related. The results are shown in Figure 2. The process includes: First step being taken to conduct the CFA test, while the next step was to carry out the entire model. Figure 2 displays there were two exogenous or independent) factors and two endogenous or dependent factors. Meanwhile, for structural model, the proposed model achieved a reasonably acceptable overall suit to the data NFI = 0.91, NNFI = 0.92, IFI = 0.92, RFI = 0.90, CFI = 0.92, and RMR = 0.10 were portrayed in the results.

**Table 4**  
**Hypothesis Test Summary**

Path	Standardized Solution	<i>t-value</i>
Self-Efficacy → Competence	0.72	8.84
Self-Efficacy → Motivation	0.58	6.58
Self-Efficacy → Creativity	0.12	1.29
Competence → Motivation	0.3	3.25
Competence → Creativity	0.33	3.63
Motivation → Creativity	0.48	4.69
Self-Efficacy → Competence → Motivation	0.22	3.44
Self-Efficacy → Competence → Creativity	0.35	6.84
Self-Efficacy → Motivation → Creativity	0.28	2.64
Competence → Motivation → Creativity	0.14	2.64

Path analysis results based on multiple determination ( $R^2$ ), path coefficients ( $\beta$ ), and *t-values* are displayed in Figure 2 and Table 4. All theories, except for  $H_3$  (Self-Efficacy → Creativity), (*t-value*=1.29) were endorsed. Positive path coefficients between exogenous variable are expected to be important (Self-Efficacy) and three variables endogenous (Competence, Motivation and Creativity), including  $H_1$ : Self-Efficacy → Competence ( $\beta=0.72$ ,  $t=8.84$ ),  $H_2$ : Self-Efficacy → Motivation ( $\beta=0.58$ ,  $t=6.58$ ),  $H_4$ : Competence → Motivation ( $\beta=0.30$ ,  $t=3.25$ ),  $H_5$ : Competence → Creativity ( $\beta= 0.33$ ,  $t=3.63$ ),  $H_6$ : Competence → Creativity ( $\beta=0.48$ ,  $t=4.69$ ),  $H_7$ : Self-Efficacy → Competence → Motivation ( $\beta=0.22$ ,  $t=3.44$ ),  $H_8$ : Self-Efficacy → Competence → Creativity ( $\beta=0.35$ ,  $t=6.84$ ),  $H_9$ : Self-Efficacy → Motivation → Creativity ( $\beta=0.28$ ,  $t=4.66$ ), and  $H_{10}$ : Competence → Motivation → Creativity ( $\beta=0.14$ ,  $t=2.64$ ).

## DISCUSSION

The study's target is proposing a model which is conceptual of self-efficacy variables to comprehend the competence and motivation of entrepreneurs on students' creativity in entrepreneurship. This study helps identify factors that motivate students to start their own businesses, especially when facing pandemic conditions that make it impossible for them to work due to a reduction in employees at several companies affected by the COVID-19 pandemic. Previous research on entrepreneurial spirit found that there are three factors that influence entrepreneurial spirit, namely entrepreneurial awareness, entrepreneurial opportunity, and entrepreneurial self-efficacy (Huang *et al.*, 2021). The higher the self-efficacy or self-confidence, the greater the courage of students to start a business (Igwe, Newbery, Amoncar, White, & Madichie, 2020).

One study by To *et al.* identified that self-efficacy is the ability that can guide entrepreneurs in acting in realizing their goals from the intention to the results achieved (To *et al.*, 2020). Further explaining that the self-efficacy of entrepreneurship is formed from a series of uncertain activities that ultimately encourage entrepreneurs to adjust goals with existing resources at each stage that is passed as a strategy to overcome difficulties. Self-motivation will shape one's intentions and orientation in entrepreneurship.

Maslow explains that one of motivation is based on psychological conditions (Maslow, 1943). Psychological conditions experienced by entrepreneurs form the desire to get up and prove their abilities by starting a business.

This study showed that entrepreneurs' motivation is influenced by their self-efficacy with a *t-value* of  $6.58 \geq 1.96$  and competence with a *t-value* of  $3.25 \geq 1.96$ . A prior study showed that the most important determinant of motivation is competence (Kremer *et al.*, 2013). It contrary to the resulting study done by Vancouver that Self-efficacy was related to motivation in a negative manner (Vancouver & Kendall, 2006) but in accordance with research conducted by Hsu, which showed that entrepreneurial self-efficacy explains the source of motivation for entrepreneurs to realize their intentions, even though the circumstances are not supportive (Wilde & Hsu, 2019). Motivation, cognitive, and action contextually appear if you have level of creative self-efficacy which is high (Hsu, Hou, & Fan, 2011).

The urge to meet the necessities of life encourages students to believe in their efforts. The higher the confidence they have, the more motivating them to start their business. Entrepreneur motivation in creating a business is analysed using push/pull theory. Both push and pull theories have two dimensions of motives, namely economic motives and non-economic motives. The difference between push and pull is push theory, on the economic dimension due to lack of work and non-economic motives due to dissatisfaction with previous work. At the same time, the pull theory on the economic dimension is due to the existence of business opportunities to increase income and non-economic motives of the desire to be independent (Yang, Li, & Wang, 2020). In contrast to previous studies which stated that extrinsic motivation could inhibit creativity and intrinsic motivation as a predictor of creativity (Amabile, 2013), this study did not distinguish between internal and external motivation.

The next finding proves self-efficacy influenced entrepreneurs' competence with a *t-value* of  $8.84 \geq 1.96$ . A previous study found that Self-efficacy triggered competence (Rama & Sarada, 2017). Competence can be trained (Volery *et al.*, 2015), and there needs to be an acknowledgment that someone has competence. To actualize competence, it is necessary to have confidence in ourselves that we are capable. This happens to entrepreneurs, especially those who are still students, they need the assurance to prove their abilities. Competencies possessed by entrepreneurs include how to initiate, creativity, self-confidence, lead, take risks, empathize, interpersonal in running a business (Lenka & Agarwal, 2017).

In this study, creativity does not influence by self-efficacy with a *t-value* of  $1.29 \leq 1.96$ , but it is substantially influenced by other variables such as competence and motivation. It is contrary to a previous study that showed that self-efficacy mediated by creativity (Newman *et al.*, 2018). People will not show creativity if they don't believe that they have the ability to do it (Qiang *et al.*, 2020). In this case, self-efficacy does not affect a person's creativity because there are other factors that have a stronger influence, including the desire to make money and the environment that forces students to start a business. Self-efficacy explains how creativity is influenced by the relationship between personal factors and their environment (Jin, 2004). Creativity is influenced by competence and motivation. Student creativity arises from the belief in their competence that triggers their motivation to realize their intentions in doing business. Entrepreneurs' creativity is driven by cognitive, motivational, and experiential factors (Warnick, Kier, LaFrance, & Cuttler, 2021).

## CONCLUSION

The skills possessed by students can be a stimulus to become an entrepreneur (Siemon & Robra-Bissantz, 2018). Starting with the idea you have (Davidsson, 2017), with the help of self-efficacy (Rama & Sarada, 2017), showing the competencies you have so far motivates (Kremer *et al.*, 2013) you to build creativity in building your own business (entrepreneurship) (Wegner *et al.*, 2020). SME creativity and innovation can be applied by utilizing innovation, optimizing entrepreneurial competencies, including open-mindedness by accepting all changes that occur, and competencies related to preparing and being proactive in running a business.

## Future Research

Further research can be established based on interviews with experts, lecturers, educational institutions, and the government on developing student entrepreneurship as a supporter of the economy. The business generated by students can create with the support and involvement of all parties.

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# IMPROVING E-SERVICE QUALITY THROUGH QUALITY FUNCTION DEPLOYMENT IN FMCG COMPANY

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## ABSTRACT

A mobile application (D-Apps) that was implemented in a Fast Moving Consumer Goods (FMCG) company in Jakarta did not meet the expected goals of store retention and loyalty to use the application. The purposes of this study were to examine the e-service quality performance and to determine the most improvement priority of application (D-Apps) used. The study was implemented the Quality Function Deployment (QFD) method by using House of Quality (HOQ) matrix as well as e-Service Quality dimension to determine Voice of Customers attributes. The population was 5,357 customers then the questionnaires were distributed using Likert scale to 372 customers of General Trade channel who used D-Apps to find the Voice of Customers on D-Apps service quality, and 61 questionnaires were selected. In the other side, the interview was also conducted to D-Apps developer to get any technical feedback. Afterwards, data from questionnaires and interview were processed by QFD method. The results showed that “easiness to understand the D-Apps” was the most important in e-service quality to be concerned by company and the “user interface modification” was a high priority to be carried out.

**Keywords:** *e-Service quality, Quality function deployment, House of quality, Voice of customers, Technical parameter.*

## INTRODUCTION

Fast Moving Consumer Goods or what is known as FMCG is one of the industries that play an important role in Indonesia's economic growth. The FMCG industry is an industry that advocates for the general needs of the community. Although the profit from the sale of FMCG products is relatively small, FMCG companies generally sell in large quantities so the total profit made from these products becomes very high by rapid sales turnover (Kenton, 2021).

DANO is one of FMCG company in Indonesia that has a retail marketing channel of approximately 84,000 registered customers in the General Trade Channel, which is the buyer of DANO products registered with its official distributor. To have tens of thousands of retail channels in remote areas in Indonesia, DANO needs to have sufficient sales people to monitor the retailer exposure. The monitoring referred to in this case is availability and visibility. With a focus on investing in large stores, it is difficult for DANO to get in touch with retailers due to the limited sales force and very large area of coverage. Due to the low level of engagement from retailers, DANO cannot control the execution of sales and promotions based on its requirements and policies.

From these reasons, DANO created a mobile application to solve the problems that arise. The D-Apps application (a pseudonym of Loyalty Application) was launched in March 2018 with three main focuses. However, after more than two years of implementation, it turns out that the D-Apps application still did not meet the expected goals. As per May 2020, the D-Apps had target of store retention on 80% of the registered stores and store loyalty on 10% of the active stores, but those had not been achieved yet. The number of branch loyalty was even considered to be very low, which corresponds to only 1%. This number was far below expectations, especially since loyalty was one of the main focuses of the D-Apps. Based on the phenomenon, this study was going to use the Quality Function Deployment (QFD) method to analyze the e-service quality of D-Apps, which refers on voice of customers. QFD is a method of planning and structured product or service development that technical teams can use to identify and

evaluate customer needs and wants in order to meet those wants or needs (Cohen, 1995). Research shows that the use of the QFD method can offer companies many benefits for the organizational, economic and socio-psychological aspects of the company, especially in terms of better product customization and shorter publication times (Wolniak, 2018).

The problems found were identified to examine the e-service quality performance and to determine the most improvement priority of application (D-Apps) used. How can the QFD methodology be applied to determine priority improvements to improve the quality of D-Apps application service based on users' needs and wants?

## **LITERATURE REVIEW**

### **Quality Function Deployment (QFD)**

The QFD concept was first introduced in 1966 by Yoji Akao in Japan and was first implemented in 1978 at the Mitsubishi Company. The name QFD is taken from the name of Japanese characters, namely Hin Shitsu (quality, characteristics, attributes), Kino (function, mechanization) and Ten Kai (dispersion, diffusion, development, evolution). QFD is a method for defining design quality to meet customer expectations or the Voice of Customers (VoC) and translating these expectations into design objectives and critical quality assurance points that can be used in the product or service development process (Marson & Sartor, 2019; Sever, 2018; Mao, Li, & Peña-Mora, 2019). VoC represent "what" of the customers' expectations. These are customer inquiries for the companies they interact with, and design objectives are referred to as "how" the company serves them (Sever, 2018; Mao *et al.*, 2019). QFD can be used in all areas, both for hardware, software and service development as well as for other forms of strategic planning (Cohen, 1995).

### **e-Service Quality (e-ServQual)**

The variables used in this study were adopted from Parasuraman (Parasuraman, Zeithaml, & Berry, 1988; Khorsidi, Nikfalazar, & Gunawan, 2016), namely service quality (SERVQUAL) with five dimensions: Tangible, Reliability, Responsiveness, Assurance (or guarantee), and Empathy. Since the D-Apps is online application based, then the dimension of SERVQUAL would be defined in attributes to support online activities, such as tangible dimension for visual appearance and quality of the information (Loureiro, 2015 in Barreto & Martínez, 2018), reliability dimension for system availability (Ayo, Oni, Adewoye, & Eweoya, 2016; Anouze & Alamro, 2020) or never has malfunction, responsiveness dimension for ease of use in operating D-Apps (Loureiro, 2015 in Barreto & Martínez, 2018), assurance dimension for service (Ayo *et al.*, 2020) or service in accordance with as promised, empathy dimension for competence of e-service support staff (Ayo *et al.*, 2020) in providing assistance or training to use the application.

## **RESEARCH METHOD**

The study determined the level of satisfaction and expectations of DANO's customers in the general trade route, including priority steps and improvements in D-Apps applications. The population in this study were the small retailers from DANO with 5,357 users of the D-Apps application. The sample method used purposive sampling that the obtained the information from certain users who had use the application, whereas not all retailers would use the D-Apps. Then the number of questionnaires was distributed to 372 retailers as respondent and 61 questionnaires were selected because they were returned and completely filled out. The questionnaire used Likert scale consisting of one to five. A scale was given to measure the level of importance and level of performance of D-Apps service quality with a rating of one which was very not-important or disagree to five which was very important or agree.

The data obtained from the questionnaire were then processed using the Quality Function Deployment (QFD) analysis method with an analysis tool in the form of a House of Quality (HOQ) matrix with eight stages, they are: (1) Design the voice of the customers that determined the attributed of each dimension; (2) Product evaluation with calculated the means data of importance and performance level from collected questionnaires; (3) Product objectives or purpose by setting the target value of each attribute and find the gap between importance and performance level, then be weighted in percentage; (4) Technical parameters were developed by interviewing the D-Apps developer of what technical issues

they were focusing on; (5) Interaction matrix was set among voice of the customers and technical parameters, (6) Interaction between technical parameters to connect the relationship among them; (7) Technical analysis would be reviewed on valuable attributes; (8) Target value was then prioritized on technical parameter.

After all data had been collected and analyzed, then the development priority could be determined to improve the quality of D-Apps. It was based on the attributes of customer desires in VOC that were compiled with the e-SERVQUAL dimensions. Afterwards, the technical parameters or quality characteristics of the company were determined in response to customer desires based on D-Apps developer's point of view.

## FINDINGS

The distribution of respondents shown that a gender was dominated by female with 63.30%, the majority respondents age band had shown in productive age with >45–65 years old (39.30%), and following by the age band of >35–45 years old (34.40%) and >21–35 years old (24.60%). The most respondents were living in Kalimantan (West Kalimantan and Kalimantan-Others), then following by Sumatera (North and South Sumatera, Lampung, Jambi, and other area in Sumatera). The Greater Jakarta was the third position and following by East Java, Central Java, and West Java.

**Table 1**  
**Respondents Profile**

Indicators	Category	Frequency	Percentages
Gender	Male	23	37.70
	Female	38	63.30
Age	<= 21 years	1	1.60%
	>21–35 years	15	24.60%
	>35–45 years	21	34.40%
	>45–65 years	24	39.30%
	>65 years	0	0%
Residence	North Sumatera	2	3%
	South Sumatera	8	13%
	Lampung	1	2%
	Jambi	1	2%
	Greater Jakarta	10	16%
	West Java	1	2%
	East Java	6	10%
	Central Java	2	3%
	West Kalimantan	1	2%
	Kalimantan (Others)	25	41%
Sumatera (Others)	4	7%	

Source: Respondent Data, 2020

## Designing the Voice of Customers

The first step of the HOQ matrix was to form the attributes or indicator of customer desires based on SERVQUAL dimensions. The dimensions referred to attributes supporting the online activities in D-Apps application: (i) ease of understanding D-Apps contents, (ii) never has the malfunction or error, (iii) ease in operating the D-Apps, (iv) service in accordance with as promised, (v) provided assistance to use the D-Apps.

**Table 2**  
**Voice of Customers (VoC) Attributes**

<b>Dimension</b>	<b>Attributes</b>
Tangible	Ease of understanding D-Apps contents
Reliability	Never has a malfunction or error
Responsiveness	Ease in operating D-Apps
Assurance	Services in accordance with as promised
Empathy	Provided assistance to use D-Apps

**Product Evaluation**

After designing the attributes of VoC, the importance level and performance level were measured using a Likert scale according to data captured in the questionnaire. The respondents identified that the responsiveness (ease in operating D-Apps) was the very important things, but very low in performance level. Moreover, the respondents said the empathy factor had a good score with minimum gap between the importance level and performance level; it could be a foundation by company to always provide assistance to partners when using D-Apps.

**Table 3**  
**Voice of Customers Result**

<b>Dimension</b>		<b>Importance Level</b>	<b>Performance Level</b>
Tangible	Ease of understanding D-Apps contents	4.64	2.98
Reliability	Never has a malfunction or error	4.36	3.05
Responsiveness	Ease in operating D-Apps	4.69	2.74
Assurance	Services in accordance with as promised	4.62	3.26
Empathy	Provided assistance to use D-Apps	4.64	3.98

Referring to Table 3, it seems that the performance level of all dimensions were below than the importance level, then the gaps at both levels could indicated customer dissatisfaction with D-Apps performance.

**Product Purpose**

The next step was to determine the product objectives or the target value of the company, calculated the level of improvement by calculating the weight. The target value was assigned to each attribute of each dimension. Determination of the company's target value was done by conducting interviews with the manager in DANO of what value to be targeted further. Then, the repairment level showed the difference of how much target to be improved based on performance level. It showed that the highest improvement level to be priority was the responsiveness (ease in operating D-Apps) and the lowest improvement level to be done was the empathy (provided assistance to use D-Apps); it because, the gap of performance level and the importance level was the smallest one, so the company might do focus on the responsiveness dimension as top priority first to improve the performance.

Moreover, the company should focus to the tangible factor of how to make D-Apps easy to understand for users. The value of performance level was the second lowest dimension that might contributing of why the user retention was very low, because the users did not easily understand the contents of D-Apps. The factors those made users did not understand could be technical factors of the application itself or the users' technology literate. It would be determined in technical parameter analysis further.

The third dimension to be concerned was the reliability which ensuring the application has never a malfunction or error. In parallel, the company had a good assurance that provided service as promised.

**Table 4**  
**Product Purpose**

Dimension	Attributes	Importance Level	Performance Level	Target Value	Requirement Level	Weight	Weight Ratio (%)
Tangible	Ease of understanding the Apps contents	4.64	2.98	5	1.68	7.8	21.42
Reliability	Never has a malfunction or error	4.36	3.05	5	1.64	7.15	19.64
Responsiveness	Ease in operating the Apps	4.69	2.74	5	1.82	8.54	23.45
Assurance	Services in accordance with as promised	4.62	3.26	5	1.53	7.07	19.42
Empathy	Provided assistance to use the Apps	4.64	3.98	5	1.26	5.85	16.07

**Technical Parameters and Interaction Matrix**

Interviews with the D-Apps application developer were conducted to determine the technical parameters that can be carried out by the company regarding the predetermined customer desire attributes. The technical parameters given were: (1) modifying user interface (UI), (2) adding communication media, (3) increasing the bandwidth, (4) reducing memory consumption, (5) reducing the ways of use. In interaction matrix, the influence of technical parameters on customer desires were connected using a relationship symbol as following Table 5.

**Table 5**  
**Interaction Matrix**

Relationship	Symbol	Value
Strong	●	9
Medium	○	3
Weak	▽	1

**Interaction between Technical Parameters**

The interaction between technical parameters were shown on the HOQ roof. All relationships on the technical parameters were clearly shown on the HOQ roof relating to the improvement of product specifications using symbols as shown in Table 6.

**Table 6**  
**Interaction Symbols**

Symbol	Description
+	There is a positive relationship between technical parameters
-	There is a negative relationship between technical parameters
	There is no relationship between technical parameters

After recapitulating the interview result with the D-Apps developer, a picture of the matrix interaction between voice of customers and technical parameters was obtained as shown in Figure 1.

Dimension	Voice of Customers (WHAT)	Technical Parameter (HOW)				
		Modifying user interface	Adding communication media	Increasing the bandwidth	Reducing memory consumption	Reducing the ways of use
Tangible	<i>Ease of understanding the Apps contents</i>	●	●	●	●	○
Reliability	<i>Never has a malfunction or error</i>	○	○	○	●	○
Responsiveness	<i>Ease in operating the Apps</i>	●	○	○	○	○
Assurance	<i>Services in accordance with as promised</i>	●	●	▽	●	○
Empathy	<i>Provided assistance to use the Apps</i>	●	●	▽	●	●

Figure 1. Interaction matrix

**Technical Analysis**

Referring to the Voice of Customers, there were two factors those needed to be concerned, ‘ease in operating D-Apps’ and ‘ease of understanding D-Apps contents’ (including its visual appearance). On the other side, the interactivity of the technical parameters showed that ‘modifying user interface’ had the most positive relationship to other parameters. It means that when a developer makes modifications to the D-Apps user interface, the modifications must be accompanied by a bandwidth increment, a reduction in memory consumption, and a reduction in useless features to make it more effectively used.

Dimension	Voice of Customers (WHAT)	Technical Parameter (HOW)				
		Modifying user interface	Adding communication media	Increasing the bandwidth	Reducing memory consumption	Reducing the ways of use
Tangible	<i>Ease of understanding the Apps contents</i>	●	●	●	●	○
Reliability	<i>Never has a malfunction or error</i>	○	○	○	●	○
Responsiveness	<i>Ease in operating the Apps</i>	●	○	○	○	○
Assurance	<i>Services in accordance with as promised</i>	●	●	▽	●	○
Empathy	<i>Provided assistance to use the Apps</i>	●	●	▽	●	●
Technical Priority		284.79	233.75	130.19	276.45	144.33
Technical Priority (%)		26.63	21.86	12.17	25.85	13.49

Figure 2. Technical analysis

**Target Goals**

The target value that had been set based on voice of customers and technical parameters, showing that to make customers easy to operate D-Apps and understand the contents, the developers must prioritize user interface modifications and reduce memory consumption. They referred to the high percentage of technical priority that were 26.63% and 25.85% (see Figure 2).

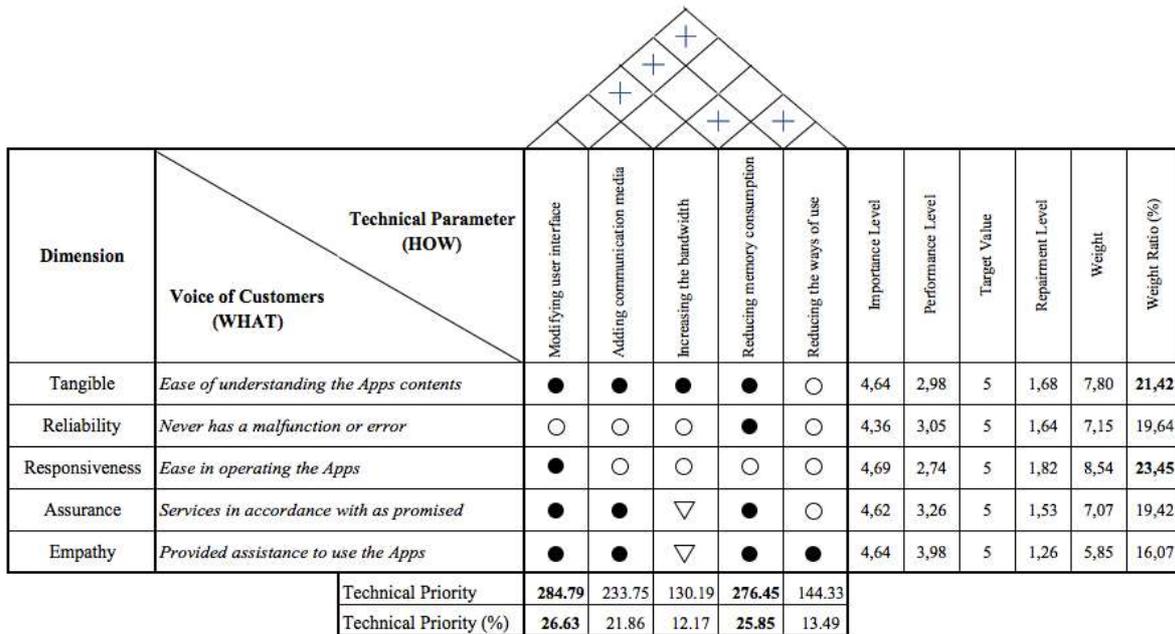


Figure 3. House of quality of DANO D-Apps

**CONCLUSION**

According to the result of the HOQ matrix, it can be concluded that the D-Apps application has a fairly good performance from the voice of the customer and the previous services have to be improved in order to achieve maximum service quality. Attributes of voice of customers shown that responsiveness dimension (to make customer easy in operating D-Apps) and tangible dimension (to make customer understanding D-Apps contents) were the most factors to be focused by DANO. Those factors might be the implication of one of the many reasons of why DANO loyalty target was too low, because a good D-Apps content should create a good service quality (Gummerus, Liljander, Pura, & Riel, 2004) and a good service quality were able to create customer loyalty (Gounaris, Dimitriadis, & Statakopoulos, 2010) in (Intan, Setiawan, & Shinta, 2020); whilst the technical parameters recommended to be fixed based on the highest priority to the lowest priority. They were UI modification, reducing memory consumption, increasing communication media, reducing ways of using, and finally increasing bandwidth.

The research limitation by using the QFD method, it is likely the subjectivity factor in problem solving is greater than the quantitative research, but as long as the researcher can get enough survey data and get good interview results to sharp the technical parameter, it may be effective in company point of view. The implementation of QFD method might imply to service improvement in DANO, and generally for FMCG industry on many things, such as product development, production process, and supply chain management.

For further research, it is better if the research object (in this study is the application) would be more than one object, that it could be compared to another object. The comparison of one to another would make a better perspective of how to improve the service quality and be a better input for the company.

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# GAMIFICATION OF AIRLINE LOYALTY PROGRAM: GARUDAMILES CASE

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## ABSTRACT

The loyalty program (LP) has evolved into a primary revenue generator. Despite the initiatives taken by Garuda Indonesia, its loyalty program's (GarudaMiles) growth was still below the target. In response to that, this research identified the main business issue and which business strategy was applicable for GarudaMiles. This study applied a qualitative method with respondents who amounted to 1,880 to explore the segmentation for gamification. The research concluded that the segmentation for the gamification is simple-game players that are based on travel, culinary, and activity who prefer mileage, class upgrade, and tier upgrade as the reward. In addition, the respondents chose reward, random reward, level, progress bar, and points as the main motivators in the gamified airline loyalty program.

**Keywords:** *Airline, covid-19, gamification, loyalty program.*

## INTRODUCTION

At the end of 2019, there was a new disease caused by a new type of coronavirus called coronavirus disease 2019 or COVID-19 (Aswani, 2020) and now has been spread globally. COVID-19 was declared a pandemic by the World Health Organization (WHO) on March 11, 2020. The COVID-19 has made business as usual a history just in a short time. It is no longer usual in this tough time. During the pandemic, many companies find that their business model has been disrupted in fundamental ways. One example is the airline industry. The airline industry provides air transport services for traveling passengers and freight and COVID-19 has a huge impact on this industry due to lockdown and social distancing. In the first nine months of 2020, Garuda Indonesia's operating revenue dropped by 67.8% year-on-year (YoY) to USD1.14 billion and lead to USD1.09 billion losses, a reversal from the USD122.8 million profit in the same period last year (PT. Garuda Indonesia (Persero) Tbk, 2020). As long as the number of passengers is below pre-COVID-19, any airline will struggle to rely on revenue from the flight sector. Therefore, Garuda Indonesia needs to formulate a strategy to maximize its revenue from the non-flight sector after the COVID-19 pandemic.

Any revenue that is generated beyond the ticket is defined as ancillary revenue (O'Connell & Warnock-Smith, 2013) and a frequent flyer program is one of them. Nowadays, Frequent flyer programs (FFP) have evolved from a marketing tool into a primary revenue generator for airlines. FFP delivers consistent and strong cash flow to the airline through the sale of miles to partners and customers.

In 2019, ancillary products and loyalty programs received special attention as an alternative to Garuda Indonesia's revenue excluding flight tickets. The Company saw that ancillary products and loyalty programs can become game changers beyond the core. Therefore, improvements were made in mid-2017 by including the development of Ancillary Products and Loyalty Programs in the 2018–2020 Corporate Long-Term Plan (RJPP) - SkyBeyond 3.5. Despite the initiatives taken by Garuda Indonesia, its loyalty program's (GarudaMiles) growth was still below the target.

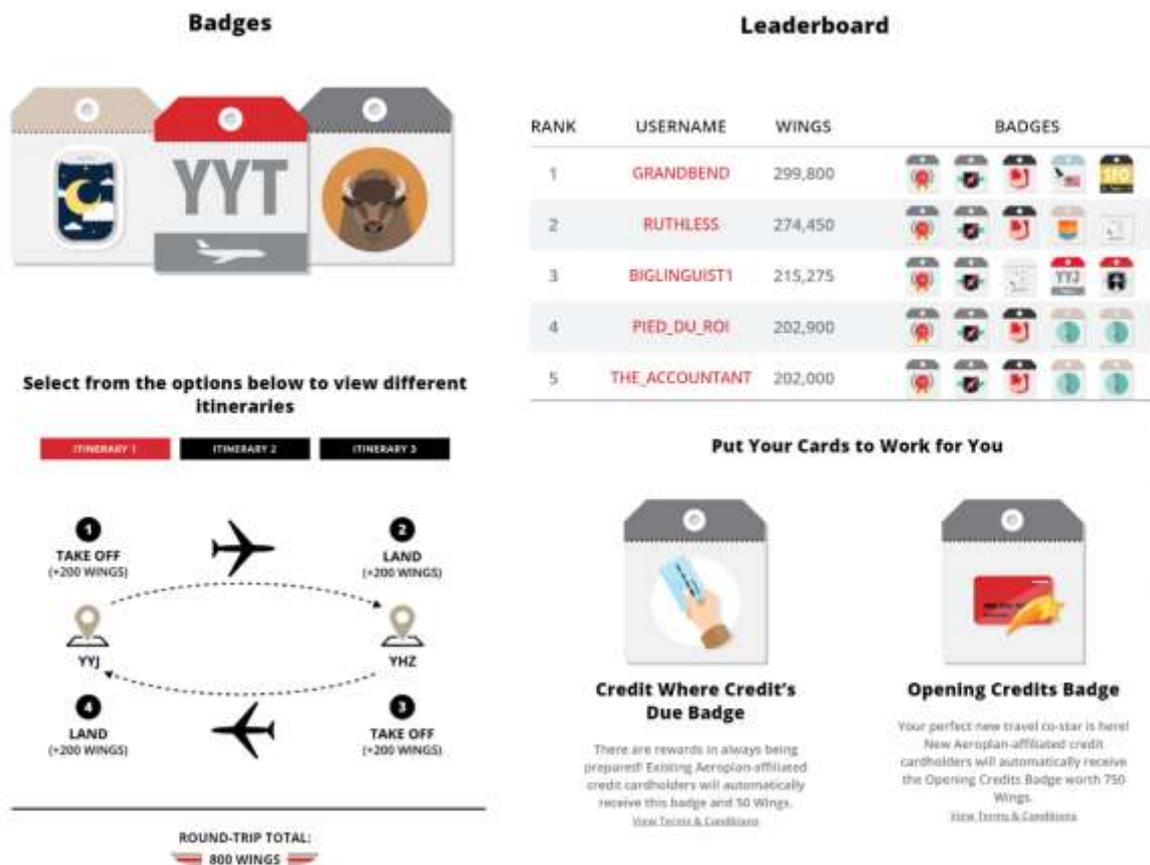
## LITERATURE REVIEW AND HYPOTHESIS

There are two ways to grow a business and gaining new customers (acquisition) is one of them (Robinson, 2011). Making customers buy more frequently is another way to get more business from existing customers. This is where customer loyalty programs are designed for. A loyalty program is defined as any system that aimed to improve consumers' consumption behavior (Kim, Steinhoff, & Palmatier, 2021). Customers are rewarded for repeat purchases or engagement with a company through

a loyalty program, which is a marketing strategy that creates incentives for customers (Kumar & Reinartz, 2018). In the airline industry, the loyalty program is called the frequent flyer program (FFP). FFP contribute greatly to the attractiveness over competing airlines (Martín, Román, & Espino, 2011), especially for elite membership holder (Seelhorst & Liu, 2015) and national airlines (Chin, 2002; de Jong, Behrens, & Ommerena, 2019).

Gamification topic research awareness has increased lately. With education being the most prevalent overall subject of the publications found through text mining the abstracts, the findings of the review of applied gamification research reveal a wide variety of interest but a relatively constrained playing field (Seaborn & Fels, 2015; Kasurinen & Knutas, 2018). There is still very limited research on the gamification of the loyalty program (Hollebeek, Das, & Shukla, 2021; Seaborn & Fels, 2015).

The gamification of the airline loyalty program was introduced by Air Canada by developing a program called Earn Your Wings in 2013. To increase customer loyalty, this program employed rewards, levels, progress bar, leader board, and other game features. Air Canada estimates its Return on Investment (ROI) on this activity to be more than 500%, recognizing a significant increase in the number of routes flown by participants (Buttle & Maklan, 2015). The gamification of Earn Your Wings is shown in Figure 1.



**Figure 1. Gamification features of Earn Your Wings**

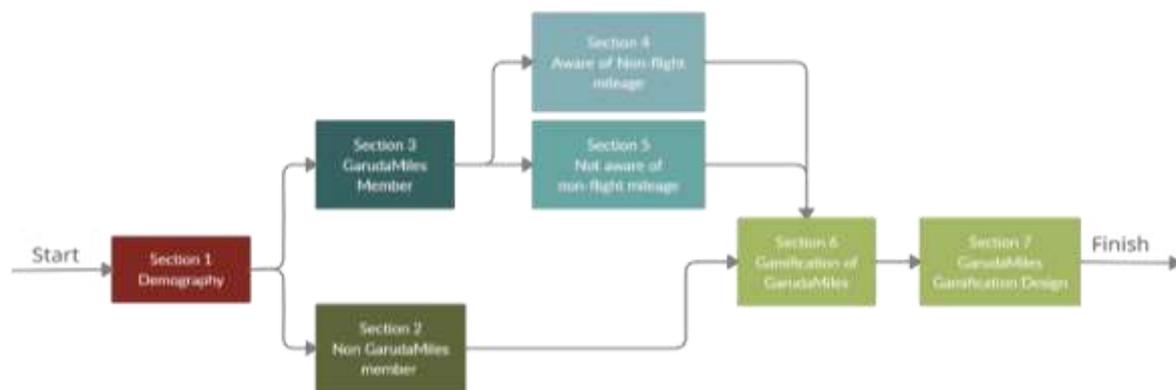
Gamified loyalty programs, compared to conventional ones, increased consumer loyalty toward loyalty programs which in turn enhanced consumers' participation intention and application download intention (Hwang & Choi, 2020). Zuo, Xiong, Wang, and Iida (2019) analyzed the gamification effect in frequent flyer programs and found that the tiers system and points system in the current program has a relatively low degree of game sophistication. But this degree is increased with the tier promotion. Gamification

might strengthen loyalty programs and react to both behavioral and psychological demands of customers by employing game mechanics like points, prizes, leader boards, sharing, and competition (Xu, Buhalis, & Weber, 2017).

This study aim is to fill the gap on how to gamify airline loyalty programs. The gamification design process used the framework proposed by Morschheuser, Werder, Hamari, and Abe (2017). Member preference on game elements and game features will be measured by using the framework proposed by Hollebeek *et al.* (2021) combined with gamification features found by Xi and Hamari (2019). The outcome of this measurement will be presented as user preference.

## RESEARCH METHOD

This study applies quantitative methods to explore user segmentation. A set of online questionnaires was made in Google form and distributed randomly to collect quantitative data for this. The survey is consisting of seven sections and the design is shown in Figure 2.



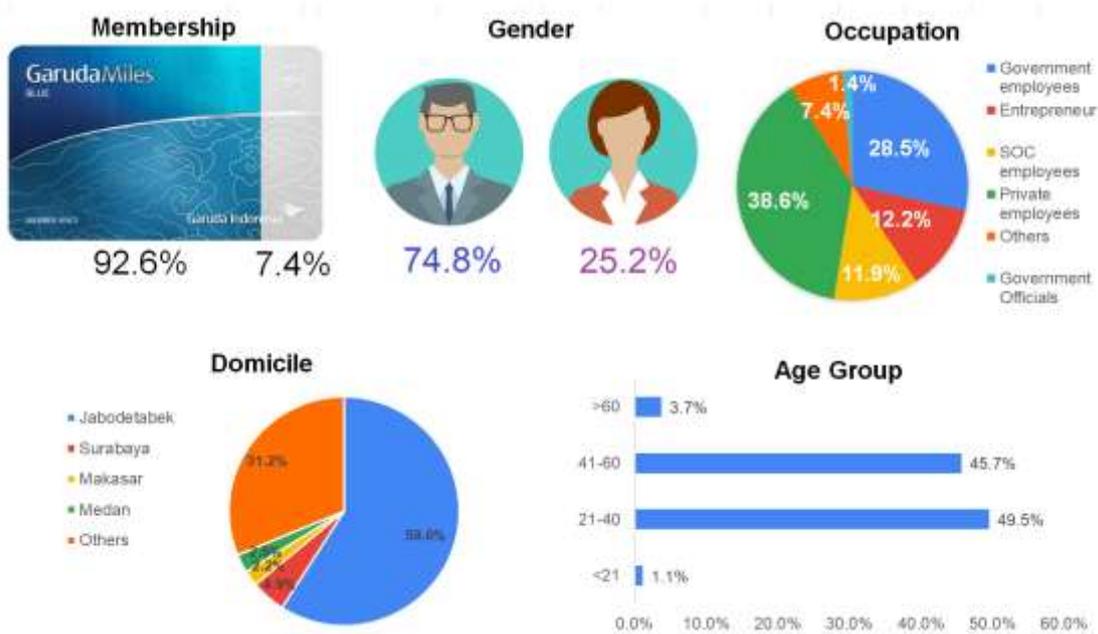
**Figure 2. GarudaMiles gamification survey design**

Section 1 was designed to understand the respondent's demography. Section 2 and 3 were designed to understand more about GarudaMiles membership. Section 4 and 5 were designed to understand the awareness of GarudaMiles in the non-flight segment. Finally, section 6 and 7 were designed to understand respondent's preference in gamification of GarudaMiles that will be proposed as the solution. For questions that measure the preference or perception of respondents, the Likert scale with nine options is selected.

## FINDINGS

### Demography

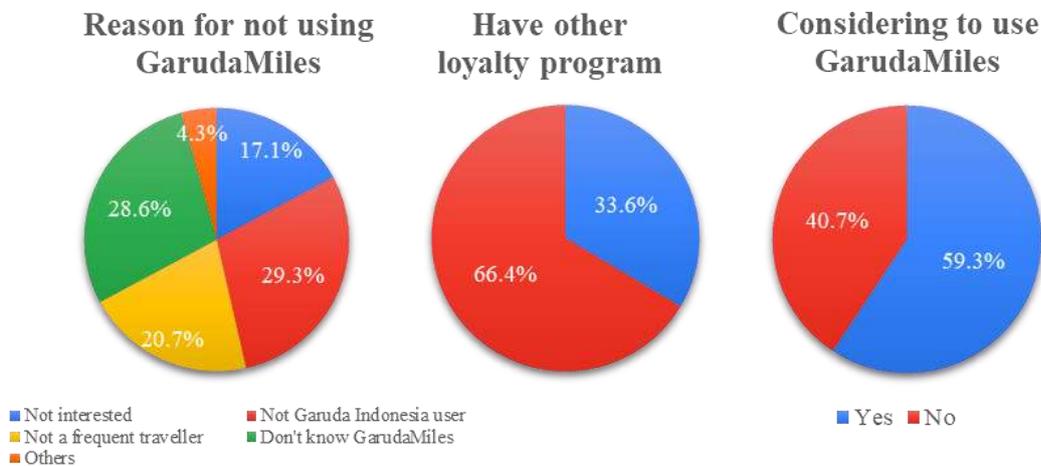
With a total of 1,880 respondents, 74.8% of them are men and 92.6% are GarudaMiles members. The occupation is mostly private employees (38.6%) and government employees (28.5%). From the age range, 49.5% of the respondents are in the 21–40 years old range, followed by 41–60 years old (45.7%). 59% of the respondents are living in Jakarta and its satellite town as known as Jabodetabek (Jakarta, Bogor, Depok, Tangerang, and Bekasi). Figure 3 shows the demographics of the respondents.



**Figure 3. Demography of respondents**

**GarudaMiles Membership**

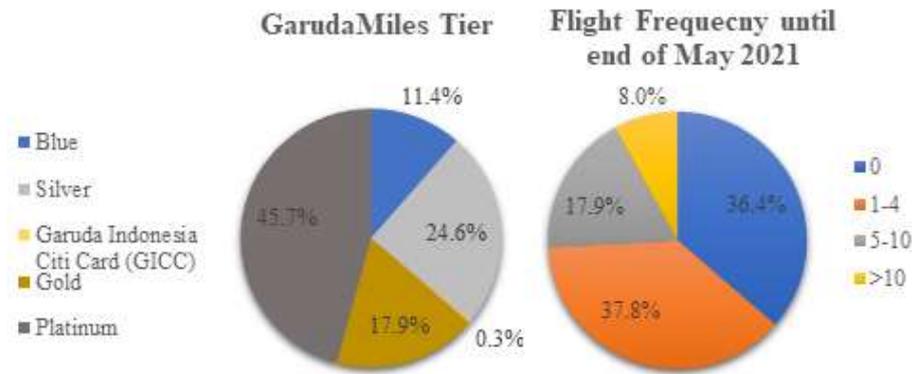
From section 2 of the survey, which the result is shown in Figure 4, the research found that the reason of respondents not using GarudaMiles: 29.3% is not Garuda Indonesia users, 28.6% is not aware of GarudaMiles, 20.7% rarely uses Garuda Indonesia, and 17.1% not interested in GarudaMiles. Additionally, 66.4% of non-member have no other loyalty program and 59.3% are considering using GarudaMiles.



**Figure 4. Section 2 survey result**

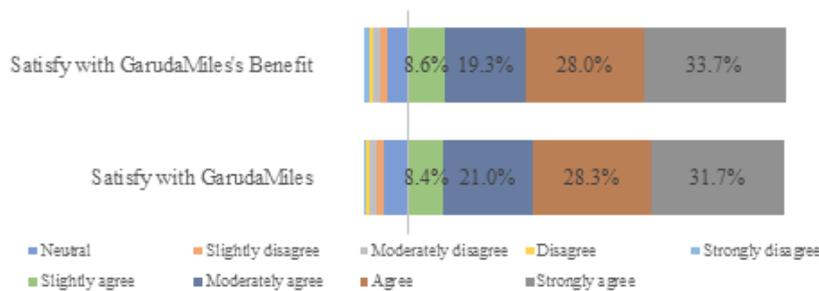
**Perception to GarudaMiles**

From section 3 of the survey, the research found that respondents' membership profile is 45.7% belongs to Platinum tier, 24.6% is Silver tier, 17.9% is Gold tier, and 11.4% is Blue member. From January to the end of May 2021, 36.4% have not taken any flight with Garuda Indonesia, 37.8% took 1–4 flights, 17.9% took 5–10 flights, and 8% took more than 10 flights as shown in Figure 5.

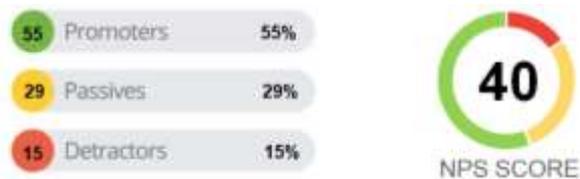


**Figure 5. GarudaMiles demography**

The research also found that GarudaMiles members strongly agree that the loyalty program is satisfying and the current rewards of GarudaMiles attract members to keep using GarudaMiles as shown in Figure 6. The result of the willingness of respondents to promote GarudaMiles was measured by net promoter score (NPS). The calculated NPS of GarudaMiles is 40% in this survey as can be seen in Figure 7.

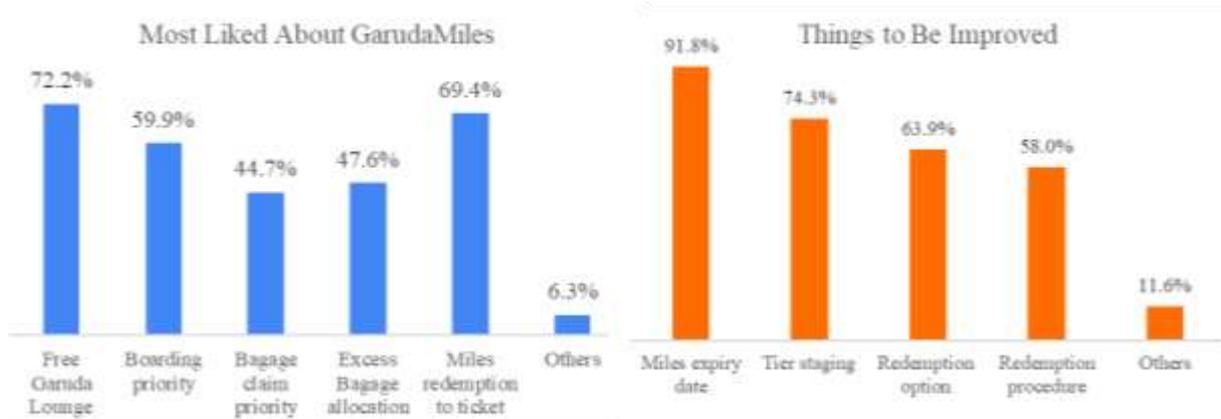


**Figure 6. Member perception to GarudaMiles (Cronbach's alpha = 0.88)**



**Figure 7. Net promoting score GarudaMiles**

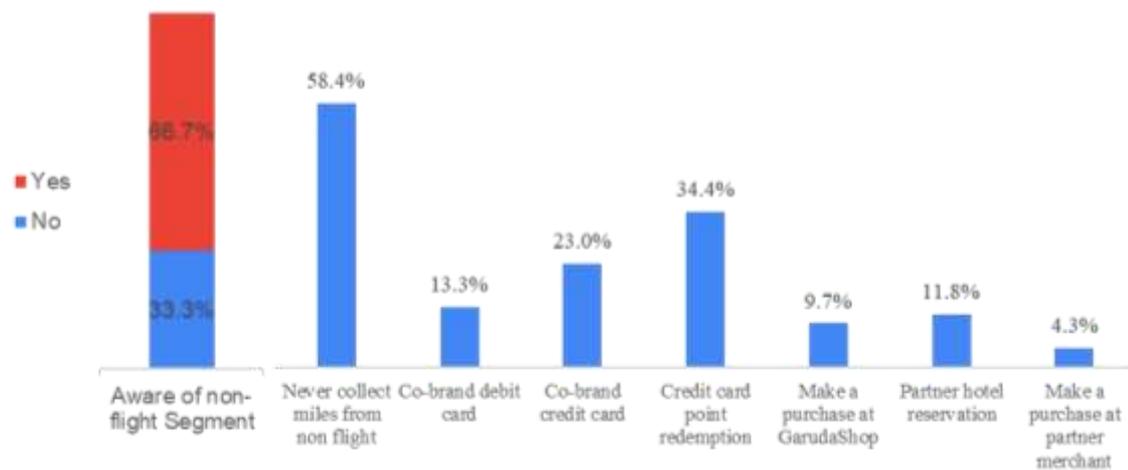
The most favorite benefits of GarudaMiles are free entry to Garuda lounge (72.2%), miles redemption to the ticket (69.4%), and boarding priority (59.9%). Some input that respondents put in others are the priority in the check-in process, able to upgrade class, safe flight, on-time schedule, etc. As for the improvement, the respondents chose miles' expiry (91.8%) followed by tier staging (74.3%) and option for mileage redemption (63.9%). Some inputs that respondents put in others are tier expiry date, the policy during the pandemic, and removal of lounge free access for Gold tier. The points that GarudaMiles needs to focus on are shown in Figure 8.



**Figure 8. Points that GarudaMiles need to focus on**

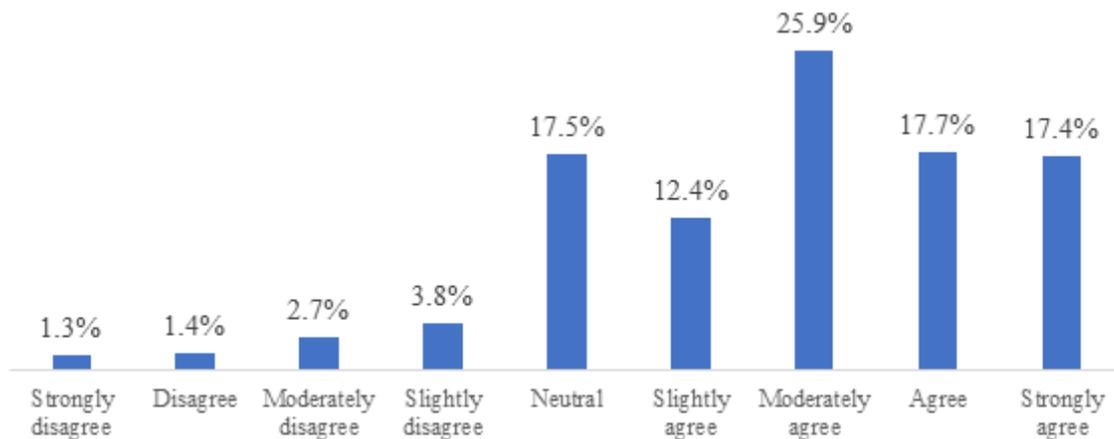
**Awareness of Non-Flight Segment**

66.7% of the members in the survey are aware that GarudaMiles milage can be collected through the non-flight segment, though, 58.4% of them never collect miles from the non-flight segment. As for the ones who collect, mostly miles are collected from credit card activity, 34.4% from credit card point redemption and 23.0% from the co-brand credit card. The complete information is shown in Figure 9.



**Figure 9. GarudaMiles collection source from non-flight segment**

Regarding the current program to collect miles from the non-flight segment, the result shows that respondents moderately agree that the program is satisfying as shown in Figure 10.

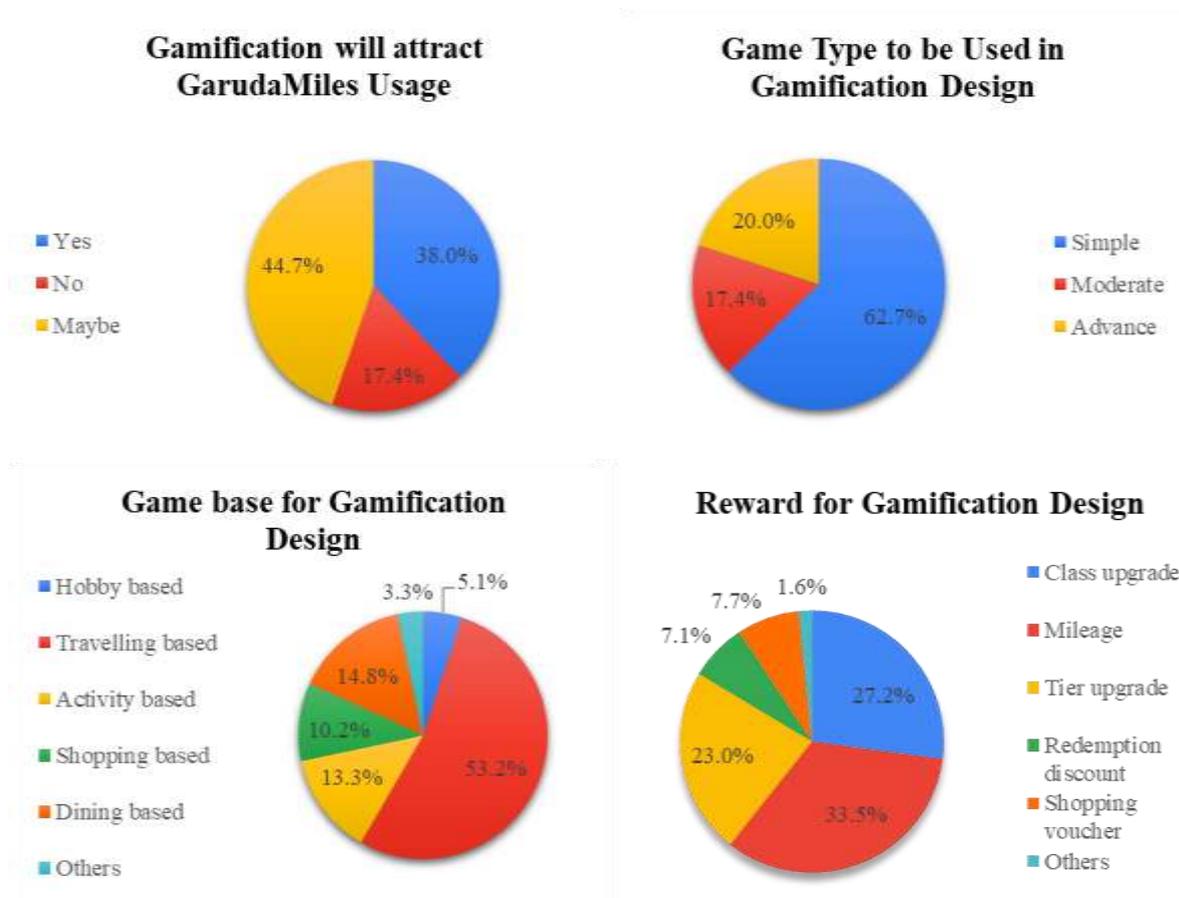


**Figure 10. Satisfaction of non-flight GarudaMiles collection**

### GarudaMiles Gamification

Related to the gamification of the loyalty program, 44.7% of respondents think it may attract them to use GarudaMiles, 38.0% think it will attract them, and 17.4% think it will not attract them. 62.7% of respondents prefer a simple game that requires fewer game mechanics, 17.4% prefer a moderate game, and 20.0% prefer an advanced game.

As for the type of game, 53.2% prefer traveling-based, 14.8% prefer dining (culinary) based, and 13.3% prefer activity-based. Most of the respondents that chose other were mainly stating their dislike of the game and a small amount of them chose to have a combination of game type. For the reward, 33.5% of respondents prefer mileage, 27.2% prefer class upgrade, and 23.0% prefer tier upgrade. Similar to game type result, most of the respondents who chose other are mainly stating their dislike of the game and a small amount of them chose free baggage. The complete survey result for this is shown in Figure 11.



**Figure 11. GarudaMiles game design survey result**

For game features, respondents agree that reward, random reward, level, progress bar, and points are important. They also moderately agree that avatar, personalization, badge, leaderboard, virtual currency, quest, sharing to social media, groupings are important. Lastly, they lightly agree competing with other members is important. The complete game feature survey result can be seen in Figure 12.

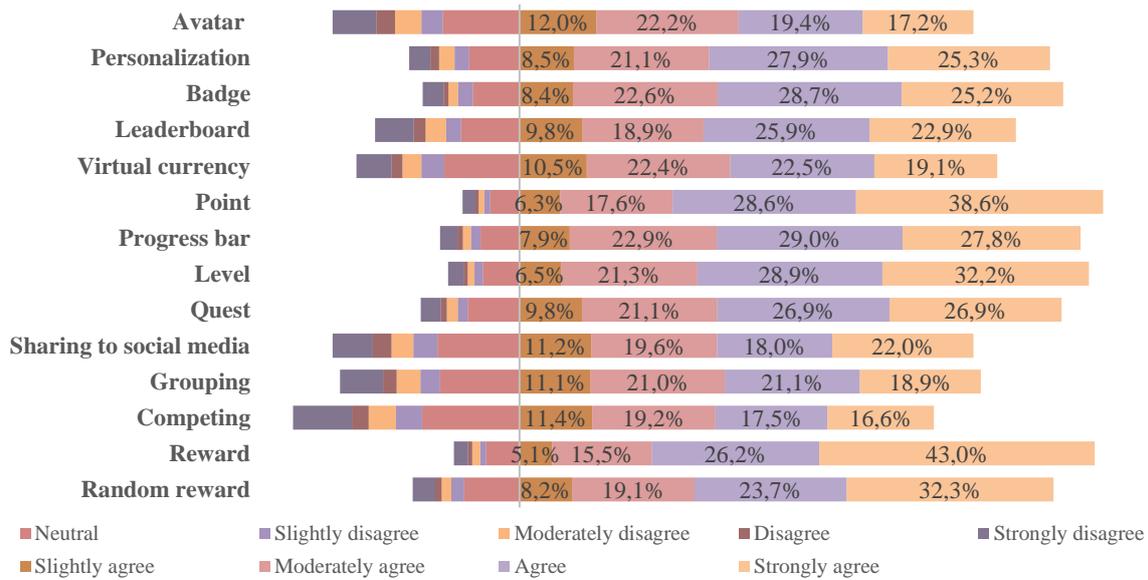


Figure 12. GarudaMiles game features survey result (Cronbach’s alpha = 0.95)

**DISCUSSION**

84.5% of GarudaMiles revenue in 2020 was contributed by 27.0% members, where the Platinum tier alone contributed to 42.7% of total revenue as shown in Table 1. The 80/20 rule was observed here. Approximately 20% of the member that belongs to Silver, Gold, and Platinum Tier contribute to 80% revenue of GarudaMiles. Increasing activity from this group will give a significant result to GarudaMiles.

**Table 1**  
**GarudaMiles Cumulative Revenue per Tier in 2020**

GarudaMiles Tier	Members (person)	Cumulative Revenue	Cumulative member
Platinum	111,561	42.7%	6.0%
Gold	167,341	57.2%	15.0%
Silver	223,121	84.5%	27.0%
Blue	1,357,321	100%	100%
Total	1,859,344		

GarudaMiles has two revenue sources: flight-based, and non-flight based which the comparison is shown in Figure 13.

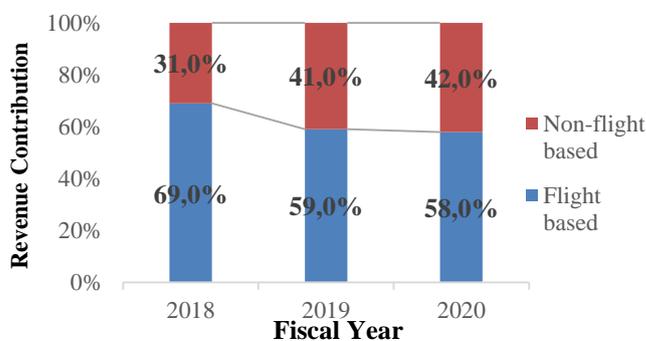


Figure 13. GarudaMiles source of revenue

As can be seen, the revenue from non-flight is increasing year by year and the number in 2020 has reached 42%. This data shows how important non-flight-based revenue to GarudaMiles. In 2020, the

non-flight-based revenue was contributed by only 8% of members (internal data). This means an increase in the member who contributes to the non-flight segment will impact the GarudaMiles revenue significantly.

The survey result shows that from 66.7% of respondents who are aware of the non-flight segment, 58.4% of them never have a transaction in the non-flight segment. This shows that there is no issue with awareness but in the program itself. Further analyzed, survey results show that respondents (25.9%) moderately agree that the program is satisfying. The Net Promoter Score of GarudaMiles is 40. As there is no available data to compare it with other loyalty programs, this score is compared with the NPS of selected airlines. GarudaMiles' NPS is lower than Garuda Indonesia but higher than other airlines as shown in Table 2. This shows that GarudaMiles need to improve the program so the NPS will increase and eventually it will help to get more member from word of mouth.

**Table 2**  
**NPS of Selected Airlines and GarudaMiles**

Airline	NPS
Garuda Indonesia	69.6 <sup>(1)</sup>
Southwest	62 <sup>(2)</sup>
JetBlue	59 <sup>(2)</sup>
GarudaMiles	40

Source: <sup>(1)</sup>Garuda Indonesia, 2020 <sup>(2)</sup> CustomerGauge, 2018

The calculated Pearson correlation coefficients in Table 3 show the positive linear relationship among GarudaMiles' benefit, GarudaMiles satisfaction, and GarudaMiles' NPS. To improve the NPS, GarudaMiles needs to focus on improving its program satisfaction level and benefits.

**Table 3**  
**Pearson's R of GarudaMiles**

Correlation	Pearson's R
GarudaMiles benefit to GarudaMiles satisfaction	0.8
GarudaMiles satisfaction to GarudaMiles NPS	0.8

Gamification of loyalty programs can improve product performance since gamified loyalty programs increase consumers' loyalty toward loyalty programs which in turn increase participation intention and application download intention (Hwang & Choi, 2020).

### Business Solution

The gamification of GarudaMiles is meant to offer a solution to the GarudaMiles problem. From the analysis, the gamification needs to accommodate the non-flight sector. This solution will open more possibilities for GarudaMiles to reach wider market segments and increase member activity.

From the discussion above, this research proposes gamification of GarudaMiles to increase member's activity and loyalty. Following the age profile of respondents, the novelty effects should be taken into consideration. There should be regular updates on the part of game design so the member can feel the novelty following Koivisto and Hamari (2014) research. The social feature is generally, will not give more engagement unless the program is aiming at women users such as for grocery shopping. This is because the respondents' gender is 74.8% male.

The member segmentation that related to the gamification strategy based on this research is a simple game based on traveling, culinary, and activity players who prefer mileage, class upgrade, and tier upgrade as the reward. Additionally, GarudaMiles could also tap the things they need to focus on as the reward option. For the game feature, respondents chose reward, random reward, level, progress bar, and

points as the main motivators in gamified GarudaMiles. The complete order of importance for a game feature is shown in Table 4.

**Table 4**  
**The Order of Importance for a Game Feature**

Game Feature	Mean	Game Feature	Mean	Game Feature	Mean
Reward	7.7	Quest	7.2	Grouping	6.5
Points	7.7	Badge	7.2	Sharing to social media	6.5
Level	7.5	Personalization	7.1	Avatar	6.4
Progress bar	7.3	Leaderboard	6.8	Competing	6.1
Random reward	7.3	Virtual currency	6.6		

## CONCLUSION

Despite the initiatives taken by Garuda Indonesia, its loyalty program's (GarudaMiles) growth was still below the target. The revenue from non-flight is increasing year by year and the number in 2020 has reached 42% that was contributed by only 8% of members (internal data). An increase in the member who contributes to the non-flight segment will impact the GarudaMiles revenue significantly.

Consumers' willingness to participate and download applications may be increased by gamified loyalty programs. (Hwang & Choi, 2020). Zuo, *et al.* (2019) analyzed the gamification effect in frequent flyer programs and found that the tiers system and points system in the current program has a relatively low degree of game sophistication. By using game mechanisms, gamification could improve loyalty programs and react to behavioral as well as psychological needs of the customer (Xu *et al.*, 2017).

The preferred game mechanics found in this research is a simple game based on traveling, culinary, and activity where mileage, class upgrade, and tier upgrade as the reward. For the game feature, respondents chose reward, random reward, level, progress bar, and points as the main motivators in gamified GarudaMiles.

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# THE EFFECT OF INDONESIAN DOMESTIC EVENTS TOWARDS STOCK PRICE VOLATILITY BY USING THE REALIZED VOLATILITY METHOD

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## ABSTRACT

This research aimed to analyze how various domestic events impact stock price volatility on the Indonesian stock exchange. We used high-frequency data to calculate intra-daily volatility as measured by realized volatility. There was a lack of research in the Indonesian stock exchange that analysed stock volatility using realized volatility. This research covered events that occurred in Indonesia in the period January to April 2021. There were 45 companies and 15 events included in the analysis. This study only included events related to the public's attention and did not include events directly related to any companies. The results showed that only three out of 15 events significantly changed the stocks' realized volatility. The three events were the announcement of candidates for the Board of Directors of the Sovereign Wealth Fund, the announcement of an additional economic recovery boosted budget, and the Malaysian PM visited to Indonesia for discussion on Palm Oil. The three events were government policies related to macro-scale economies that involved substantial funding. This finding provided insight into how market players in Indonesia paid great attention to the government's macro policies. However, it took more events and a longer observation time to make a statistically conclusive decision.

**Keywords:** *Stock price volatility, realized volatility, investor attention, Indonesian' stock exchange.*

## INTRODUCTION

In the financial econometrics' literature over the last few decades, it has been shown that volatility plays an important role in the areas of asset pricing, portfolio allocation, and risk management. The Capital Asset Pricing Model (CAPM) was introduced by Treynor (1961), Sharpe (1964), and Lintner (1965), which is the theoretical basis for the formation. Furthermore, from this CAPM theory, a more complex theory emerged to estimate the expected results, namely the Arbitrage Pricing Theory (APT) proposed by Ross (1976). CAPM and APT theoretical models are used to predict asset returns under normal market conditions. A normal market is a condition where the price of an asset is not influenced by various sentiments cause the price of an asset to be overvalued or undervalued. In an efficient stock market, the stock price used is always fully reflected in the available information following the theory of the efficient market hypothesis (EMH) by Fama (1970).

Information plays a crucial role in the investment world. Today's world is highly connected due to globalization and technological developments. Through technological advances, the flow of information has become smoother and faster than before. According to data compiled from Internet World Stats, internet users worldwide reached 4.5 billion active users (Internet World Stats, 2020). Most users are in the Asian continent, with 50.7% of active internet users in the world. Furthermore, on the Asia continent, the most internet users are in China at 37.1%, India at 24.3%, and Indonesia at 7.4% of the total internet users in the Asia continent (Internet World Stats, 2020).

Da, Engelberg, and Gao (2011) stated that investor attention could be measured through the frequency of searches on Google (SVI). Stock price volatility reflects the risk in investing (Brooks, 2002). However, how to measure the stock price volatility has a long concern in the financial market. However, Chan and Fong (2006) argues that the measurement of yield volatility using absolute return is a very noisy estimator. The absolute daily return calculation using only two prices (open and close) makes the

calculated volatility very low if the opening and closing prices are low or no changes even though there may be significant intra-daily price fluctuations.

In recent decades, the development of volatility modelling has grown rapidly in the financial economics literature. Research on volatility began to be widely carried out, especially after the emergence of Engle's (1982) volatility model. In this model, Engle (1982) proposed the Autoregressive Conditionally Heteroscedastic (ARCH) model. This theory suggests that the variance of the estimated current value of assets can change depending on the information in the previous period, rather than being constant, as traditional econometric models say. Volatility modelling then continues with the Bollerslev model (1986), which uses the Generalized Autoregressive Conditionally Heteroscedastic (GARCH) model to simplify the Engle model. In 1991, the volatility model was further developed by adding asymmetric volatility to the Exponential GARCH (EGARCH) form by Nelson. The volatility model in the ARCH and GARCH concepts is parametric. The model requires assumptions about the data to be processed. Thus, the validity of this model is highly dependent on the distribution assumption (in Andersen, Bollerslev, Diebold, & Ebens, 2001).

An alternative to volatility modelling with high-frequency data is the Realized Volatility (RV) concept developed by Andersen, Bollerslev, Diebold, and Labys (2001). The realized volatility model is the sum of the intraday squared returns. The measurement of volatility with realized volatility is substantially less biased than the measurement of absolute return, measured only from two prices (open and close) at a trading time (Chan & Fong, 2006). Barber, Odean, and Zhu (2009) noted that individual investor herding is also an essential phenomenon since it creates a "systematic noise."

Frequency data in volatility modelling consists of daily data (Bohl & Henke, 2003; Ghysels, Santa-Clara, & Valkanov, 2006; Hutson & Kearney, 2001; Koopman, Jungbacker, & Hol, 2005; Li, Rhee, & Wang, 2010), followed by weekly data (Ghysels *et al.*, 2006), and monthly data (Ghysels *et al.*, 2006; Jacobsen & Dannenburg, 2003). However, capital market research is currently able to use intraday high-frequency data. This data could develop an alternative non-parametric volatility modelling (Andersen *et al.*, 2001) called Realized Volatility (RV). Realized volatility is the sum of the intraday squared returns. This non-parametric model also allows a more in-depth study of the distributional and dynamic nature of the correlation (Andersen *et al.*, 2001). Research by Sun, Najand, and Shen (2016) analyzed the predictability of returns in 30-minute intervals using the Thomson Reuters Market Psych Index, with sentiment measures based on news media, internet news sources, and social media. The results of their research show change in investor sentiment that have predictive power for intraday stock returns.

However, they are rare research using the realized volatility concept to measure the volatility of stock price movements, especially in the Indonesian market. This study aims to evaluate how an event of public concern would be reflected in stock price volatility. Specifically, we evaluate whether realized volatility concept provides a better measurement compare to the standard deviation concept. We use a-ten minutes of intraday data here as realized volatility measurements. This study provides two significant contributions. First, for issuers and investors, this research can obtain information about investors' attention to events in Indonesia so that it can assist investors and managers in analyzing new information using high-frequency data. Second, to assist further research on investor attention, use 10-minute high-frequency data that has not been widely studied in Indonesia to measure stock price volatility against new information from events of public concern in Indonesia using the realized volatility method.

The reminder of this study is organized as follows—section 2 provides a literature review. Section 3 describes the data and research methods. Section 4 presents the results and analysis. The final section consists of the discussion and conclusion.

## **LITERATURE REVIEW AND HYPOTHESIS**

The efficient market hypothesis (EMH) is a traditional investment theory. EMH states that the market is efficient and asset prices reflect all available information, so it is impossible to predict stock returns (Fama, 1970). Based on the EMH theory regarding shares, shares are always traded at a fair value (fair value). The fair value condition is when the wrongly priced (overpriced or underpriced) stock returns to

its equilibrium price (Wibowo, 2016). Therefore, the investor only gets a standard return at fair value when selling the stock. This condition occurs because stock prices follow a random walk pattern, a pattern of random and unpredictable changes. This pattern of random changes indicates the existence of information reflected in market prices so that stock prices will follow changes according to information in the market. Several conditions determine whether a market is efficient or not, among others: there are no transaction fees for each share trading by securities, all investors have the same information, and there is a mutual agreement between all securities about the impact of information on current shares. There are three forms of efficient market hypothesis (EMH): weak form, half strong form, and strong form.

Behavioral economics (behavioral finance) is a new approach in financial markets to answer the emergence of several difficulties faced by the classical financial economics paradigm. In behavioral economics, financial markets do not assume to be efficient, and investors' assumptions of rationality are not entirely rational. There are some deviations from efficiency caused by investor behavior. There are various explanations for the findings in behavioral finance (Tseng, 2006), such as the attribution error bias. Behavioral finance states that often, the price of an asset deviates from its fundamental value. Behavioral finance theory states that human imperfections in financial models will better describe phenomena that cannot be explained by EMH or classical financial theory. The behavior of these investors creates sentiment, which leads to a bias from irrationality in investment decisions.

Several studies investigated that investors' attention to events shared by social media and other internet platforms can be used to predict the stock price (Audrino, Sigrist, & Ballinari, 2020). Gagnon and Karolyi (2009) and Bank, Larch, and Peter (2011) stated that the increase in stock returns tends to change from uninformed investors to informed investors. After gathering information, investors will begin to design investment portfolios that have the potential to generate returns. Due to the lack of asymmetric information, many investors are competing to get good shares. The high demand for the same shares resulted in competition among investors.

Research on realized volatility (RV) was introduced in the early 2000s by Andersen, Bollerslev, Diebold, and Labys (2003). The idea of the realized volatility concept is to calculate the estimated volatility using high-frequency data. The measurement of realized volatility is the number of squares of stock returns over a certain period. The realized volatility concept can measure volatility more accurately and then assume that it can separate the noise component of volatility (Audrino *et al.*, 2020). The Realized volatility uses available intra-daily information and is much less noisy than conventional measures of volatility. Therefore, it is not surprising that academics have made many efforts to improve the realization of volatility forecasting methods (Andersen *et al.*, 2001a, 2001b, 2003; Andersen, Bollerslev, & Meddahi, 2005; Andersen, Bollerslev, & Diebold, 2007; Corsi, 2009; Deo, Hurvich, & Lu, 2006; Koopman *et al.*, 2005; Patton & Sheppard, 2013).

## RESEARCH METHOD

Our dataset comprises an intraday transaction of LQ-45 stocks in the Indonesian stock exchange. As the study sample, LQ-45 comprises stocks that most actively traded for one year from 2020 to April 2021. Meanwhile, public attention news data is collected based on public attention obtained from the Eikon database. We evaluate transactions of the LQ-45 stocks using 62 trading days from Januari–April 2021. The Indonesia Stock Exchange is open from 09.00 AM to 11.30 AM, then from 13.30 PM to 15.00 PM. Thus, there are five trading hours a day and 25 quotes (every 10 minutes) on the trading day. We use every 10-minutes of trading data to obtain more accurate measurements (Husodo, 2010). We use the equation for measuring realized volatility in this study based on Andersen and Bollersv (1998). For a specific business day  $t$ , the realized volatility can be calculated as the sum of the squared intraday return.

$$RV_t = \sum_{j=1}^M r_{t,j}^2, \quad t = 1, 2, \dots, T, \quad (1)$$

Where  $1/M$  is the given sampling frequency. We use the event study based on  $H-1$  vs.  $H$  and  $H$  vs.  $H+1$  volatility to analyze the result using-test with 95% confidence level. We then compare whether the realized volatility concept would show a better volatility measurement than a standard deviation concept.

## FINDINGS AND DISCUSSION

Table 1 depicts descriptive statistics of Realized volatility and standard deviation measures of 45 stocks from 12 January to 12 April 2021, using 10-minute intervals on trading days. The data shows that the average value of realized volatility is 0.00095, which is smaller than the standard deviation of 0.00536.

**Table 1**  
**Summary of Descriptive Statistics from the Calculation of Volatility with Realized Volatility and Standard Deviation of a Total of 45 Stocks Included in LQ 45 for the Period November 2020 to January 2021**

	<b>Realized Volatility</b>	<b>Standard Deviation</b>
Mean	0.0933	0.0509
Median	0.0054	0.0046
Max.	0.0218	0.0289
Min.	0	0
S.D.	0.0013	0.0029
Skew.	46.596	16.415
Kurt.	385.596	53.145
<i>N</i>	2925	2925

Table 2 presents selected events that we used as research samples. Fifteen events were selected as samples of events of public concern in Indonesia from 12 January to 05 April 2021. The price volatility of shares in LQ 45 around those events was measured using standard deviation and realized volatility concepts.

**Table 2**  
**Several Events Are Selected as Samples**

<b>Name Event</b>	<b>Date</b>
West Sulawesi Earthquake Disaster	15/01/2021
Mount Semeru Eruption Disaster	18/01/2021
Announcement of candidates for the Board of Directors of the Sovereign Wealth Fund (SWF)	20/01/2021
Announcement of financial assistance by the World Bank for Indonesia	22/01/2021
Announcement of \$10 billion contract with SWF	26/01/2021
President Jokowi's 2nd Vaccine Injection	27/01/2021
Announcement of Additional Budget booster for economic recovery	03/02/2021
Prime Minister Malaysia visit to Indonesia for Palm Oil discussion	04/02/2021
Deal with Malaysia for campaign against anti Palm Oil	05/02/2021
Tornado Disaster in Java Island	26/02/2021
Tornado Disaster in Java Island	04/03/2021
Statistics Indonesia (BPS) report on Indonesia's Trade Surplus in February	15/03/2021
INA trade agreement with UAE and BPS Announcement of declining Indonesian GDP	23/03/2021
President Jokowi's announcement not to import rice until June 2021	26/03/2021
After the wedding of Atta and Aurel who invited President Jokowi and the defense minister Prabowo	05/04/2021

Table 3 present a comparison between one day before the event ( $H-1$ ), the day of the event ( $H$ ), and the day after the event ( $H+1$ ). We get the results from our 15 observed events, the value obtained for the  $H-$

1 Vs  $H$  event which is not significant is the occurrence of natural disasters in West Sulawesi, Announcement of financial, assistance by the World Bank for Indonesia, Prime Minister Malaysia visit to Indonesia for Palm Oil discussion. And Statistics Indonesia (BPS) report on Indonesia's Trade Surplus in February 2021.

**Table 3**

***t*-test for Realized Volatility and Standard Deviation to Attention Investor  $H-1$  vs  $H$  events and  $H$  vs  $H+1$  Events**

	$H-1$ Vs $H$		$H$ Vs $H+1$	
	RV	Stadev	RV	Stadev
Event 1	0.225 ( 0.449)	0.432 (0.864)	0.001( 0.002)**	0.002 (0.004)**
Event 2	0.001( 0.002)**	0.0002 (0.004)**	0.001 (0.002)**	0.0002(0.0003)**
Event 3	0.0004 (0.0008)**	0.00002 (0.0005)**	0.044(0.088)**	0.0556 (0.111)
Event 4	0.435 (0.871)	0.065 ( 0.132)	0.0006(0.0002)**	0.0001( 0.0002)**
Event 5	0.007 (0.014)**	0.004 (0.008) **	0.001( 0.002)**	0.0001 (0.0002)**
Event 6	0.001 ( 0.002) **	0.0001( 0.0002)**	0.002 ( 0.004)**	0.0002 (0.0005)**
Event 7	0.0008(0.0001)**	0.0001(0.0003)**	0.187(0.375)	0.282 (0.564)
Event 8	0.187(0.375)	0.282 (0.564)	0.0054( 0.011)**	0.002(0.004)**
Event 9	0.0054( 0.011)**	0.002(0.004)**	0.381(0.763)	0.136 (0.272)
Event 10	0.0001 (0.0002)**	0.0008(0.0001)**	0.382 (0.763)	0.154 (0.307)
Event 11	0.0009(0.002)**	0.0004(0.0001)**	0.266 (0.533)	0.123(0.246)
Event 12	0.247 (0.495)	0.315(0.631)	0.059 (0.118)	0.015(0.029)**
Event 13	0.044 (0.087)*	0.199 (0.398)	0.306 (0.614)	0.117 (0.235)
Event 14	0.008 (0.016)**	0.004 (0.008)**	0.378 (0.757)	0.386 (0.773)
Event 15	0.016 (0.032)**	0.0002(0.0003)**	0.059(0.118)	0.262(0.526)

\* Indicate statistical significance at the 10% level, \*\* Indicate statistical significance at the 5% level, \*\*\* Indicate statistical significance at the 1% level

## CONCLUSION

This study indicates that the significant change in stock price volatility in the Indonesian stock market during January to April 2021 in Indonesia occurs only around three publicly attention events. Those events announce candidates for the Board of Directors of the Sovereign Wealth Fund (SWF), the additional budgets to encourage economic recovery, and the Malaysian PM's visit to Indonesia to discuss palm oil. Meanwhile, the other twelve public attention events do not significantly change the stock price volatility. More importantly, this study does not find significantly different results whether the stock volatility uses the realized volatility concept of the standard deviation concept.

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# CONSTRUCTING A COGNITIVE ISLAMIC RELIGIOSITY MEASUREMENT SCALE IN THE WORKPLACE: AN EMPIRICAL STUDY IN INDONESIAN LOCAL COMPANIES

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## ABSTRACT

This study aimed to find a suitable instrument for measured Islamic religiosity in the workplace. These instruments could assist researchers in assessing Islamic religiosity in the workplace and its impact on behavior. This study departed from several previous studies that had attempted to develop an instrument to measured Islamic religiosity. Based on these instruments, screening was carried out to select instruments that were truly related to Islamic religiosity. The results of instrument screening were then tested for loading values used warp pls-sem 6.0. The test involved 176 employees as respondents in 10 local companies in Indonesia. The sampling method used probability sampling from the total population with certain criteria. The study produced 15 instruments with three dimensions of Islamic religiosity measurement. The dimensions were faith, Islam, and Ihsan. Our test results showed that the Islamic religiosity measurement could predict dishonesty behavior in companies. This instrument was believed to have been a good measurement scale on the Islamic religiosity cognitive of individuals in the company.

**Keywords:** *Islamic religiosity, cognition, instrument scale.*

## INTRODUCTION

Humans are rational beings, but rational abilities which are at the same time the expansion of intellectual reflection can become a force or instrument of Satan. If it is continuously de-sacralized and separated from revelation (Heer & Nasr, 1993). But with modernization, human knowledge becomes closer to external complexity and separates itself from revelation. Excessive emphasis on rationality and without religious values can encourage unethical behavior and harm the organization (Mohammad *et al.*, 2018). One of the important factors driving the behavior of honesty and high responsibility is religiosity. Honesty and responsibility are a reflection of a person's level of religiosity (Awuni & Tanko, 2019). A person's level of religiosity can control dishonesty behavior in corporate organizations.

Schneider, Krieger, and Bayraktar (2011) suggested that religion is a basic determinant of social behavior. Religion is the core or source of moral ethics. Moral ethics refers to very strong beliefs that influence people's attitudes toward right or wrong. Therefore, it can be said that morality ethics is a mechanism of coordination and internal control over individual behavior (Shujun, 2019). At the economic level, ethics are the principles and moral standards that guide individual behavior in business activities. Ethics of morality promotes the best possible outcomes of individuals in terms of economic interests such as; profit achievement and cost reduction (Casali, 2011). Therefore, research in various disciplines, such as psychology and sociology, considers the influence of value systems originating from religion on human actions (Schneider *et al.*, 2011).

Religiosity was identified as a significant predictor of kindness towards anonymous and altruistic prosocial behavior (Holdcroft, 2006). According to Abdel-Khalek and Tekke (2019), religiosity is when individuals internalize the total belief of their faith, find their main motive for living according to religious teachings, and bring their needs into harmony with religious beliefs. Therefore, it can be said that cognitive religiosity can provide a cognitive premise about good and bad for individuals in an organization and establish prerequisites for the approval of human behavior. Therefore, this study assumes that a person's level of religiosity can control dishonesty behavior in corporate organizations. This is following the teachings of Islam. The characteristics of believers in QS al-Mu'minun/8

are people who always maintain honesty and trust. Likewise, all human actions will be held accountable. This is certainly very important in the management of a company.

An attitude of honesty and trust that comes from religious values is something very important in the success of the company's management. Research by Alam, Mohd, and Hisham (2011) in Malaysia shows that highly religious individuals tend to behave in relatively more mature, disciplined, and responsible ways. Likewise, Benjamin, Choi, and Fisher (2016) suggest that the concept of religiosity is very important in assessing a person's economic behavior. The same thing is obtained from the research results of Azizan and Razlina (2015) that individual religiosity has a moderating effect on the relationship between the experience of impoliteness at work and work attitudes. Research Ellison (1983) also found that the level of religiosity is closely related to the quality of life and subjective well-being of individuals. Based on these assumptions, it can be said that it is very important to know the cognitive level of individual religiosity. In particular, the measurement of the level of individual religiosity in Islam in the company environment. Therefore, this study aims to develop indicators for measuring the level of individual Islamic religiosity instruments. The measurement instrument is expected to be useful to determine the individual's level of religiosity and its impact on his work in the company. This is especially true for individuals who claim to be Muslim.

## **LITERATURE REVIEW AND HYPOTHESIS**

According to Richert and Saide (2019), there are four dimensions of religious engagement. The four dimensions are belief, behavior, belonging, and benefiting. Based on this definition, it can be said that religiosity is someone who has a more serious personal commitment than other adherents in carrying out the practice of his beliefs in everyday life in all aspects.

Huber and Huber (2012) introduced the CRS scale (central religiosity scale) which is claimed to be used by all religions, including Muslims. Huber and Huber (2012) measured religiosity based on five dimensions. The measure refers to the intensity, importance, importance, or centrality of the individual. The five core dimensions of religiosity are arranged based on the perspective of personality psychology which is called the personal religiosity system. According to him the system of personal religiosity can be defined as a superstructure in the personality that consists of all the personal constructs of the individual. The personal construct is connected to the realm of religion and belief that has been determined individually. A person's religious construct becomes active when the individual anticipates something that has a meaning related to religiosity. The CRS scale includes; dimensions of public practice, private practice, religious experience, ideology, and intellectual.

Ghorbani, Watson, and Khan (2007) adapted the Allport measurement scale and Ross (1967) compiled a scale for measuring religiosity among Muslims. According to him, there are 3 (three dimensions) namely; intrinsic orientation (belief), extrinsic orientation (religious practice), and extrinsic-experiential. The extrinsic-experiential dimension is the social participation of the religious community. The aim is to test the suitability of the western measurement scale of religiosity in Islam. However, according to him, these measurements cannot be considered following Islam, but at least they can be developed by Muslim researchers in the future. Researchers Hafizi, Koenig, and Khalifa (2015) retested the Hoge (1972) measurement scale in Iran. According to him, the Hoge IR scale has proven to have strong reliability and has satisfactory validity. Hoge's IR scale has proven to be a valid measure of religiosity for various cultures and religions. Hoge (1972) himself adapted Allport's intrinsic orientation scale. Then develop the scale by extracting items related to intrinsic religiosity.

Furthermore, Cohen (2017) also researched the scale of religiosity measurement. The online survey was conducted in America which includes respondents who are Protestant, Catholic, Jewish, and Muslim. Cohen (2017) also departed from the basic formulation of Allport's religiosity measurement. The measurement of religiosity scale produces 3 (three) dimensions of religiosity, namely; intrinsic religion (IR), extrinsic religion (ERS), and personal extrinsic religion (ERP). The intrinsic religion (IR) dimension includes aspects of trust. The extrinsic religion (ERS) dimension includes aspects of religious practice. And the dimension of Extrinsic-experiential orientation (ERP) includes mental

attitudes and behavior in the practice of socio-religious communities. This then inspired Muslim researchers to compile their measurements of religiosity among individuals who are Muslim. These Muslim researchers then adapted from the previous measurements.

More specific research related to Islamic religiosity has also been carried out by several researchers. Research by Krauss *et al.* (2005) compiled the Muslim Religiosity-Personality Measurement Inventory (MRPI)'s. MRPI divides 4 (four) dimensions of religiosity, namely; ideological dimension, religious practice dimension, experiential dimension, and intellectual dimension. A measurement similar to the Krauss MRPI scale is the Hasan measurement. Hassan (2007) by suggesting 4 (four) dimensions of religiosity, namely; ideology or religious belief (five indicators), religious practice (five indicators), experience (five indicators), and dimensions of consequences (two indicators). A slightly different scale of religiosity was proposed by Dover, Miner, and Dowson (2007). Dover *et al.* (2007) compiled a scale called the Muslim Religious Reflection (MRR). MRR is divided into four dimensions, namely; faith and reason (five indicators), seeking truth (four indicators), science and religion (three indicators), and reflective commitment (three indicators).

Jana-Masri and Priester (2007) pioneered a scale for measuring Islamic religiosity called the RoIS (Religiosity of Islamic Scale). RoIS consists of two dimensions, namely Islamic belief (nine indicators) and Islamic behavior practices (six indicators). Another Muslim researcher who developed a scale of religiosity is Alghorani (2008) which is referred to as a knowledge-practice measure of Islamic religiosity (KPMIR). The measure consists of Knowledge of the confession of Faith, Knowledge of Worship, Knowledge of Appearance, Knowledge of Jurisprudence. However, it seems that this measurement is too broad and not suitable to be used in measuring the religiosity of economic human behavior in companies. Furthermore, Al Zaben, Sehlo, Khalifa, and Koenig (2015) tested the level of religious belief and practice using a scale called the Muslim religiosity scale (MRS) in 2015. Al Zaben *et al.* (2015) used 13 Koenig items. The results of his research show that the 13-item Koenig-based Muslim religiosity scale is a very reliable measure when given to adult Muslims in Jeddah, Saudi Arabia. However, according to Ilter, Bayraktaroglu, and Ipek (2017), there is a discrepancy if the scale of Christian religiosity is applied in measuring the religiosity of Islam.

Although the measurement of religiosity has been studied by several Muslim researchers, its roots cannot be separated from the scale compiled by Allport and Ross (1967). Another Muslim researcher is Abdel-Khalek (2013) who tested the intrinsic religiosity scale on Muslims in Kuwait in 2013. His findings showed a significant relationship between psychospiritual and religiosity. Psychospiritual is dimensioning such as closeness to God, religious or spiritual orientation and source of motivation, religious and spiritual support, and religious and spiritual struggle. This means that religiosity encourages high moral values. Then, Achour, Grine, Nor, and Mohd. Yusoff (2015) compiled three main constructs of Islamic religiosity, namely; prayer, belief, and worship. A scale similar to the measurement of Achour *et al.* (2015) was made by Mohd. Mahudin, Noor, Dzulkifli, and Janon (2016). Mohd. Mahudin *et al.* (2016) compiled a scale based on the hadith of the Prophet narrated by Hadith Muslim number 10 about Islam.

The hadith of the Prophet Muhammad did not define the meaning of Islam, Iman, and Ihsan linguistically to someone who asked him. However, the Prophet explained the implications and context of Islam, Iman, and Ihsan. Based on the hadith, Mohd. Mahudin *et al.* (2016) in Malaysia formulated the concept of Islam as an act of the body or human activity (Islam), belief (Iman), and the actualization of virtue (Ihsan). In particular, Islam can be interpreted according to the practice of the pillars of Islam as mentioned in the hadith of HR Muslim number 10. The pillars of Islam begin with the shahadat which is a testimony to the existence of a single authority in this universe. Individuals who have performed the shahada are declared Muslims. The practice of the pillars of Islam is a reflection of individual worship compliance. This obedience encourages individuals to live life according to the commands and stay away from Allah's prohibitions. Furthermore, the concept of Iman reflects the cognitive and belief system in understanding God. The third concept is Ihsan which is the spirit or actualization of virtue and goodness (Ihsan) which is in line with the role that God has set for humans. The implementation of the concepts of Islam, Iman, and Ihsan by individuals

will lead to the level of morality. These three concepts are elements that reflect the level of Islamic religiosity. Based on this concept, Mohd. Mahudin *et al.* (2016) formulated the measurement of Islamic religiosity. The measurement is claimed to be purely based on the perspective of Islamic teachings and is independent of the influence of the scale of measuring the religiosity of other religions. Therefore, based on this research, a re-testing of the loading of the instrument was carried out using respondents from managers who worked at several local companies in Indonesia.

## RESEARCH METHOD

There are several stages carried out in the preparation of the instrument. The first is a literature study of previous research on the instrument for measuring Islamic religiosity. Most of the instrument library sources found were sourced from foreign language literature. Therefore, the original English instrument was translated into Indonesian. Researchers gain confidence that there is no difference in the meaning of the translated instrument. Based on these considerations and their suitability with the formulation of the research problem, this study collects the scale. The measurement scales that have been collected from the literature review can be seen in Table 1.

**Table 1**  
**Proposed Instruments**

Authors	Scales	Dimensions	Instruments
Krauss <i>et al.</i> (2005)	MRPI	4 dimensions	10 Questions
Hassan (2007)	MRPI	4 dimensions	17 Questions
Dover (2007)	MRR	4 dimensions	15 Questions
Jana-Masri and Priester (2007)	RoIS	2 dimensions	15 Questions
Alghorani (2008)	KPMIR	6 dimensions	32 Questions
Huber and Huber (2012)	CRS	5 dimensions	15 Questions
Achour <i>et al.</i> (2015)	-	-	11 Questions
Al Zaben <i>et al.</i> (2015)	MRS	2 dimensions	15 Questions
Mohd. Mahudin (2016)		2 dimensions	10 Questions

Then do the sorting to avoid repeating the question. There are two types of analysis carried out, namely testing the validity of the content and discriminant of each instrument. Testing the validity of the content based on the loading value of each required instrument must be more than 0.70. Meanwhile, discriminant validity testing is based on a correlation relationship with higher dimensions than the other dimensions. Based on this, the research will produce a scale of religiosity measurement that is suitable for individuals who are Muslim. Furthermore, testing the data loading using the Warp SEM PLS version 6.0 program.

The survey involved employees in the Kalla Group. The total population is 313 respondents. The minimum sample according to Slovin's analysis is 176 respondents. The sampling technique uses probability sampling. In addition, several additional adaptations were made, especially regarding the respondent's profile. Such as gender, age, religion, position in the company, and years of service. This is to ensure that respondents understand the topic being surveyed.

## FINDINGS

All respondents are Muslim. Based on survey data, it is known that the number of respondents who are male is more than females. The number of male respondents was 158 people (89.80 percent) and 18 women (10.20 percent). Meanwhile, based on age level, most of the respondents aged >31-40 years were 74 people (42 percent), and also aged >41–50 years were 50 people (28.40 percent). In addition, when viewed from the educational background of the respondents, the largest number of respondents had a Bachelor's/S1 education as many as 134 people (76.10 percent), 25 people (14.20 percent) Master's degree, and Diploma 3 as many as 17 people (9.70 percent). This shows that the respondent has a qualified educational ability to clearly understand the questions given in the questionnaire. So it can be said that all respondents have capacity. Building descriptive statistics aims to

describe based on the analysis of the minimum, maximum, average (mean), and standard deviation data. The range of the Likert scale used is a scale of 1 (strongly disagree) to 5 (strongly agree). Statistical descriptions for each research variable construct showed varying results.

The data processing technique uses SEM (Structural Equation Modeling) based on WARP PLS (Partial Least Square). The assessment criteria are based on the rule of thumbs factor loading of at least 0.70 to be called valid (Ghozali & Latan, 2014). The results of the content validity test show that the loading value of all indicators shows a good value. All instrument loading exceeds the value of 0.70. Minimum loading value required to meet content validity. A loading value  $> 0.70$  means that at least 50% of the indicator variability has been absorbed by the latent variable. Meanwhile, the  $p$ -value requires a  $p$ -value  $\leq 0.05$  to be considered significant. Based on this, all indicators are considered to meet the requirements in reflecting variability and are significant. The results of testing the validity of the content can be seen in Table 2.

**Table 2**  
**Loading Factor-Based Validity Content**

Dimensions	Indicators	LF	SE	$p$
$Y_1$ . Iman	$Y_{11}$ Strong commitment to Islamic teachings	0.81	0.06	$<0.00$
	$Y_{12}$ Always try to avoid sin	0.88	0.06	$<0.00$
	$Y_{13}$ Confidence makes you more humble	0.90	0.06	$<0.00$
	$Y_{14}$ Prioritizing rationality over lust	0.85	0.06	$<0.00$
	$Y_{15}$ Feeling close to Allah SWT	0.79	0.06	$<0.00$
$Y_2$ . Islam	$Y_{21}$ Teaching the greatness of Allah SWT	0.93	0.06	$<0.00$
	$Y_{22}$ Teaches to remember Allah SWT	0.92	0.06	$<0.00$
	$Y_{23}$ Participate in congregational prayers	0.81	0.06	$<0.00$
	$Y_{24}$ Carry out the teachings in the Koran	0.89	0.06	$<0.00$
	$Y_{25}$ Always pray for peace	0.81	0.06	$<0.00$
$Y_3$ . Ihsan	$Y_{31}$ Always avoid bad deeds (Istiqomah)	0.73	0.06	$<0.00$
	$Y_{32}$ Feeling enough with what you have (Qona'ah)	0.82	0.06	$<0.00$
	$Y_{33}$ Always tell the truth (Shiddiq)	0.85	0.06	$<0.00$
	$Y_{34}$ Honesty at work (Amanah)	0.89	0.06	$<0.00$
	$Y_{35}$ Feel the supervision of Allah SWT (Muraqabah)	0.74	0.07	$<0.00$

Notes: LF (loading Factor), SE (Standard Error),  $p$  ( $p$ -Values)

Table 2 shows the first dimension construct indicator is faith (Iman- $Y_1$ ). In this dimension, it can be seen that the biggest/dominant reflector factor is the indicator "belief that makes him humbler (tawa'du)" with a loading factor value of 0.90. Meanwhile, the indicator that has the lowest loading value in the dimension construct of Faith ( $Y_1$ ) is "feeling a closeness to Allah SWT" ( $Y_{15}$ ) with a loading factor value of 0.79. Therefore, it can be said that "feeling close to Allah SWT" is the lowest reflection of faith. On the indicator ( $Y_{15}$ ) further observations were made because it was seen that the loading factor was higher in the Islamic dimension construct. The indicator is then transferred to the construct of the Islamic dimension ( $Y_2$ ). Therefore, the number of construct indicators for the dimensions of Faith is four indicators and Islam is six indicators. The results of the loading test after the transfer showed good content validity results ( $>0.70$ ) as shown in Table 3.

Furthermore, in the second-dimensional construct, namely Islam ( $Y_2$ ), it can be seen that the largest/dominant reflector factor is always teaching the greatness of Allah SWT (tafakur) with a loading factor value of 0.93. Likewise, in the third-dimension construct, namely Ihsan ( $Y_3$ ), it can be seen that the largest/dominant reflector factor is the attitude of trust (amanah) with a loading factor value of 0.89. Meanwhile, the loading for feeling under Allah's supervision (muraqabah) has a slightly lower loading of 0.74. If the "amanah" and "Qona'ah" come from the hope of Allah's mercy, then muraqabah comes from the threats and sanctions of Allah against every sinful act.

**Table 3**  
**Loading Factor-Based Validity Content After Transfer**

Dimensions	Indicators	LF	SE	<i>p</i>
<i>Y<sub>1</sub></i> . Iman	<i>Y<sub>11</sub></i> Strong commitment to Islamic teachings	0.81	0.09	<0.00
	<i>Y<sub>12</sub></i> Always try to avoid sin	0.89	0.08	<0.00
	<i>Y<sub>13</sub></i> Confidence makes you more humble	0.92	0.07	<0.00
	<i>Y<sub>14</sub></i> Prioritizing rationality over lust	0.87	0.06	<0.00
<i>Y<sub>2</sub></i> . Islam	<i>Y<sub>21</sub></i> Teaching the greatness of Allah SWT	0.95	0.11	<0.00
	<i>Y<sub>22</sub></i> Teaches to remember Allah SWT	0.93	0.10	<0.00
	<i>Y<sub>23</sub></i> Participate in congregational prayers	0.80	0.09	<0.00
	<i>Y<sub>24</sub></i> Carry out the teachings in the Koran	0.87	0.12	<0.00
	<i>Y<sub>25</sub></i> Always pray for peace	0.79	0.10	<0.00
	<i>Y<sub>15</sub></i> Feeling close to Allah SWT	0.91	0.11	<0.00
<i>Y<sub>3</sub></i> . Ihsan	<i>Y<sub>31</sub></i> Always avoid bad deeds (Istiqomah)	0.73	0.07	<0.00
	<i>Y<sub>32</sub></i> Feeling enough with what you have (Qona'ah)	0.82	0.09	<0.00
	<i>Y<sub>33</sub></i> Always tell the truth (Shiddiq)	0.85	0.10	<0.00
	<i>Y<sub>34</sub></i> Honesty at work (Amanah)	0.89	0.08	<0.00
	<i>Y<sub>35</sub></i> Feel the supervision of Allah SWT (Muraqobah)	0.74	0.10	<0.00

Notes: LF (loading Factor), SE (Standard Error), *p* (*p-Values*)

The discriminant validity of the instrument changes on the three constructs of the cognitive dimension of religiosity in Table 4 also shows a good loading value. In the Table 4, the loading indicator value of *Y<sub>11</sub>* is up to *Y<sub>14</sub>* to the construct of Faith dimension (*Y<sub>1</sub>*) is higher than to the construct of other dimensions. Likewise, the value of loading indicators *Y<sub>21</sub>* to *Y<sub>25</sub>* (including *Y<sub>15</sub>*) on the Islamic dimension construct (*Y<sub>22</sub>*) is higher, when compared to loading on other dimensional construct blocks. The same is true for the loading indicator value *Y<sub>31</sub>* to *Y<sub>35</sub>* for the Ihsan dimension construct (*Y<sub>23</sub>*) which is higher, when compared to loading for other dimensional construct blocks. Therefore, it can be said that the resulting instrument has met the discriminant validity requirements.

**Table 4**  
**Loading Factor-Based Discriminant Validity**

Dimensions	Indicators	<i>Y<sub>1</sub></i>	<i>Y<sub>2</sub></i>	<i>Y<sub>3</sub></i>
<i>Y<sub>1</sub></i> . Iman	<i>Y<sub>11</sub></i> Strong commitment to Islamic teachings	0.81	0.34	-0.16
	<i>Y<sub>12</sub></i> Always try to avoid sin	0.89	0.01	0.11
	<i>Y<sub>13</sub></i> Confidence makes you more humble	0.92	-0.20	0.07
	<i>Y<sub>14</sub></i> Prioritizing rationality over lust	0.87	-0.12	-0.04
<i>Y<sub>2</sub></i> . Islam	<i>Y<sub>21</sub></i> Teaching the greatness of Allah SWT	-0.02	0.95	-0.12
	<i>Y<sub>22</sub></i> Teaches to remember Allah SWT	0.10	0.93	-0.00
	<i>Y<sub>23</sub></i> Participate in congregational prayers	-0.01	0.80	-0.31
	<i>Y<sub>24</sub></i> Carry out the teachings in the Koran	-0.08	0.87	0.19
	<i>Y<sub>25</sub></i> Always pray for peace	-0.09	0.79	0.25
	<i>Y<sub>15</sub></i> Feeling close to Allah SWT	0.07	0.91	-0.10
<i>Y<sub>3</sub></i> . Ihsan	<i>Y<sub>31</sub></i> Always avoid bad deeds (Istiqomah)	0.10	-0.13	0.73
	<i>Y<sub>32</sub></i> Feeling enough with what you have (Qona'ah)	-0.05	0.16	0.82
	<i>Y<sub>33</sub></i> Always tell the truth (Shiddiq)	-0.04	0.10	0.85
	<i>Y<sub>34</sub></i> Honesty at work (Amanah)	-0.05	-0.05	0.89
	<i>Y<sub>35</sub></i> Feel the supervision of Allah SWT (Muraqobah)	0.06	-0.10	0.74

Discriminant validity is met when the loading indicator value on the dimensional construct is higher when compared to loading the other dimension construct blocks. This can be seen in Table 4. Furthermore, in the second-dimension construct, namely Islam (*Y<sub>2</sub>*), the lowest reflector factor is "always praying for peace" with a loading factor value of 0.79. And in the third dimension construct, namely Ihsan (*Y<sub>3</sub>*), it can be seen that the lowest reflector factor is "istiqomah attitude" with a loading

factor value of 0.73. One of the arguments that can explain that *istiqomah* and *muraqabah* are indicators that depart from the concept of caution against the consequences of actions, threats, or God's wrath (justice). Such as "steadfastness in upholding the truth and avoiding evil" is based on a mental attitude that considers an obligation to Allah SWT. Likewise, *muraqabah* is an attitude that "always feels under the supervision of Allah SWT". Both arise from a mental attitude that anticipates the consequences of actions on the concept of God's justice, both in the form of consequences of rewards and sanctions. While positive attitudes such as *amanah*, *shiddiq*, and *qona'ah* which have a higher loading depart from the concept of hope for God's grace.

## DISCUSSION

The results of statistical testing with WARP PLS resulted in 15 cognitive measurement instruments of Islamic religiosity. This instrument is considered to have a good loading value, so it can be useful for researchers who want to measure the construct of Islamic religiosity in certain subjects. The cognitive religiosity of Islam rests on the concepts of Islam, Iman, and Ihsan. The pillars of Islam are the embodiment of increasing knowledge and experience about Islam. Knowledge is the result of interaction with various worship practices such as; prayer, fasting, zakat, and hajj. The practice improves the quality of the individual's knowledge and spiritual experience about Islam. Therefore, companies must facilitate and encourage the interaction of individual knowledge with Islamic values in the organization. Furthermore, faith is a form of one's belief. Individuals will analyze in their cognition about the beliefs, values, and norms they believe. This analysis then produces a sense (emotion), creativity (reason), and desire (will). Reason plays a role in determining whether or not religious teaching is based on one's intellectual considerations. Furthermore, feeling (emotion) is a power in the human soul that takes a role in shaping motivation in a person's behavior pattern. Emotions play a role in creating a balanced and positive inner attitude in living the truth of religious teachings. Furthermore, the will is an executive function in the human soul that functions to encourage the implementation of religious doctrines and teachings based on psychological functions (Shodiq, 2014). The higher the level of faith, the better the concept of attitudes that are set for the individual. The concept of Ihsan attitude is someone who always feels the presence and supervision of Allah SWT. This becomes the basis for conducting a personal assessment of attitudes to determine actions towards something. A mode is a form of self-reflective. Self-reflective is an individual's assessment of the meaning of each consequence of actions and self-conceptions that individuals want to achieve. Therefore, all actions reflect obedience to Allah SWT, even in many things they are supererogative (great behavior or character). The combination of these three cognitive mechanisms then produces individual morals or behavior.

Another thing found in the loading test also shows that there are differences in loading for instruments that have the substance of hope and threat. This is very interesting, especially in the study of human behavior management. The concept of sanctions and expectations of rewards (hope) are two things that characterize the human behavior management system, especially in companies. The results of the loading value of Ihsan's dimension construct indicate that the concept of hope has a more dominant loading value compared to indicators based on the concept of sanctions.

The concept of hope (God's mercy) and sanctions (God's justice) is widely explained in the Qur'an and hadith. One hadith that explains this is the hadith of Imam Ahmad number 8799 narrated by Abu Hurairah RA that the Prophet Sallallaahu 'alaihi wasallam said "if a believer knew the torment that is with Allah 'azza wajalla, then no one will be greedy for entering into His Paradise, and if the disbelievers knew of Allah's mercy, none of them would ever despair of His mercy". The concept of God's justice is the concept that every action will receive a reward or punishment from God. This response is a consequence of Allah SWT for every choice of human action in developing the potential for piety or the potential for evil. These consequences will be accepted both in this world and in the hereafter. The concept is as stated in QS as-Zalsalah/7-8.

The concept of justice is side by side with the concept of grace, namely; love and forgiveness from Allah SWT. Even the Muslim hadith number 4939 narrated by Abu Hurairah RA explains that the Messenger of Allah said that Allah's mercy precedes and exceeds His wrath, so it is not proper for a

servant to despair in obtaining Allah's mercy and love. The concept of the Qur'an and hadith strengthens the empirical findings of this study. Therefore, this can be the basis for improving the management of employee behavior in the workplace, by highlighting the concept of hope over the concept of Sanctions.

## CONCLUSION

This study succeeded in compiling an instrument for measuring Islamic religiosity. This study re-examines several previous Islamic religiosity measurement instruments. Several measurements of Islamic religiosity used by previous researchers were widely adopted from non-Islamic religiosity measurements. Some Muslim researchers have tried to compile a measurement of Islamic religiosity by modifying the previous non-Muslim religiosity measurement. However, it is considered inappropriate when used within the scope of Islam. Therefore, this study seeks to collect all instruments that are considered to depart from the measurement of Islamic religiosity. Then test the validity of the instrument. The essence of the Islamic religiosity measurement instrument that was tested was based on the Hadith of Rasulullah about Islam, namely three dimensions of Islamic religiosity, namely; Iman, Islam, and Ihsan. The results of the content validity and discriminant testing showed that the 15 instruments had good loading values. Therefore, it is believed to be a good measurement scale in assessing Islamic religiosity in the scope of work.

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# IMPORTANCE OF COMMUNICATION RELATED TO GSCM IN GAS STATION'S COMPETITIVE ADVANTAGE

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## ABSTRACT

The fuel retail industry in Indonesia has grown rapidly with the enactment of Act No. 22 year 2001 about oil and gas which provides broad opportunities for foreign and domestic companies to compete in the fuel retail industry in Indonesia. It was necessary to examine competitive advantage in the fuel retail industry in Indonesia. Increasing competitive advantage could be conducted by implementing Green Supply Chain Management (GSCM) which was related to corporate communication. This paper aims to see and examine several things in the fuel retail industry in Indonesia. First, we examined the effect of communication on GSCM. Second, we examined the effect of communication on competitive advantage. Third, we examined the effect of GSCM on competitive advantage. Fourth, we examined the effect of communication on competitive advantage through GSCM. We did a descriptive and associative research by using quantitative approach. This study used Structural Equation Model (SEM) with a total sample of 640 respondents. Data processing was conducted by Lisrel software. Research results showed several things. First, communication had a positive effect on GSCM. Second, communication had a positive effect on competitive advantage. Third, communication had a greater influence on competitive advantage through GSCM rather than direct influence without going through GSCM. The results of the study showed that competitive advantage in the retail fuel industry can be increased by implementing GSCM. The GSCM needed to be supported by good communication. Communication ensured GSCM meets customer needs and desires.

**Keywords:** *Communication, green supply chain management, competitive advantage, fuel retail industry*

## INTRODUCTION

Free trade as part of globalization is facing Indonesian fuel retail industry. Competition between Pertamina gas stations and foreign gas stations is getting tighter after the implementation of the government's policy on subsidized fuel limitation.

In addition to product variations and price factors, consumer considerations in choosing a gas station are also carried out based on the performance of the gas station service. Companies in the fuel retail industry need to have intensive communication with their business partners in order to maintain a long-term cooperation, as communication is uniting distribution channels (Mohr & Nevin, 1990).

Related to emission reduction, Indonesia has a commitment to reduce emissions by 29 percent by 2030 as stated in the Paris Agreement. This is the result of an agreement at the 21<sup>st</sup> UN climate change conference which was held in France, December 2015. Pertamina succeeded in increasing of a new product, namely Peralite which is greener and having higher octane number. It also has a lower sulfur content than Premium.

By the available competition, the industry needs to create a competitive advantage that is right for its business. Competitive advantage is company's ability to achieve economic benefits above the profits that can be achieved by competitors in the market in the same industry (Porter, 2008).

Increasing competitive advantage can be done by implementing Green Supply Chain Management (GSCM) (Sarkar, 2012). GSCM is an integration of environmental thinking in supply chain management, including product design, material sourcing and selection, manufacturing processes, final product

delivery to consumers and end-of-life management after their usage (Srivastava, 2007). The implementation of GSCM requires many companies to continuously improve their production performance by complying environmental regulations.

This is supported by several theories and previous research related to the relationship between GSCM and competitive advantage, for example research conducted by Villanueva and Garcia (2013) which states that GSCM is a strategy to determine competitive advantage. Likewise, research conducted by Khaksar, Abbasnejad, Esmaeili and Tamošaitienė (2015) and Abbas, Hasan, and Niloufar (2017) which shows that GSCM has a significant positive effect on competitive advantage.

The results of research conducted by Nielsen (2018) state that customer satisfaction and loyalty are closely related to good communication in the fuel retail industry. Gharehbashlani and Seify (2014) also shows that commitment, conflict management and communication affect competitive advantage. Malakhalgh and Torkpoor (2014) also support that communication influences competitive advantage.

Thus, this study tries to see the potential of communication to increase competitive advantage in fuel retail industry in Indonesia via Green Supply Chain Management.

## LITERATURE REVIEW AND HYPOTHESIS

### Literature Review

This study develops communication construct as introduced by Chiou, Hsieh, and Yang (2004), Ndubisi (2007) and Mukherjee and Nath (2007) by adjusting several dimensions of communication. Definition of communication in this study is the ability to provide timely, reliable and accurate information to customers. This research also adjusts several dimensions and emphasizes changes in each dimension that are related to customers. Table 1 shows indicators of each dimension used in this study

**Table 1**  
**Dimensions and Indicators of Communication**

<b>Dimension</b>	<b>Indicator</b>
Timely and reliable information	The company's ability to provide timely information. The company's ability to provide reliable information.
New product information	The company's ability to provide sufficient information for new products. The company's ability to explain information that customers want to know.
Accurate Information	The company's certainty in providing accurate information to customers.
Give and fulfill promises	The company's ability to communicate well with customers. The company's ability to deliver and fulfill promises.

This study develops the GSCM construct introduced by Zhu and Sarkis (2004), Yang, Lu, Haider, and Marlow (2013) and Chan, He, Chan, and Wang (2012) with adjustment in several dimensions. GSCM is the integration of environmental issues, corporate environmental management practices into supply chain management. The indicators for each dimension used in this study are shown in the Table 2.

This study develops a competitive advantage construct introduced by Porter (2008) which states that competitive advantage in an industry needs to have ability to understand changes in market structure and be able to choose an effective marketing strategy.

**Table 2**  
**Dimensions and Indicators of GSCM**

Dimension	Indicator
Company policy on the environment	The company's ability to implement quality environmental management. The company's ability to implement environmental audit and compliance programs. The company's ability to carry out ISO 14001 certification and environmental management systems.
The level of product friendliness to the environment	The company's ability to have products that are more environmentally friendly. The company's ability to design products which able to reduce energy consumption.
Logistics network reliability	The company's ability to provide guaranteed products. The company's ability to design products which avoid hazardous manufacturing processes.
Pollution reduction/prevention strategies	The company's ability to have a strategy in reducing pollution. The company's ability to prioritize products that are more environmentally friendly. The company's ability to have products that are low in sulfur.
Develop mutual understanding of environmental risks and responsibilities to customers	The company's ability to inform customers about the importance of protecting environment.
Providing environmentally friendly information to customers	The company's ability to provide information on environmentally friendly services to customers. The company's ability to offer more environmentally friendly products to customers.
Attract customers with green initiatives and services	The company's ability to attract customers through environmentally friendly products.

This study also adjusts several dimensions as a combination of the dimensions proposed by Rao and Holt (2005), Li, Ragu-Nathan, Ragu-Nathan, and Rao (2006) and Navarro, Losada, Ruzo, and Diez (2010) adapted to conditions in the field. The definition of competitive advantage in this study is ability to understand and respond to changes in market structure so as to create a position above its competitors. Table 3 displays details of the dimensions and indicators used for the variable of competitive advantage.

### Hypothesis

Based on above description, these are several hypotheses formulated for this study:

Hypothesis 1: Communication has an effect on GSCM in the fuel retail industry in Indonesia.

Hypothesis 2: Communication has an effect on competitive advantage in the fuel retail industry in Indonesia.

Hypothesis 3: Communication has an effect on competitive advantage through GSCM in the fuel retail industry in Indonesia.

**Table 3**  
**Dimensions and Indicators of Competitive Advantage**

Dimension	Indicator
Price	The company's ability to set competitive prices. The company's ability to offer lower prices than competitors.
Product Quality	The company's ability is based on the quality of the products produced. The company's ability to produce highly reliable products. The company's ability to produce durable products. The company's ability to produce high quality products. The company's ability to provide the type of product needed.
Delivery Dependability	The company's ability to fulfill orders on time. The company's ability to make reliable deliveries.
Product Innovation	The company's ability to provide appropriate products. The company's ability to change product to fulfil client needs. The company's ability to respond the customer requests about new features.
Time to Market	The company's ability to deliver products quickly. The company's ability to be first in the market in introducing new products. The company's ability to deliver new products faster than other companies. The company's ability in rapid product development.

**RESEARCH METHOD**

This study uses a quantitative, descriptive and associative approach. Population of this study is consumers of the fuel retail industry limited to Java Island area. Selection of this area as source of population is because as many as 3,083 or 41.35% of gas stations of Indonesia are located in Java Island.

The sampling technique used is simple random sampling. Researcher takes representatives from each group in the population which number is adjusted to the number of subject members in each group (Arikunto, 2010). PT. Pertamina has 2,979 gas stations, AKR has 36 gas stations, while Total, Shell Indonesia and Vivo have 68 gas stations.

Determination of the minimum sample required using the Slovin formula assuming a tolerable sampling error rate of 5% (Umar, 2008). Thus, minimum sample size of this study was 354 gas stations, while the actual number of respondents collected is 640 respondents.

Measurement of variables use Likert scale. This scale uses a value of one to five with response categories ranging from strongly agree to strongly disagree. In order to get the optimal level of accuracy and to show the details of the relationship between variables, SEM (Structural Equation Modeling) method is used.

According to Ferdinand (2002), SEM is used to identify the dimensions of a construct and can also measure the influence or relationship between factors which dimensions have been identified. Several considerations for the use of SEM in this study, among others: the research paradigm describes the relationship between variables and these variables cannot be measured directly; SEM examines the relationship between variables as a unit; SEM has a good ability to handle non-recursive paths; SEM is an integrated approach between factor analysis, structural modeling, and path analysis.

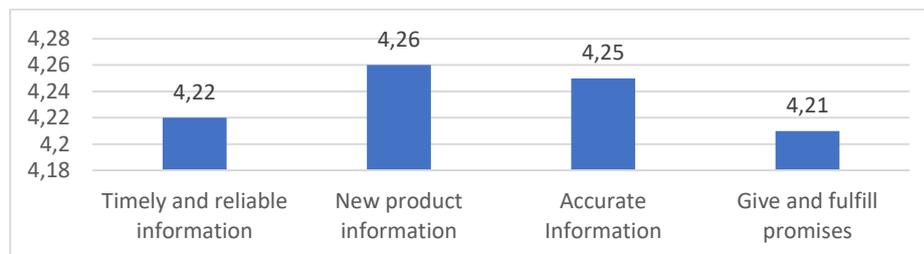
Classical assumptions test is carried out to ensure that the data used are suitable for analysis so that they get the best results (Ghozali, 2006). The tests are normality test, multicollinearity test, heteroscedasticity test, and autocorrelation test.

## FINDINGS

### Data Result

Based on the research results, it can be seen most of the respondents were male with a percentage of 91.09% of the total 640 respondents. The results show that the supervisor or manager of gas stations is still dominated by men. This is because many women think that matters relating to the technical and management activities of receiving, stockpiling and selling fuel are the work of men, thus making women reluctant to be involved in it. The majority of respondents are above 41 years of age with a percentage rate of 28.28%. The majority of respondents have a high school education with a percentage of 70%. The management of gas stations tends to be an uncomplicated routine activity so that a high level of education is not required. Majority of respondents have more than five years working experience (67.50%). The manager of a gas station is a manager who is responsible for the day-to-day operation of a gas station that requires long work experience because it is necessary to study existing patterns. Therefore, assignments to gas station managers tend to be workers who have more than five years of work experience.

Communication is defined as the ability to provide timely, reliable and accurate information to customers. Several dimensions assessed to measure communication variables are: timely and reliable information, information for new products, accurate information, and delivering and fulfilling promises. Overview of the average index on each dimension of the communication variable can be seen in Figure 1.



**Figure 1. Average index of communication dimension**

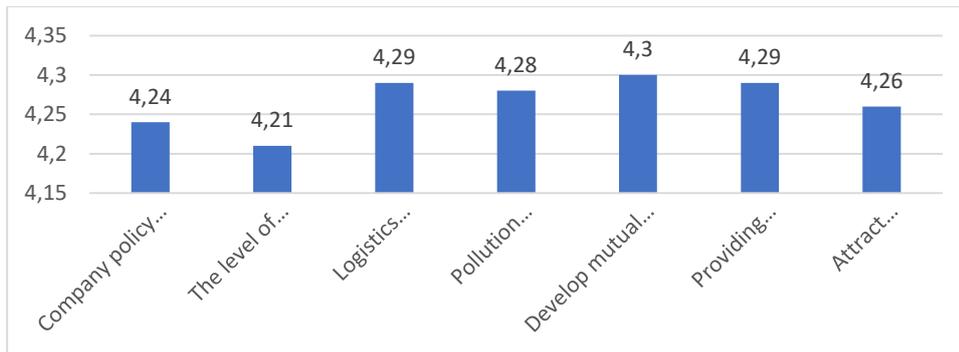
There has been good communication between the company, suppliers and business partners. Communication is an important aspect in the company's relationship with its business partners. So that business partners can be a bridge for companies to explain and promote products. Good communication is also needed in operational. It helps scheduling and distributing products may run well. Establishing and implementing strategies that support operations and business continuity in the fuel retail industry in Indonesia also need good communication.

Information dimension for new products has the highest average index. Companies in the fuel retail industry in Indonesia need help from their business partners as part of the supply chain for product marketing, especially new products. With good communication, business partners may have better understanding about the new product's specifications and advantages.

Indicator of the company's ability to deliver and fulfill promises is the indicator with the lowest average index. Companies in the Indonesian fuel retail industry need to be able to fulfill the promises they make to their partners, including the fuel delivery schedule from the sending terminal owned by the company to the gas station owned by business partners.

Based on the results of the overall calculation of the indicators contained in the communication variable, it can be seen that the average index is 4.24 which means that the level of communication from the company to the business partners is in the good category. Fuel retail companies already have a good understanding of the importance of communication in running their business and to maintain the company's business in the long term. This finding is in accordance with Chiou *et al.* (2004) about the effect of communication from franchisors, service assistance and competitive advantage.

For the GSCM, there are seven dimensions that are considered as its assessment. Average index of each dimension is showed in Figure 2.



**Figure 2. Average index of GSCM dimension**

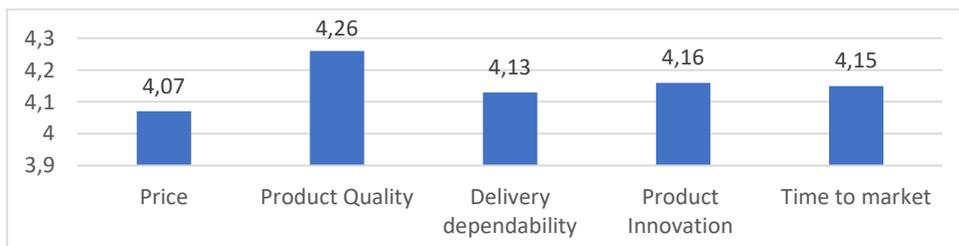
All dimensions in GSCM variable are in the good category. Companies in the fuel retail business in Indonesia have implemented good GSCM practices. Companies continue to develop products that are more friendly environment. It can also be seen how these companies continue to compete to create better products with higher octane number which are expected to be able to reduce the level of emissions produced by vehicles. They also support the government's policy to reduce the sulfur content in the gasoline series products. The company cooperates with its business partners to provide special discounts on friendly environmental products.

Furthermore, developing mutual understanding of risk and responsibility for the environment has the highest average index. The manager or supervisor of the gas station involved and understand about the risks and responsibilities to the environment for the products they manage. They realize that the products are dangerous and may cause environmental damage.

The indicator with the lowest average index is the company's ability to design products to reduce energy consumption. Sales dominated with low quality product which has lower price. Innovation is needed to create more environmentally friendly product in a lower price. More environmentally friendly product is needed to face renewable energy products that are widely developed today.

The integration of “green” practices is in accordance with research conducted by Yang *et al.* (2013) regarding the influence of GSCM on green performance and company competitiveness in the container shipping business in Taiwan. It is also in line with research on environmental orientation and company performance mediated and moderated by GSCM on the company's competitive level conducted by Chan *et al.* (2012).

Competitive advantage is measured in several dimensions: price, product quality, delivery dependability, product innovation, time to market. Average index of each dimension contained in the competitive advantage variable is shown in Figure 3.



**Figure 3. Average index of competitive advantage dimension**

The product quality dimension has the highest average index. Development of product continues to grow rapidly, especially in the last decade. One of the supporting factors is business openness or competition

in the fuel retail industry in Indonesia. Product variations in the industry are closely related to the quality of the products. Indicator of the company's ability to provide suitable products is indicator with the highest average index level. Companies need to provide products that are not only in accordance with vehicle specifications, but also with government policies.

An indicator of a company's ability to offer lower prices than competitors is an indicator that has the lowest average index level. This is due to the increasingly tight and open competition in the retail fuel industry in Indonesia. By the increasing number of gas stations operating in Indonesia with various sizes and brands, fuel retail business occurs anywhere within country. Price competition is sensitive for both business partners and public.

Overall, the average index of the competitive advantage variable is 4.15 which indicates that the competitive advantage variable in the retail fuel industry in Indonesia is in the good category. Fuel retail industry continue to strive for product differentiation and ongoing competition. This result in line with Porter (2008) on competitive strategy. The industry also need to make a series of efforts to improve product quality and efficiency as part of their business. This is in line with the concept of how green supply chains improve competitiveness and economic performance by Rao and Holt (2005).

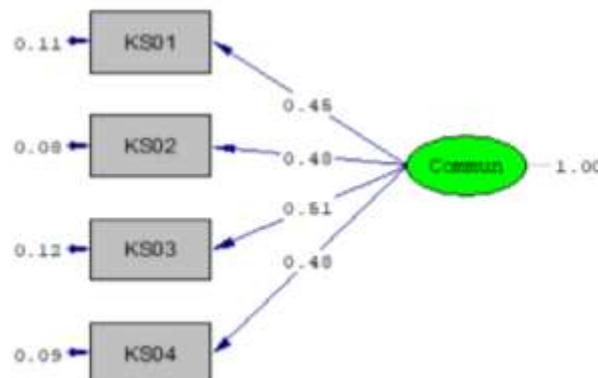
## DISCUSSION

### Measurement Test

Analysis of the measurement model used Confirmatory Factor Analysis (CFA). Confirmatory tests were carried out on endogenous constructs (communication) and exogenous constructs (GSCM and competitive advantage). Measurement model testing was carried out to see validity of the constructs by construct reliability (CR) and average variance extracted (AVE) (Ghozali, 2006). Testing is also done by looking at the results of standardized regression weight. If the standardized loading value ( $\lambda$ ) is more than 0.40, it is considered to have strong enough validity to explain the construct (Sharma, 1996; Ferdinand, 2002). Then the value of CR is good if  $> 0.70$  and AVE is good if  $> 0.50$  (Hair, Black, Babin & Anderson, 2009).

### Exogenous Measurement

Results of confirmatory test processing for exogenous constructs is presented in Figure 4.



Chi-Square=0.79, df=2,  $p$ -value=0.67, RMSEA=0.00

**Figure 4. Result of exogenous measurement model**

The results of the suitability test of the exogenous measurement model shows that the degree of freedom value is two or more than zero. In addition, it can be seen that for the Goodness of Fit Index (GFI), Comparative Fit Index (CFI), Non-Normed Fit Index (NNFI), Normed Fit Index (NFI), and Incremental Fit Index (IFI) is greater than 0.90, and Root Mean Square Residual (RMR) is smaller than 0.08 which indicates the model is in a fit state. Based on these results, it can be concluded that the research measurement model is appropriate.

**Table 4**  
**Exogenous Measurement Model Suitability**

Degree of Fit	Value	Reference	Desc.
Degree of freedom	2	DoF $\geq 0$	Fit
Goodness of Fit Index (GFI)	1.00	$\geq 0.90$	Fit
Comparative Fit Index (CFI)	1.00	$\geq 0.90$	Fit
Non-Normed Fit Index (NNFI)	1.00	$\geq 0.90$	Fit
Normed Fit Index (NFI)	1.00	$\geq 0.90$	Fit
Incremental Fit Index (IFI)	1.00	$\geq 0.90$	Fit
Root Mean Square Residual (RMR)	0.00	$\leq 0.08$	Fit

The measurement model test results for exogenous constructs can be seen through the loading factor coefficient values of each indicator which are presented in Table 5.

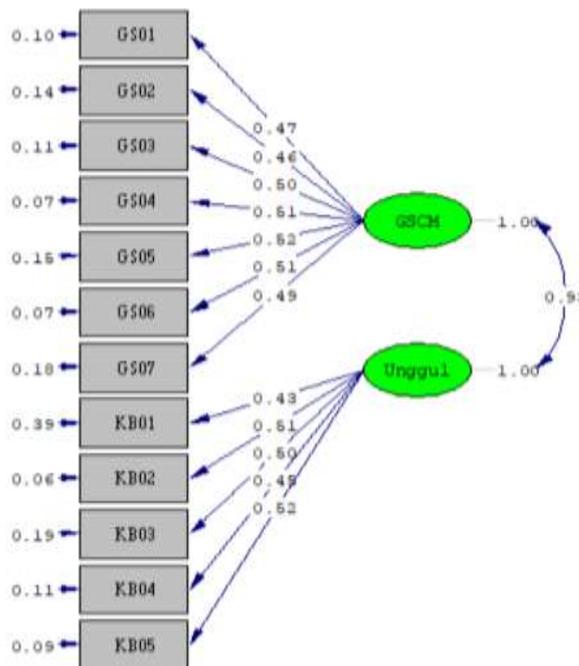
**Table 5**  
**Exogenous Construct Measurement Results**

Variable	Dimension	$\lambda$	$\lambda^2$	E	CR	AVE
Communication	KS1	0.47	0.22	0.10	0.90	0.70
	KS2	0.48	0.23	0.09		
	KS3	0.50	0.25	0.13		
	KS4	0.49	0.24	0.09		

Table 5 shows that the value of loading factor ( $\lambda$ ) for each dimension is greater than 0.40. This means that each dimension is valid in forming the exogenous construct. Furthermore, all variables obtained CR values  $> 0.70$  and AVE values  $> 0.50$ . This means that the conditions have been met so that it can be concluded that all exogenous constructs have good construct validity and reliability.

**Endogen Measurement**

Figure 5 presents the results of confirmatory test processing for endogenous constructs.



Chi-Square=353.15, df=53, p-value=0.00, RMSEA=0.09

**Figure 5. Result of endogen measurement model**

Value of the degree of freedom is 53 or more than 0. Goodness of Fit Index (GFI), Comparative Fit Index (CFI), Non-Normed Fit Index (NNFI), Normed Fit Index (NFI), and Incremental Fit Index (IFI) are greater than 0.90, and Root Mean Square Residual (RMR) is less than 0.08. With these conditions, it shows that the model is in a fit state. So based on these results it can be concluded that the research measurement model is appropriate.

**Table 6**  
**Suitability of Endogenous Measurement Models**

Degree of Fit	Value	Reference	Desc.
Degree of freedom	53	DoF $\geq 0$	Fit
Goodness of Fit Index (GFI)	0.92	$\geq 0.90$	Fit
Comparative Fit Index (CFI)	0.98	$\geq 0.90$	Fit
Non-Normed Fit Index (NNFI)	0.98	$\geq 0.90$	Fit
Normed Fit Index (NFI)	0.98	$\geq 0.90$	Fit
Incremental Fit Index (IFI)	0.98	$\geq 0.90$	Fit
Root Mean Square Residual (RMR)	0.01	$\leq 0.08$	Fit

Measurement model test results for endogenous constructs can be seen through the loading factor coefficient values for each indicator as presented in Table 7.

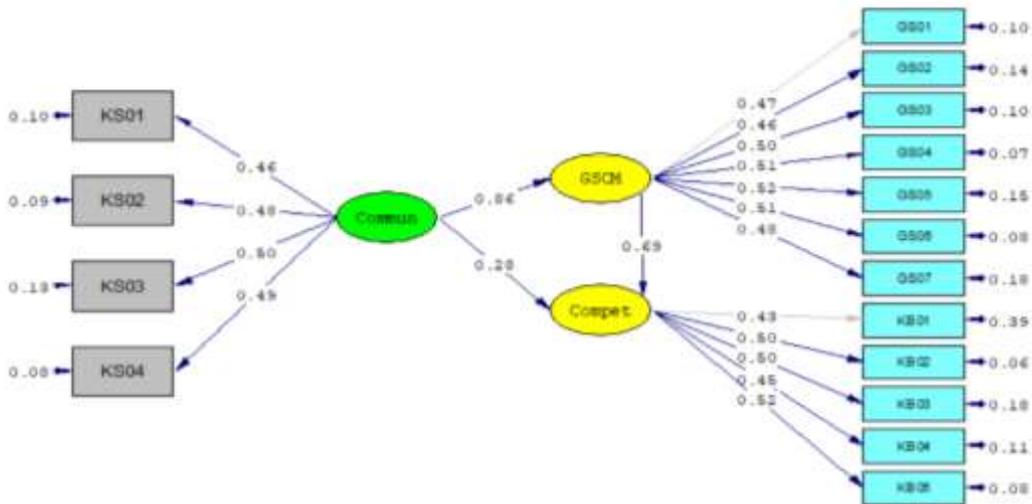
**Table 7**  
**Endogenous Construct Measurement Results**

Variable	Dimension	$\lambda$	$\lambda^2$	E	CR	AVE
<b>GSCM</b>	GS1	0.47	0.22	0.10	0.94	0.68
	GS2	0.46	0.21	0.14		
	GS3	0.50	0.25	0.11		
	GS4	0.51	0.26	0.07		
	GS5	0.52	0.27	0.15		
	GS6	0.51	0.26	0.07		
	GS7	0.49	0.24	0.18		
<b>Competitive Advantage</b>	KB1	0.43	0.18	0.39	0.87	0.58
	KB2	0.51	0.26	0.06		
	KB3	0.50	0.25	0.19		
	KB4	0.45	0.20	0.11		
	KB5	0.52	0.27	0.08		

Table 7 shows that the value of the loading factor ( $\lambda$ ) for each dimension is greater than 0.40. It means that each dimension is declared valid in forming endogenous constructs. All variables obtained CR values  $> 0.70$  and AVE values  $> 0.50$ , which means that all endogenous constructs have good construct validity and reliability.

### Structural Equation Model Analysis

SEM analysis was carried out by using LISREL for Windows software. The complete path diagram of the study is presented Figure 6.



Chi-Square=494.90,  $df=101$ ,  $p\text{-value}=0.00$ , RMSEA=0.08

**Figure 6. Result of path analysis**

Based on Figure 6, following structural equations are obtained:

$$\text{GSCM} = 0.86 * \text{Commun} + \zeta_1$$

$$\text{Errorvar} = 0.25, R^2 = 0,75$$

$$\text{Compet} = 0.28 * \text{Commun} + 0.69 * \text{GSCM} + \zeta_2$$

$$\text{Errorvar} = 0.11, R^2 = 0,89$$

$$\text{Compet} = 0.87 * \text{Commun} + \zeta_3$$

$$\text{Errorvar} = 0.23, R^2 = 0,77$$

$$\text{Compet} = 0.66 * \text{GSCM} + \zeta_4$$

$$\text{Errorvar} = 0.11, R^2 = 0,89$$

Description:

GSCM : Green Supply Chain Management

Commun : Communication

Compet : Competitive Advantage

$\zeta$  (Zeta) : Model structural error

The first equation shows that the direction of the communication relationship with GSCM is positive with a total effect of  $R^2 = 0.75$ . This shows that GSCM can be explained by communication by 75%, while 25% is explained by other variables which are not examined in this study.

The second equation, the direction of the relationship between communication, and GSCM with competitive advantage is positive with a total effect of  $R^2 = 0.89$ . It shows that competitive advantage can be explained by communication, and GSCM is 89%, while 11% is explained by other variables not examined in this study.

The third equation can be explained that the direction of the communication relationship with competitive advantage is positive with a total effect of  $R^2 = 0.77$ . This shows that competitive advantage can be explained by communication by 77%, while 23% is explained by other variables not examined in this study.

The fourth equation shows that direction of the relationship between GSCM and competitive advantage is positive with a total effect of  $R^2 = 0.89$ . It shows that competitive advantage can be explained by GSCM by 89%, while 11% is explained by other variables not examined in this study. Based on calculations using the LISREL for Windows software, value of the Goodness of fit criteria are presented as Table 8.

**Table 8**  
**Structural Model Suitability**

Measurement	Value	Reference	Desc.
Degree of freedom	101	$\text{DoF} \geq 0$	Fit
Goodness of Fit Index (GFI)	0.91	$\geq 0.90$	Fit
Comparative Fit Index (CFI)	0.99	$\geq 0.90$	Fit
Non-Normed Fit Index (NNFI)	0.98	$\geq 0.90$	Fit
Normed Fit Index (NFI)	0.98	$\geq 0.90$	Fit
Incremental Fit Index (IFI)	0.99	$\geq 0.90$	Fit
Root Mean Square Residual (RMR)	0.01	$\leq 0.08$	Fit

Based on Table 8, value of the degree of freedom is 101 or greater than 0. Thus, can be concluded that the research model is fit. Goodness of Fit Index (GFI), Comparative Fit Index (CFI), Non-Normed Fit Index (NNFI), Normed Fit Index (NFI), and Incremental Fit Index (IFI) greater than 0.90, and the Root Mean Square Residual (RMR) is less than 0.08. With these outputs, can be concluded that the research model is in accordance with the empirical conditions.

#### ***Effect of Communication on GSCM in the Fuel Retail Industry***

Testing effect of communication on GSCM done by making hypotheses  $H_0$  and  $H_1$  for related pathways.

$H_0$  : Communication does not affect GSCM in the fuel retail industry in Indonesia.

$H_1$  : Communication affects GSCM in the retail fuel industry in Indonesia.

Result shows that the  $p$ -value is  $<0.05$  so that  $H_0$  is rejected ( $H_1$  is accepted). Research results show that communication has an effect on GSCM. In order to face the tight competition, companies are also competing with renewable energy. Thus, the fuel retail industry needs to pay attention to communication aspect. This aspect is also dealing with environmental issues and policies. Communication will be able to make a good GSCM which support the performance of the fuel retail industry in Indonesia.

Companies in the fuel retail industry are able to provide reliable and accurate information. One of the communication programs done by the company is the “Langit Biru” program (or Blue-Sky program) implemented by Pertamina. This program is in effort to reduce consumption of Premium (RON 88) and to switch them into Peralite (RON 90). The reduction led to emissions and pollution reduction. The manager or supervisor of the gas station is one of the key success of the program as they are the communication spearhead of the company. Result of this study is in accordance with Lee (2015) on the effect of GSCM on supplier performance through the accumulation of social capital which states that communication is very important for supply chain success.

Dimensions of accurate information have the greatest influence on communication in the fuel retail industry. Information accuracy will affect distribution and sales of the fuel. Inaccurate information may lead to distribution delays, and scarcity in fuel stocks at gas stations. Delivering accurate information about what the company is doing can prevent potential problems is similar to research on relationship marketing and customer loyalty conducted by Ndubisi (2007).

#### ***Effect of Communication on Competitive Advantage in the Fuel Retail Industry***

The hypothesis for the test is presented below:

$H_0$  : Communication does not affect competitive advantage in the fuel retail industry in Indonesia.

$H_1$  : Communication affects competitive advantage in the retail fuel industry in Indonesia.

Result shows that the  $p$ -value is  $<0.05$  so that  $H_0$  is rejected ( $H_1$  is accepted). Thus, communication has an effect on competitive advantage. In order to face the increasing competition, the fuel retail industry needs to pay attention to communication with its customers which may support its performance. Communication is carried out either directly by company representatives, may through business partners' organizational forums or through other public communication facilities such as company's call center.

Application of the Standard Operating Procedure (SOP) must always be carried out in a disciplined and consistent manner. Any changes or updates related to SOPs are routinely submitted by the company to its business partners. Timely, accurate communication and fulfilling promises are necessary to support the fuel distribution.

Communication is also needed to harmonize every work program and efforts to achieve company's targets. By having good communication with business partner, the companies may also have bigger marketing coverage as the business partner become their loud speaker for the marketing process. Result of this study is in line with Bharadwaj, Varadarajan, Fahy (1993) which states that communication has a positive effect or impact on competitive advantage.

### ***Effect of GSCM on Competitive Advantage in the Fuel Retail Industry***

The hypothesis for the test is presented below:

$H_0$  : GSCM does not affect competitive advantage in the fuel retail industry in Indonesia.

$H_1$  : GSCM affects competitive advantage in the retail fuel industry in Indonesia.

Result shows that the  $p$ -value is  $<0.05$  so that  $H_0$  is rejected ( $H_1$  is accepted). GSCM is a framework for achieving competitive advantage in the fuel retail industry in Indonesia. GSCM is the basis of the competitive advantage possessed by the retail fuel industry, as it competes with other local and international companies, faced with government regulations and tough competitors, renewable energy.

GSCM is enable the company to meet obligated regulations, especially the Ministerial Regulation (Permen) of Environment and Forestry No. P.20/MENLHK/SETJEN/KUM.1/3/2017 concerning Quality Standards for Exhaust Gas Emissions for New Type Motor Vehicles Category M, Category N and Category O where exhaust gas emission testing is carried out using fuel oil with specifications of RON min. 91, without lead and a maximum sulfur content of 50 ppm for the type of gasoline and specifications Cetane Number (CN) 51 and a sulfur content of 50 ppm for the type of gasoline.

The challenge to provide products that are more environmentally friendly is also contained in the Decree of the Director General of Oil and Gas Number 146.K/10/DJM/2020 concerning Standards and Quality (Specifications) of Diesel Fuel Types Marketed Domestically. For fuel products with CN 48, it must meet a maximum sulfur content of 500 ppm starting from January 1, 2024 and increase to a maximum of 50 ppm starting from January 1, 2026. Meanwhile, fuel products with CN 51 must meet a maximum sulfur content of 50 ppm starting on 01 April 2022.

The result is in accordance with Yunus and Michalisin (2016) about sustainable competitive advantage through GSCM practices. Previous research on the advantages of green supply chains that have an impact on competitiveness and economic performance also conducted by Rao and Holt (2005). Likewise, Yang *et al.* (2013) and Tan, Zailani, Tan, and Shaharudin (2016) also found that the company's competitive advantage could be generated through the implementation of GSCM.

### ***Effect of Communication on Competitive Advantage through GSCM in the Fuel Retail Industry***

The hypothesis for the test is presented below:

$H_0$  : Communication does not affect competitive advantage through GSCM in the fuel retail industry in Indonesia.

$H_1$  : Communication affects competitive advantage through GSCM in the retail fuel industry in Indonesia.

Testing the significance of GSCM as a mediating variable in the model can be checked by the Sobel test. Calculation of Standard Error  $ab$  or  $Sab$  use below formula.

$$S_{ab} = \sqrt{b^2Sa^2 + a^2Sb^2 + Sa^2Sb^2}$$

Calculating the  $t$ -value of the coefficient  $ab$  use below formula

$$t = \frac{a * b}{S_{ab}}$$

The path coefficient and standard error for each path can be seen in Table 9.

**Table 9**  
**Pathway Test Results of Communication Effect on Competitive Advantage through GSCM**

Relation	Correlation coefficient	Error standard
Communication → GSCM	0.86	0.04
GSCM → Competitive advantage	0.66	0.07
Communication → GSCM → Competitive advantage	$a = 0.86$ $b = 0.66$ $t\text{-count value} = 8.95$	$Sa = 0.04$ $Sb = 0.07$

Relationship between communication and competitive advantage through GSCM shows a significant relationship. Since  $t\text{-count} > t\text{-table}$  ( $t\text{-table} = 1.97$ ), thus hypothesis "communication affects competitive advantage through GSCM" can be accepted.

In this study all variables have a significant relationship and show positive values. The relationship between communication and GSCM is significantly positive, the relationship between communication and competitive advantage is significantly positive, and the relationship between GSCM and competitive advantage is significantly positive. Based on those conditions, can be concluded that the relationship among the variables in this study is complementary partial mediation. Complementary partial mediation shows that the intervening variable is a reinforcement of the existing connection. This occurs when the indirect effect and direct effect are both significant, and indicating same direction (Hair *et al.*, 2009).

Mediation testing was also carried out by using the Variance Accounted For (VAF) method, to see the ratio of the indirect relationship between two variables whether indicates full mediating, partial mediating, or no mediating effect. According to Hair *et al.* (2009), the calculation of VAF is done by dividing the indirect effect by the total effect in a model, if the VAF value is above 80%, it indicates a full mediating role, if the VAF is between 20% - 80%, it indicates a partial mediating role, if the VAF is less than 20 %, indicating almost no mediating effect. The calculation formula is described by the following formula.

$$\text{Ratio Indirect X ke X (VAF)} = \frac{\text{Indirect Effect}}{\text{Total Effect}}$$

$$\text{Ratio Indirect X ke X (VAF)} = \frac{(p1 \times p2)}{(p1 \times p2) + p3}$$

By using above formula, calculation of direct and indirect effects in this study is shown in Table 10.

**Table 10**  
**Calculating of direct and indirect effects**

Hypothesis	Indirect Effect	Direct Effect	Total Effect	Ratio Effect
Direct: Communication → Competitive Advantage	0.86	x		
Indirect: Communication → GSCM → Competitive Advantage	0.66 0.57	= 0.87	1.44	39.48 %

Based on Table 10, direct and indirect relationship through the GSCM as an intervening shows a significant positive relationship and indicating the same direction, so that categorizes as complementary mediation or GSCM as reinforcement of the existing connection. By seeing the VAF, the effect ratio value is above 20% (39.48%), thus can be said that the GSCM has a mediating role in the model.

Results of hypothesis testing indicate that there is an indirect effect between the independent and dependent variables through intervening. There is a significant indirect effect of communication through GSCM. GSCM is a partially intervening variable as there is a significant direct effect if the intervening variable is included in the model (Baron & Kenny, 1986).

## CONCLUSION

Based on results above, can be concluded several conclusions as below.

The implementation of GSCM in the fuel retail industry in Indonesia is influenced by communication. The condition of the fuel retail industry in Indonesia has good communication and GSCM. A good GSCM must be environmentally oriented and logistically reliable, it needs to be supported by good communication from the industry. Communication is easier for the fuel retail industry by national-wide retailers and strict regulations.

Competitive advantage in the retail fuel industry in Indonesia is influenced by communication. Fuel retail industry in Indonesia has good competitive advantage since it has many good support systems, both technical support and non-technical support. Good communication is the spearhead to maintain the competitive advantage of the fuel retail industry. The communication needs to be timely, accurate and reliable, including information related to new products.

Competitive advantage in the fuel retail industry in Indonesia is influenced by GSCM. In order to increase competitive advantage, it is necessary to implement GSCM based on environment and logistics reliability and supported by communication. This is related to the company's policy on the environment, the level of product friendliness to the environment, the reliability of the logistics network, pollution prevention/reduction strategies, providing information on environmentally friendly services to customers, as well as green initiative and services.

Competitive advantage in the retail fuel industry in Indonesia is influenced by the implementation of GSCM which is supported by communication. GSCM is a mediation that linked communication with competitive advantage. The application of communication carried out by the company must be accommodated in the elements of GSCM.

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# THE FUTURE OF STRATEGY IMPLEMENTATION RESEARCH: STRATEGY COMMUNICATION

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## ABSTRACT

Although researchers had extensively investigated obstacles to strategy implementation, many public and private organizations continued to face strategy implementation failure. This research examined how strategy was communicated among top and middle managers from a social practice perspective. It argued that strategy implementation research and associated obstacles were no longer representative of strategy failure; rather, it was the accumulation of social interactions among internal social actors that must be understood for strategizing. Our data were based on a single case study of 7 interviews from a public sector organization. The interviewees were in top or middle management roles with decision-making authority. Our preliminary results showed that most of the strategy implementation barriers were in fact related to the strategy communication prior to the actual execution of the associated strategic objectives. This study's exploration was expected to contribute to the field by enriching the limited research on strategy communication processes as well as the cognitive understanding of internal social practice.

**Keywords:** *Strategy process, social practice, strategy divergence, top and middle managers, strategy alignment.*

## INTRODUCTION

Within dynamic businesses and public-oriented organizations, managers at various levels experience considerable pressure to announce and execute their strategic plans against objectives. This requires high levels of communication as well as cooperation among organizational members in order to effectively manage the associated day-to-day operational issues. Executing plans is, in fact, a real representation of the strategy implementation process. In general, organizational strategy researchers have extensively investigated the barriers that hinder organizations from implementing their formulated strategies (for example, Alexander, 1985; Wilson, 1991; Wessel, 1993; Noble, 1999; Beer & Eisenstat, 2000; Heide & Grønhaug & Johannessen, 2002; Sorooshian, Norzima, Yusof, & Rosnah, 2010; Pella, Sumarwan, Daryanto, & Kirbrandoko, 2013; van der Merwe & Nienaber, 2015; Chaimankong & Prasertsakul, 2019). These barriers are strongly associated with how the strategic objectives are communicated to various managerial groups and other internal employees prior to the implementation phase. Based on this brief background, this study addresses one important question: How is strategy practiced and communicated between top and middle management teams?

## LITERATURE REVIEW

### Barriers to Strategy Implementation

In general, strategy-related research suggests that the strategy formulation process is easier than the strategy implementation process. The implementation process reflects how managers turn strategic objectives into action. Dess and Lumpkin (2003) argued that strategy implementation requires the management of available resources to ensure successful implementation of formulated strategies. A more in-depth consideration of previous research shows certain impediments to strategy implementation; Alexander (1985), for instance, found ten such barriers. These were: the strategy taking more time than scheduled, poor coordination across various organizational activities, multiple crises, barriers related to external factors, lack of appropriate monitoring systems, problems related to employee capabilities, poor definition of tasks and activities, directions given by direct supervisors not being appropriate, and inadequate training. In a similar vein, Wessel (1993) recognized six major

barriers to strategy implementation, including the style of top management, the conflict between organizational functions, a dysfunctional top team, poor communication between organizational members, insufficient management development, and conflicts over priorities. Sorooshian *et al.* (2010) categorized barriers to strategy implementation into leadership style, organizational workforce, and organizational structure. From these sample results, it can be seen that some barriers are common, and this has added new insights to the implementation framework. However, one of the main barriers that should be further investigated is that how is strategy practiced and communicated between top and middle management teams?

### **Social Practice and Managerial Communication**

The daily communication amongst top and middle managers within organizations represent their daily social practice. In real social practice, communication does not occur incidentally; rather, it is a continuous outcome of the social interaction of both managerial levels. These social interactions are natural results of social values, norms, beliefs, and experiences. Hence, setting a unique practice for communication between organizational members sounds somewhat unrealistic in today's dynamic environment. Unlike other strategy-related traditional theories, social practice theory provides an alternative perspective on how managers should practice strategies based on human interactions within a specific set of contexts (Giddens, 1984; Bourdieu, 1990). People's daily interaction results in the continuous communication of organizational objectives prior to the implementation process. The importance of communication was re-emphasized by Gesme and Wiseman (2010) and Ocasio, Laamanen, and Vaara (2018), who recognized it as a vital factor in the promotion of change within organizations. Therefore, it can be argued, to an extent, that the outcomes of strategy implementation are the results of the strategy communication process. Daily communication represents part of the social practice of individuals within a given context. Therefore, the main focus of social practice theory is on the dynamic set of activities of individuals with respect to the strategy practices followed in their institutions (Feldman & Orlikowski, 2011). Although the theory of social practice is broad in terms of its intellectual boundaries, the theory relies on three main pillars, namely, the social interaction, the duality of relations, and the mutual constitution of relations (Giddens, 1984; Bourdieu, 1990).

## **RESEARCH METHOD**

### **Sample and Data Collection**

A qualitative approach was adopted by collecting data from a single case study, in this instance, one particular public organization in Kuwait. Adopting a single case study can help to understand a specific phenomenon (Siggelkow, 2007). To provide relevant answers to the research question, a total of seven interviews were conducted. The sample size was reached through both purposive and snowballing techniques (Roulston, 2010). Both techniques are believed to be efficient in collecting a full data set, especially if the phenomenon under investigation requires participants who are believed to have acquired the right skills, knowledge, expertise, and experience to enrich the research findings (Noy, 2008). Prior to engaging in the fieldwork, an interview protocol was designed to ensure effective coverage of the research phenomenon under investigation, as well as to ensure the clarity of the questions being asked. The data were collected over a period of approximately two months, and the targeted participants were selected from one particular public sector organization. All participants, along with the organization from which the participants were selected, were all assured anonymity. Table 1 gives an indication of the profiles of the interviewees.

### **Data Analysis and Coding**

All the data collected from the interviews were analyzed manually. The analysis started by assigning open codes to the interview questions. This step was followed by breaking down the open codes into sub-codes, or sub-themes, to improve clarity and produce measures. All instances, phrases, key words, sentences, and technical terms were coded in order to draw the main themes of the research, and guide the empirical data and findings. For instance, sentences and key words acknowledged by both top and middle managers were assigned sub-codes, including statements about conflict, career authority, strategy objectives, years of experiences, behavior, social practice, cooperation, meetings

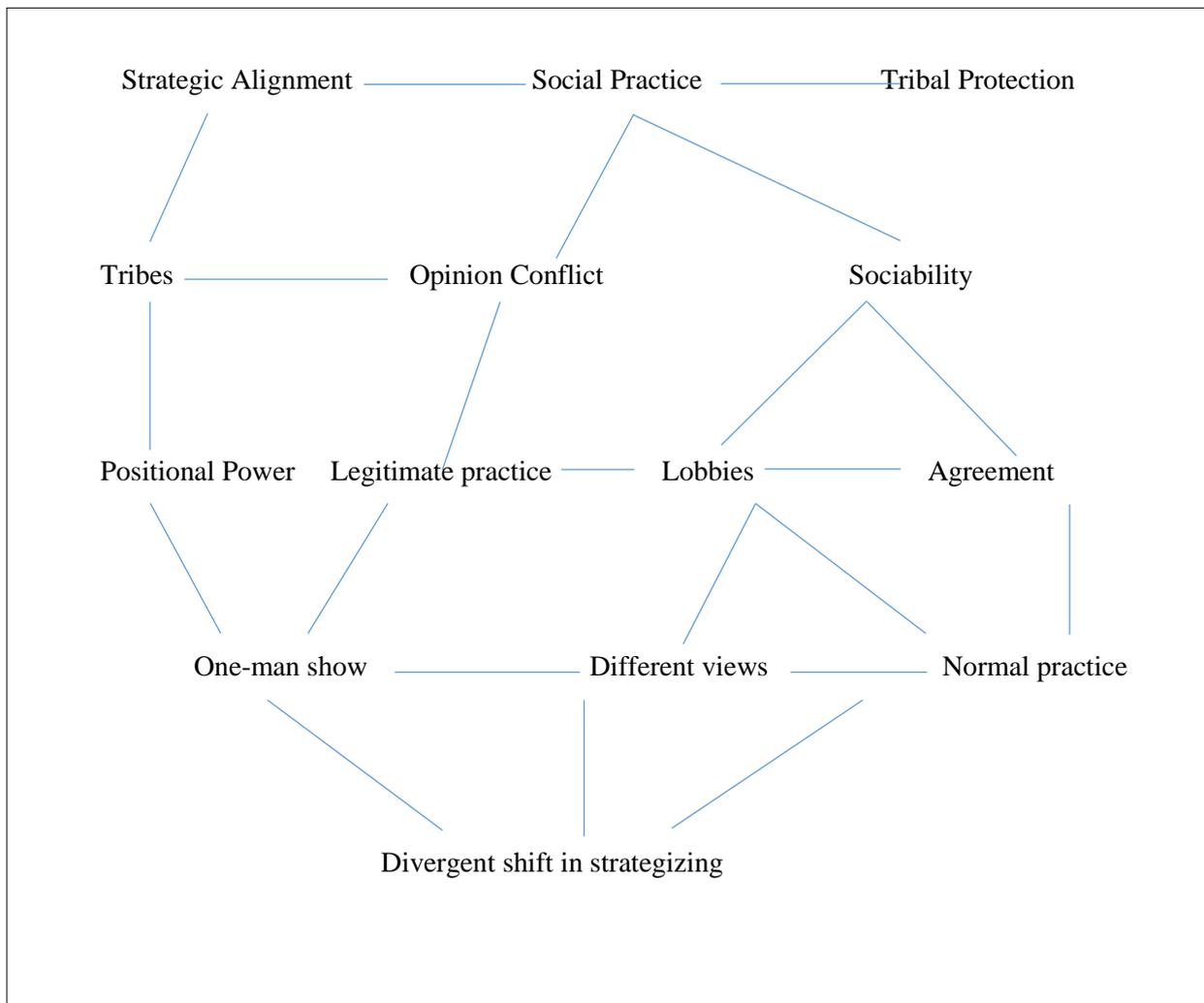
for strategy priorities, avoidance, and freedom of opinion. Figure 1 represents a sample map of the relative data coding.

**Table 1**  
**Interviewee Profile**

S/N	ID	Managerial Level	Gender	Managerial Role	Experience
1	I-1-MM	Middle Management	Male	Departmental Head	8 Years
2	I-2-MM	Middle Management	Female	Departmental Head	8 Years
3	I-3-MM	Middle Management	Female	Departmental Head	8 Years
4	I-4-TM	Top Management	Male	Division Head	10 Years
5	I-5-TM	Top Management	Male	Division Head	10 Years
6	I-6-MM	Middle Management	Male	Departmental Head	8 Years
7	I-7-TM	Top Management	Female	Division Head	10 Years

Keys: I-TM: Interviewee from top management; I-MM: Interviewee from middle management.

Additional note: Due to ethical considerations, and at the request of the organization, the job functions of the interviewees have been anonymized



**Figure 1. Sample map of the data coding**

## ACKNOWLEDGMENT

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# THE ROLE OF VALUE CONSCIOUSNESS AND CUSTOMER ENGAGEMENT TOWARD BRAND LOYALTY IN SOCIAL MEDIA MARKETING: LUXURY BRANDS PERSPECTIVE

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## ABSTRACT

This study aimed to investigate consumers' brand loyalty towards luxury brands in the context of Bangladesh to address the identified research gap. The conceptual framework of this study was developed based on the notion of Social Exchange Theory (SET). A self-administered survey instrument was used to collect data from 523 luxury brand consumers through online using purposive sampling technique. The collected data were analysed employing Partial Least Squares based Structural Equation Modeling. The findings showed that electronic-WOM (eWOM) has a significant effect on customer engagement, and value consciousness, and customer trust is also greatly influenced by customer engagement. Furthermore, eWOM, customer engagement, value consciousness, and customer trust had a significant influence to produce customers' brand loyalty towards luxury brands. The study also revealed a significant mediation role of value consciousness, and customer trust on the relationship between brand loyalty and eWOM as well as customer engagement respectively. These findings were expected to extend the extant knowledge of this area of studies. The implications, conclusions, and prospects for future studies were outlined at the end of this paper.

**Keywords:** *eWOM, value consciousness, customer engagement, brand loyalty, luxury brands, Bangladesh.*

## INTRODUCTION

The expansion of social media technology incorporates the media as a globally fascinating platform for the people especially among the youth (Itani, Kassar, & Loureiro, 2019; Loureiro & Lopes, 2019). Customers are emotionally attached and connected with social media due to the rapid technological development (Barreda, Nusair, Wang, Okumus, & Bilgihan, 2020; So, King, & Sparks, 2014; Li, Teng, & Chen, 2020). The customers are impulsively getting engaged in social media to communicate with brands and further maintain customer relationships (So, King, Sparks, & Wang, 2016). This trend enforces marketing managers to consider social media as the promotional platform for their brands to reach more customers globally (Alalwan, Rana, Dwivedi, & Algharabat, 2017). Thus, the application of social media marketing has evolved into a pivotal concept of modern marketing (Leung, Law, van Hoof, & Buhalis, 2013; Li *et al.*, 2020). However, customers are often found more conscious while interacting with brands on social media platforms (Barreda *et al.*, 2020; Bravo, Catalán, & Pina, 2020; Harrigan, Evers, Miles, & Daly, 2018; Mellinas & Reino, 2019). They generally use social media platforms to get information about products and the best possible price options. It helps brand managers to reach more customers to be involved, and enhance brand value, but the challenges arise in building brand loyalty and strengthening the brand value through social media (Ismail, 2017). Furthermore, customers are losing trust in online platforms since they often encounter a discrepancy between the products they received and the products labeled on social media sites, resulting in a decline of brand value. Thus, from the strategic point of view, it is essential for the real marketers to understand the contributions of social media to build brand loyalty.

Most of the studies on brand loyalty have explored the constructs of customer engagement (Srivastava & Sivaramakrishnan, 2020; Wang & Lee, 2020; Prentice & Loureiro, 2018; Li *et al.*, 2020), and customer trust (Li *et al.*, 2020), while the incorporation of electronic-WOM (eWOM) (Srivastava & Sivaramakrishnan, 2020; Serra-Cantallops, Ramon-Cardona, & Salvi, 2018), and value consciousness (Ismail, 2017) in brand loyalty studies in social media is to date remains less studied area. In addition, this study has also tested the mediation role value consciousness, and customer trust on the relationships between brand loyalty and eWOM, as well as customer engagement which can make a superior

contribution to extend the knowledge of this area of studies. Therefore, this study aims to investigate consumers' brand loyalty towards luxury brands in the context of Bangladesh.

The study further presents the theoretical background of the research, followed by methodological aspects. Next, detailed explanations of the study findings and discussions are articulated. Finally, conclusions, limitations, and future research directions are outlined.

## LITERATURE REVIEW AND HYPOTHESES

This study employed Social Exchange Theory (SET) as the theoretical foundation to build a conceptual framework. SET underlines the outcomes of social investment which incurs both tangible and intangible costs with benefits of getting involved in a relationship (Thibaut & Kelley, 1959). Long-lasting customer-brand relationship makes customers gain more benefit than cost over time (Brodie, Hollebeek, Juric, & Ilic, 2011; Hollebeek, 2011). Thus, social exchanges can be resulted both economically and socially (Lambe, Wittmann, & Spekman, 2001). In recent years, customers are getting involved with other customers to exchange their opinions and experiences. In respect of this study, the construct eWOM is used as the extension of SET by linking eWOM with customer engagement as advocacy. This exchange of thoughts includes a bonding with others where trust is a more suitable foundation rather than legal compulsions and both parties are more elastic rather than getting tangled in unambiguous bargaining (Stafford, 2008). It is also indicated that customers interact with either brands or other customers; they get much authentic information which makes them value conscious. The concept of social exchange relationship relies on mutuality which positions on having one actor done something advantageous to other actors resulting in reciprocating trustworthy behavior (Omar, Zainal, Omar, & Khairudin, 2009; Bagozzi, 1995). This interchange of benefits can either be tangible in the form of money or social and emotional aspects in the form of respect, commitment, trust or loyalty (Aselage & Eisenberger, 2003).

This study used four independent latent constructs (eWOM, customer engagement, value consciousness, and customer trust) to predict brand loyalty towards luxury brands in the context of Bangladesh. eWOM is the appendage of traditional word-of-mouth and it was invented with the advancement of technologies connecting with internet (Dellarocas, 2003; Shojaee, & Azman, 2013). eWOM is an updated communication system where users send or receive information about a brand on a public platform without knowing each other. In a similar way, Litvin, Goldsmith, & Pan (2008) incorporated eWOM as an informal communication system by which consumers interact with each other on the internet regarding their experiences and opinions on a particular brand and the marketers often ascribe about their brands replying to their followers. As consumers share their experiences with a particular brand in their personal social media profiles and interact on the brand's social media pages, social media becomes a well-fit and comfortable platform for eWOM, minimizing the downsides of a typical word-of-mouth communication system (O'Donohoe, 2008; Alim *et al.*, 2017; Yadav & Rahman, 2018). The concept of eWOM can be resulted in customers' engagement which is found in previous studies (Leventhal, Hollebeek, & Chen, 2014; Lei, Pratt, & Wang, 2017). On the other hand, eWOM has positively influenced the customers to be value conscious (Alim *et al.*, 2017). As a result, it is found in the literature that eWOM significantly creates brand loyalty by sharing good experiences of the actual customers (Budiman, 2021).

Furthermore, based on the social exchange theory, customer engagement comprises reciprocated relationships between customers-to-customers and customers-to-brands (Hollebeek, 2011). Customer engagement diverges from customer engrossment and contribution, as it contains customers' experience and interactivity with a luxury brand (Brodie *et al.*, 2013). These demonstrative communications are not sheer purchase behaviors (Van Doorn *et al.*, 2010) or typical purchases (Wei *et al.*, 2013); they, however, inspire customers to be the advocates of the brands. Prior studies have examined the factors that boost (Rather, Hollebeek, & Islam, 2019; Yen, Teng, & Tzeng, 2020) or hinder (Chathoth *et al.*, 2014) the progress of customer engagement. Concerning the consequences of customer engagement, studies recognize that there is a significant affiliation among customer engagement, customer trust (Li *et al.*, 2020), and brand loyalty (Bergel, Frank, & Brock, 2019; Harrigan *et al.*, 2017). However, the relationship between customer engagement and brand loyalty does not demonstrate full provision in previous studies (Steinhoff, Witt, and Eggert, 2018). Therefore, the affiliation of customer engagement with

brand loyalty till now leftovers indistinct, and other constructs are essential to be examined to clarify this affiliation. On the other hand, value consciousness refers to the reflection of the consumers' mindset to buy products at reasonable prices with the best possible quality (Lichtenstein *et al.*, 1993). In fact, value consciousness is influenced by three features of a brand which are; what quality the brand offers, what are the costs to be incurred to obtain the brand and how convenient the brand is to the consumers (Vogel *et al.*, 2008). Thus, Ismail (2017) further added that the value consciousness can be determined by the proportion of price and quality of a brand as well as the ease of buy and the effectiveness of products and time to be spent. However, the impact of value consciousness varies with customer choices in e-commerce in which the customers evaluate the quality of getting services comprehensively (Ismail, 2017). Previous studies also advocated that the more value conscious consumers become more loyal to a brand (Ismail, 2016; Alim *et al.*, 2017; Ismail, Nguyen, & Melewar, 2018). It can be concluded that the price conscious, quality conscious and brand value conscious consumers are strict to consume a particular brand.

Next, the interconnections between customers and service providers can be strengthened by customer trust. In fact, the consequence of customer trust is to maintain continuous and dedicated relationships with the brand authorities (So *et al.*, 2016). A dedicated relationship with a brand can be developed by inclining superior trust. It is stated in social exchange theory that customers are more eager to communicate with brands while they perceived more trust (Cheng, Chen, Yen, & Teng, 2017). On the other hand, brand loyalty means consumers having an optimistic perception toward a specific brand and resulting in purchasing the brand regularly (Fullerton, 2003). Brand loyalty is an important indicator by which market related research and strategies can be successfully accomplished (Chaudhuri & Holbrook, 2001). Brand loyalty components are related to consumers' behavior and attitude (Jacoby & Kyner, 1973) where loyalty related to behavior means the re-purchase of a particular brand and loyalty related to attitude refers to the positive preference of a brand (Cossío-Silva *et al.*, 2015). Studies also claimed that customer having more trust positively influences the brand loyalty (Huang, 2017; Veloutsou, 2015; Li *et al.*, 2020). Again, the highly engaged customers have higher trust on the brand (So *et al.*, 2016; Wei, Miao, & Huang, 2013). So, customer trust strengthens the relationship between customer engagement and brand loyalty. Therefore, from the above discussions, and arguments this study has developed the following hypotheses:

*H*<sub>1</sub>: eWOM significantly influences customer engagement towards luxury brands

*H*<sub>2</sub>: eWOM significantly influences value consciousness towards luxury brands

*H*<sub>3</sub>: Customer engagement significantly influences customer trust towards luxury brands

*H*<sub>4</sub>: eWOM significantly influences brand loyalty towards luxury brands

*H*<sub>5</sub>: Customer engagement significantly influences brand loyalty towards luxury brands

*H*<sub>6</sub>: Value consciousness significantly influences brand loyalty towards luxury brands

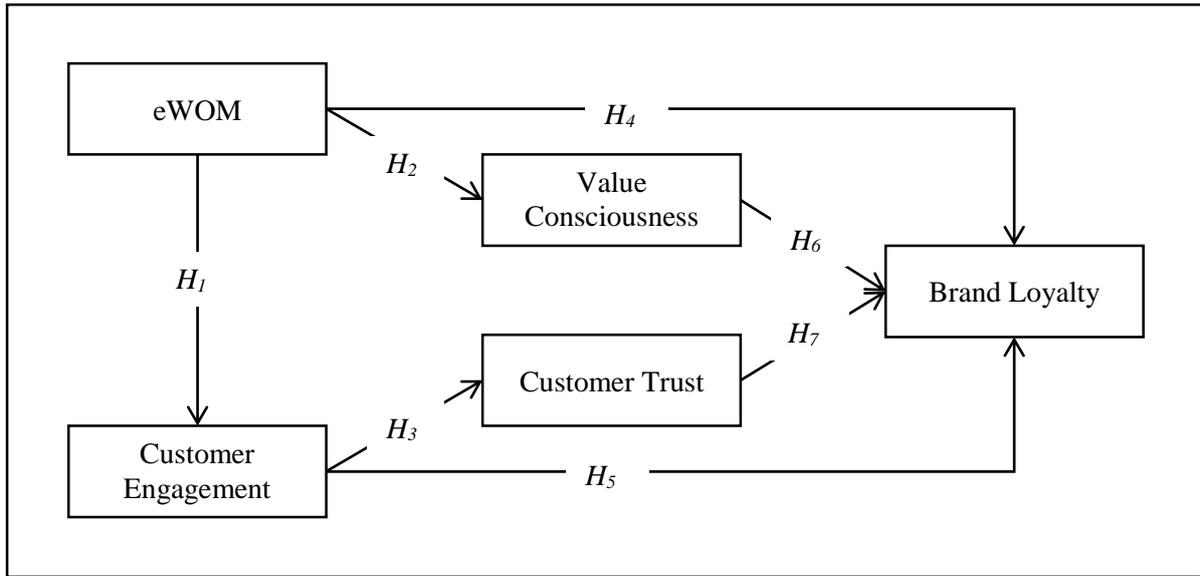
*H*<sub>7</sub>: Customer trust significantly influences brand loyalty towards luxury brands

*H*<sub>8</sub>: Value consciousness significantly mediates the relationship between eWOM and brand loyalty towards luxury brands

*H*<sub>9</sub>: Customer trust significantly mediates the relationship between customer engagement and brand loyalty towards luxury brands.

## RESEARCH METHOD

To measure the proposed conceptual framework, this study's measurement items were modified whose reliability and validity had been tested in the relevant literature of this area of study, and further validated in the current study. The current study's survey instrument consists of five latent constructs, and the items were borrowed from the previous related studies such as the constructs- value consciousness (Lichtenstein *et al.*, 1990), customer engagement (Zaichkowsky, 1994), electronic word of mouth (eWOM) (Yadav & Rahman, 2018), customer trust (Holden, 1990), and brand loyalty (Zeithaml *et al.*, 1996). The data was collected from the consumers of luxury brands through online using purposive sampling technique. In total, 523 completed responses were received, and estimated using Partial Least Squares Structural Equation Modeling (PLS-SEM). According to the suggestion of Hoyle (1995), the sample size used in this study met the minimum sample to perform PLS-SEM. The survey instrument used a six-point Likert rating scale where 1 = *strongly disagree*, and 5 = *strongly agree*.



**Figure 1. Conceptual framework**

**FINDINGS**

This study performs factor loading, Cronbach’s Alpha (CA), composite reliability (CR), and average variance extracted (AVE) to establish the convergent validity in the measurement model (also see Table 1) (Fornell & Larcker, 1981). Therefore, the convergent validity of the study satisfactorily met all three requirements as the results exceeded the suggested threshold values.

Furthermore, discriminant validity can be evaluated by the criterion suggested by Fornell and Larcker (1981) as the traditional method, and the criterion suggested by Henseler, Ringle, and Sarstedt (2015) HTMT method as a superior method. This study used later one as the superior criterion best fitted this study. The HTMT suggests that the threshold value of below 0.90 between two study constructs is acceptable to establish discriminant validity. The HTMT<sub>.90</sub> (see also Table 2) means that the result is below the recommended critical value of 0.90 for each group-specific model estimation. Thus, discriminant validity of the study was met.

**Table 1  
Results of Measurement Model**

Construct	Item	Factor Loading	CA	CR	AVE
Brand Loyalty (BL)	BL1	0.79	0.85	0.89	0.63
	BL2	0.77			
	BL3	0.84			
	BL4	0.77			
	BL5	0.79			
Customer Engagement (CE)	CE1	0.60	0.91	0.92	0.53
	CE10	0.78			
	CE11	0.81			
	CE2	0.67			
	CE3	0.71			
	CE4	0.74			
	CE5	0.74			
	CE6	0.66			
	CE7	0.74			
	CE8	0.77			
CE9	0.76				
Customer Trust (CT)	CT1	0.68	0.79	0.87	0.62
	CT2	0.83			
	CT3	0.83			
	CT4	0.79			
Value Consciousness (VC)	VC2	0.82	0.79	0.86	0.61
	VC3	0.72			
	VC4	0.78			
	VC1	0.79			
Electronic Word of Mouth (eWOM)	eWOM1	0.74	0.87	0.90	0.58
	eWOM2	0.78			
	eWOM3	0.80			

Note: No one item was deleted as loading composite reliability was greater than 0.70

**Table 2**  
**HTMT Result**

	Brand Loyalty	Customer Engagement	Customer Trust	Value Consciousness	eWOM
Brand Loyalty					
Customer Engagement	0.76				
Customer Trust	0.82	0.77			
Value Consciousness	0.49	0.33	0.55		
eWOM	0.79	0.86	0.74	0.35	

**Structural Model**

This study performs bootstrapping procedure to test the path relations using 5000 subsamples which ensure the significance between the relationships of the used constructs (Hair, Hult, Ringle, & Sarstedt, 2017). The results in Table 3 illustrate that the direct effects of eWOM on CE, eWOM on VC, and CE on CT were positive and significant, and the direct effects of eWOM, CE, VC, and CT on BL were also positive and significant. Therefore, the hypotheses  $H_1$ ,  $H_2$ ,  $H_3$ ,  $H_4$ ,  $H_5$ ,  $H_6$ , and  $H_7$  were supported. In addition, the indirect effects (mediation effects) of VC on the relationships between eWOM and BL, and the indirect effects of CT on the relationships between CE and BL were positive and significant. Therefore, hypotheses  $H_8$  and  $H_9$  were supported.

Next, the blindfolding procedure was further applied to test the predictive relevance of the structural model (Hair *et al.*, 2017; Ringle *et al.*, 2015). In particular, the proportion of variance in the endogenous construct was assessed by using the coefficient of determination ( $R^2$ ), which was predicted from the independent variables. The study also assessed the cross-validated predictive relevance by using the criterion of Stone-Geisser's ( $Q^2$ ). In addition, the effect sizes ( $f^2$ ) that specified the extent of the relative effect of a particular independent variable on a dependent variable was substantial (Chin, 2010), and the PLSpredict technique was also performed in this study. These results are shown in detail in Table 3, and the results of PLSpredict in Table 4.

**Table 3**  
**Results of Structural Model**

Direct Effect	Beta	S.E.	t-Value	p-Value	LLCI	ULCI	Decision	$f^2$	$R^2$	VIF	$Q^2$
$H_1$ : eWOM -> CE	0.86	0.01	70.57	0.00	0.84	0.88	Supported	2.86	0.74	1.00	0.39
$H_2$ : eWOM -> VC	0.30	0.04	7.13	0.00	0.23	0.36	Supported	0.10	0.09	1.00	0.05
$H_3$ : CE -> CT	0.65	0.03	25.82	0.00	0.61	0.69	Supported	0.75	0.43	1.00	0.26
$H_4$ : eWOM -> BL	0.27	0.06	4.55	0.00	0.18	0.37	Supported	0.05	0.66	3.95	0.41
$H_5$ : CE -> BL	0.10	0.06	1.88	0.03	0.01	0.18	Supported	0.01		4.26	
$H_6$ : VC -> BL	0.10	0.03	2.81	0.00	0.04	0.15	Supported	0.02		1.24	
$H_7$ : CT -> BL	0.49	0.04	11.00	0.00	0.42	0.56	Supported	0.34		2.01	
<b>Mediating Effects</b>	<b>Beta</b>	<b>S.E.</b>	<b>t-Value</b>	<b>p-Value</b>	<b>LLCI</b>	<b>ULCI</b>	<b>Decision</b>				
$H_8$ : eWOM -> VC -> BL	0.03	0.01	2.47	0.01	0.01	0.05	Supported				
$H_9$ : CE -> CT -> BL	0.32	0.03	10.27	0.00	0.26	0.38	Supported				

\*\* $p < 0.01$ , \* $p < 0.05$ , LL= Lower Limit, UL= Upper Limit, and S.E. = Standard Error.

The PLS predict technique (Shmueli *et al.*, 2019) was used to examine the prediction relevance of the endogenous construct. As presented in Table 4, most of the values for BL, CE, CT, and VC items had lower prediction error (i.e., RMSE, and MAE) than the linear model, except for BL1, BL2, BL3, BL5, CE5, CT1, CT4, VC1, VC3, and VC4 which suggest that BL, CE, CT, and VC had high prediction power (Shmueli *et al.*, 2019).

**DISCUSSION**

This study addressed the effects of electronic word-of-mouth (eWOM) and customer engagement as the major constructs on brand loyalty, and the effects of value consciousness and customer trust were also examined on brand loyalty. In addition, the mediating role of value consciousness and customer trust on the relationship of eWOM and customer engagement on brand loyalty was further examined. The study has identical findings where all the hypotheses were supported and it provides some important

practical implications in luxury brands in the context of Bangladesh. The findings reveal that eWOM creates significant impacts on customer engagement. The study also found that there is a significant relationship between e-WOM and value consciousness. The findings show that more eWOM creates more loyal customers of luxury brands, and the more engaged customers have more trust towards luxury brands. The outcome also depicts that the more engaged customers are more loyal towards luxury brands. Furthermore, the findings of the study explore that both value consciousness and customer trust have positive effects on brand loyalty. However, in terms of mediating effects, customers' value consciousness is capable to explain an indirect relationship between eWOM and brand loyalty, and likewise, customer trust mediates the relationship between customer engagement and brand loyalty. The mediation role of value consciousness, and customer trust produce a superior contribution to this area of studies. In practice, as indicated that value consciousness and customer trust fully mediate the e-WOM-brand loyalty and customer engagement-brand loyalty relationships. Therefore, enhancing customer engagement is significant to increase brand loyalty; value consciousness and customer trust should be considered. Compared with value consciousness, the role of customer trust should receive much attention in the customer engagement-brand loyalty relationship. Therefore, they should prioritize and plan to improve customers' privacy with their offerings. Managers must make investments to engender emotional connections with luxury brands on social media.

**Table 4**  
**Results of Plspredict**

<i>Items</i>	<i>PLS- RMSE</i>	<i>MAE</i>	<i>Q<sup>2</sup></i>	<i>LM- RMSE</i>	<i>MAE</i>	<i>Q<sup>2</sup></i>	<i>PLS- LM RMSE</i>	<i>MAE</i>	<i>Q<sup>2</sup></i>	<i>Predict Power</i>
BL1	0.940	0.729	0.249	0.936	0.735	0.255	0.004	-0.006	-0.006	High
BL2	0.947	0.755	0.234	0.945	0.752	0.236	0.002	0.003	-0.002	
BL3	0.971	0.758	0.345	0.967	0.753	0.350	0.004	0.005	-0.005	
BL4	1.072	0.835	0.325	1.075	0.829	0.321	-0.003	0.006	0.004	
BL5	0.979	0.759	0.297	0.973	0.757	0.305	0.006	0.002	-0.008	
CE1	1.263	0.984	0.237	1.267	0.985	0.232	-0.004	-0.001	0.005	
CE2	1.143	0.909	0.288	1.147	0.921	0.283	-0.004	-0.012	0.005	
CE3	1.196	0.930	0.302	1.211	0.950	0.283	-0.015	-0.020	0.019	
CE4	0.980	0.760	0.415	0.983	0.768	0.411	-0.003	-0.008	0.004	
CE5	0.925	0.725	0.431	0.914	0.719	0.444	0.011	0.006	-0.013	
CE6	0.971	0.751	0.323	0.978	0.759	0.313	-0.007	-0.008	0.010	
CE7	1.183	0.941	0.408	1.187	0.929	0.404	-0.004	0.012	0.004	
CE8	1.011	0.798	0.459	1.022	0.803	0.447	-0.011	-0.005	0.012	
CE9	1.011	0.778	0.443	1.022	0.778	0.431	-0.011	0.000	0.012	
CE10	0.923	0.726	0.468	0.933	0.732	0.456	-0.010	-0.006	0.012	
CE11	1.019	0.773	0.484	1.025	0.771	0.477	-0.006	0.002	0.007	
CT1	0.981	0.780	0.251	0.978	0.763	0.256	0.003	0.017	-0.005	
CT2	1.071	0.842	0.221	1.075	0.842	0.217	-0.004	0.000	0.004	
CT3	1.025	0.795	0.253	1.034	0.791	0.240	-0.009	0.004	0.013	
CT4	0.959	0.753	0.200	0.957	0.754	0.203	0.002	-0.001	-0.003	
VC1	1.152	0.896	0.073	1.147	0.889	0.083	0.005	0.007	-0.010	
VC2	1.113	0.885	0.056	1.118	0.888	0.047	-0.005	-0.003	0.009	
VC3	1.074	0.842	0.019	1.071	0.840	0.025	0.003	0.002	-0.006	
VC4	1.094	0.876	0.039	1.087	0.862	0.051	0.007	0.014	-0.012	

Note: BL (Brand Loyalty), CE (Customer Engagement), CT (Customer Trust), and VC (Value Consciousness).

## CONCLUSION

This study investigated consumers' brand loyalty towards luxury brands in the context of Bangladesh. The estimation of PLS-SEM was performed prior to maintain other steps of the study, and found results which contribute to extend extant literature. However, the study is not out of its limitations which

opened the prospect for future studies. Firstly, this study employed a quantitative design in nature, while a mixed method approach would be more suitable to find appropriate outcomes of the used constructs especially for the constructs of customer engagement, and customer trust as suggested by the study of Loo (2020). Thus, a more constructive outcome may be found by using a mixed-method approach in future research. Secondly, the study was conducted on luxury brand perspective in the context of Bangladesh. The investigation in a cross-national context might find more comprehensive results and improve the generalizability of the findings. Finally, some other important constructs can be added to test customers' loyalty towards luxury brands. Therefore, the constructs of customer satisfaction, and privacy issues of the customers of luxury brands can contribute to produce a superior result.

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# COMOVEMENT ANALYSIS: THE INFLUENCE OF SOCIAL MEDIA ATTENTION AND VOLATILITY & THE RETURN OF ETHEREUM ON NINE CRYPTOCURRENCIES USING WAVELET COHERENCE METHOD

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## ABSTRACT

Cryptocurrency is very volatile when compared to price movements in fiat currency or other commodities. It has the potential for a bubble to occur, causing a flash crash in the cryptocurrency market. The price movement of Ethereum in 2020–2021 experienced a significant increase and formed a pattern similar to 2017–2018. This study analyzed the influence of social media attention (Google Trends and Twitter) to determine the comovement between Ethereum (the second largest market capitalization) as an alternative coin and nine other types of cryptocurrencies. The method used in this research was wavelet coherence. Based on the results of the analysis, Ethereum had a high comovement rate and was positively correlated with nine types of cryptocurrencies. Meanwhile, the result of social media attention analysis indicated that the number of tweets had a high level of comovement, especially on Bitcoin, Cardano, and Dogecoin. Furthermore, Google Trends also had a high level of comovement, the most significant of which were Ethereum, Litecoin, Cardano, Dogecoin, and TRON. The results of this research were beneficial for investors' risk management.

**Keywords:** *Cryptocurrency, ethereum, wavelet coherence.*

## INTRODUCTION

Over the last decade, cryptocurrency has attracted many academics and policymakers since the creation of the first cryptocurrency, namely Bitcoin, published by Nakamoto (2008) (in Elendner, Trimborn, Ong & Lee, 2018). Unlike fiat currency, cryptocurrency does not require financial intermediaries such as banks because it uses decentralized cryptographic technology for production and circulation. Therefore, cryptocurrencies cannot be controlled by the government or central bank and are not correlated with economic conditions (Caferra & Vidal-Tomás, 2021).

There are two opposing views regarding cryptocurrencies. Those who support cryptocurrency believe that there is a potential to support the continuous evolution of this asset as a cashless medium of exchange that can change the current financial world. Still, on the other hand, some argue that this cryptocurrency is a form of cybercrime and is one of the destabilizing effects of the world economy (Corbet, Lucey, Urquhart & Yaroyaya, 2019).

Cryptocurrencies, especially Bitcoin, experienced a bubble period in 2017. Referring to this condition, several periods of explosiveness in one cryptocurrency affected other cryptocurrencies (Bouri, Shahzad & Roubaud, 2019; Fruehwirt, Hochfilzer, Weydemann & Roberts, 2020). Currently, Bitcoin is the first cryptocurrency used as a digital payment instrument and is still the market's leader. From October 2016 to October 2017, the market capitalization of Bitcoin increased from \$10.1 to \$79.7 billion, jumped from \$616 to \$4,800 (US dollars) (Corbet *et al.*, 2019). This significant growth represents an opportunity to gain 680% annual profit that other assets cannot provide.

After Bitcoin became popular and its price increased drastically, other alternative coins could be an option for traders and investors to seek greater returns. One of the alternative coins' biggest market capitalizations is Ethereum, launched in 2015 by Vitalik Buterin (Ethereum.org, 2021). Ethereum is an alternative coin with the second-largest market capitalization after Bitcoin. On 15 February 2021, Ethereum has increased 146,247% since its launch (Investing.com, 2021).

In previous research, many scholars discussed the interdependence between cryptocurrency and financial assets to provide an overview of cryptocurrency's potential risk. An analysis using GARCH volatility on Bitcoin, gold, and US Dollar concluded that Bitcoin showed different return, volatility, and correlation characteristics compared to other assets, including gold and US Dollar (Baur, Dimpfl & Kuck, 2018). Another research showed that Ethereum was a better safe-haven asset than bitcoin in times of crises (Mariana, Ekaputra & Husodo, 2021). Based on these studies, it is interesting to note the coherence of cryptocurrencies, specifically Ethereum, and its correlation with other cryptocurrencies.

There are many options of coherence analysis, such as var, variance decomposition, time-varying connectedness approach, etc. This research used wavelet coherence analysis, which has also been used in previous research, such as (1) research on the correlation between cryptocurrency and fiat currency (Umar & Gubareva, 2020), (2) comovement analysis between bitcoin and gold (Kang, McIver & Hernandez, 2019), (3) analysis of bubble dynamics in 2017 (Fruehwirt *et al.*, 2020), and (4) interdependency analysis among cryptocurrencies (Qureshi, Aftab, Bouri & Saeed, 2020).

Wavelet coherence was employed as a research method because of two reasons. First, wavelet coherence analysis can provide an insight into indices' joint behavior, not only across time dimensions but also for different investment timescales or frequencies, making it possible to study cryptocurrency movement patterns, lead-lag relations, and comovements. Second, wavelets do not require strong assumptions such as stationarity and can capture both linear and non-linear effects (Umar & Gubareva, 2020).

The wavelet coherence method was used to analyze the cryptocurrency and external factors like social media attention. Social media attention and sentiment like those on Twitter and Google Trends have been often used in financial sector analyses. Among the examples are (1) Twitter sentiment analysis to find out how it is related to stock returns (Ranco, Aleksovski, Caldarelli, Grčar & Mozetič, 2015), (2) analysis for stock forecasting based on Google Trends search (Huang, Rojas & Convery, 2020), and (3) analysis on the return and volatility of stock and Twitter sentiment (Behrendt & Schmidt, 2018).

Ethereum is an interesting topic to study as there has not been much research on it as well as the comovement correlation among cryptocurrencies and social media. Wavelet analysis could analyze the coherence of cryptocurrency price movements both qualitatively and quantitatively. In this study, the analysis determined how the comovement between Ethereum and nine other types of cryptocurrencies were correlated with external factors like social media attention (Twitter and Google Trends) because of a weak correlation between cryptocurrency movements and economic conditions.

## LITERATURE REVIEW

### Comovement

Comovement is defined as the common movement of returns distributed to all returns at time  $t$  (Baur *et al.*, 2018). Another definition states that comovement is a positive correlation pattern (Barberis, Shleifer & Wurgler, 2002). In other words, comovement is a movement between two or more correlated assets in a particular time series.

Comovement is best analyzed using wavelets because wavelets provide an efficient way of representing complex variables or signals for their ability to cut data into different frequency components (Crowley, 2005). Wavelets are classified into two types: Continuous Wavelet Transform (CWT) and Discrete Wavelet Transform (DWT). DWT analyzes the time series for the dyadic scale (2, 4, 8, 16) and reduces noise and data compression. Meanwhile, CWT is used to analyze the correlation locally between two-time series moving together (Kumar, 2018). Wavelet coherence uses CWT to analyze time series in the time and frequency domains (Kang *et al.*, 2019).

Previous research on comovement analysis showed that during the crisis periods, Bitcoin and gold, which tend to be classified as safe-haven assets, had a strong correlation on a scale of 8–16 weeks (Kang *et al.*, 2019). The dynamic relationship between cryptocurrencies and other financial assets showed that

cryptocurrencies might offer diversification benefits for investors with short investment horizons (Corbet, Meegan, Larkin, Lucey & Yaroyaya, 2018).

Cryptocurrencies have become increasingly interconnected in terms of return and volatility over the recent period (Aslanidis, Bariviera & Perez-Laborda, 2021) because they tend to have a more robust collective dynamics and correlations in all market conditions (James, 2021). One of the exciting things about cryptocurrency is the potential for bubble dynamics as happened in 2017. The results of the analysis indicated that there was a structural change in the relationship between cryptocurrency and price volatility (Fruehwirt *et al.*, 2020). Nevertheless, in the period after the flash crash, like in March 2020, cryptocurrencies tend to recover faster compared to other assets (Caferra & Vidal-Tomás, 2021).

Cross-currency hedge strategies, which can work during normal market conditions, tend to fail during a global crisis (Umar & Gubareva, 2020). In addition, cryptocurrency price crash risk was positively correlated with the FEARS Index, which indicated that investors' higher crisis sentiment increased the cryptocurrency price crash risk (Anastasiou, Ballis & Drakos, 2021). Interestingly, this study focuses on the determination of Ethereum as an independent variable and its relation to social media attention, in this case Twitter and Google Trends, as has been investigated on stock instruments using Twitter sentiment by Behrendt and Schmidt (2018).

### Wavelet Coherence

Wavelet coherence uses CWT to analyze time series in the time and frequency domains (Caferra & Vidal-Tomás, 2021). According to Aguiar-Conraria, Azevedo and Soares (2008), cross-wavelet coherence forms a cross-spectrum ratio for each series. Therefore, there is a local correlation between the two series' time and frequency domains. The mathematical equations for this method are as follows.

$$R_n^2(u, s) = \frac{|S(s^{-1}W_{xy}(u, s))|^2}{S(s^{-1}|W_x(u, s)|^2)S(s^{-1}|W_y(u, s)|^2)}$$

$R_n^2(u, s)$  : local correlation between the series

$W_x(u, s)$  : continuous wavelet transforms in time series X

$W_y(u, s)$  : continuous wavelet transforms in time series Y

$W_{xy}(u, s) = W_x W_y$  : cross wavelet transport in time series X and Y

$S$  : smoothing operator

$$S(W) = S_{scale}(S_{time}(W_n(s)))$$

$S_{scale}$  : Smoothing Scale

$S_{time}$  : Smoothing Time

Smoothing operator is a convolution on time and scale, and  $0 \leq R^2(u, s) \leq 1$  (Rua & Nunes, 2009). If the value is close to 0, it indicates no correlation. In contrast, if the value is close to 1, it indicates a strong correlation. As a consequence, it is not possible to identify positive and negative comovements accurately. Therefore, Torrence and Compo (1998) proposed a phase difference, which can distinguish between positive and negative comovement and provides an insight into the causality relationship between each series (Caferra & Vidal-Tomás, 2021)

The mathematical equation for this phase difference is defined as follows.

$$\phi_{xy}(u, s) = \tan^{-1} \left( \frac{\Im \{S(S^{-1}W_{xy}(u, s))\}}{\Re \{S(S^{-1}W_{xy}(u, s))\}} \right)$$

$\Im$  and  $\Re$  are real and imaginary parts of the smoothed cross-wavelet transform. In the illustration that provides the results of the wavelet coherence analysis, arrows indicate the phase difference, which underlines the synchronization between the two circuits. On the one hand, arrows pointing to the right

indicate time series that are in phase and will be positively correlated. On the other hand, arrows pointing to the left indicate time series out of phase and will be negatively correlated. Conversely, arrows pointing upwards indicate that the first time series leads the second time series, whereas arrows pointing downward indicate that the second time series leads the first (Torrence & Compo, 1998). Regarding the analysis of the time-frequency relationship of Ethereum against other cryptocurrencies, this study used wavelet coherence analysis developed by Hudgins, Friehe, and Mayer (1993) and Torrence and Compo (1998). This method was very useful for analyzing the effects between the time and frequency of two data series, where the wavelet coherence determined the correlation coefficient in time and frequency domain. The analysis was carried out using R software. In addition, the level of comovement was categorized based on time and period so that it could be analyzed better.

### Cone of Influence

Cone of influence effect is a spectrum area of the wavelet where the edge effect becomes essential and is defined as the e-folding time for wavelet autocorrelation of each scale. This cone of influence is a black line forming a hollow on the wavelet contour (Torrence & Compo, 1998).

## RESEARCH METHOD

This research applied the empirical research method. The samples used in this research were ten types of cryptocurrencies, namely Bitcoin, Ethereum, XRP, Litecoin, Cardano, Bitcoin Cash, Dogecoin, TRON, Monero, and IOTA (Table 1). The cryptocurrency data were obtained from [www.investing.com](http://www.investing.com), whereas the attention factor was obtained from [www.bitinfocharts.com](http://www.bitinfocharts.com) for Twitter data and [trends.google.com](http://trends.google.com). The data collection period was from January 1, 2019, to January 31, 2021 in the form of weekly data.

**Table 1**  
**List of Cryptocurrencies (January 31, 2021)**

Rank	Name	Market Cap (\$)	Price (\$)	Circulating Supply	Volume (\$)
1	Bitcoin	616,452,744,533	33,114.36	18,615,875	52,754,542,671
2	Ethereum	150,543,956,657	1,314.99	114,483,295	25,198,853,581
4	XRP	22,353,042,408	0.49	45,404,028,640	24,394,851,756
6	Cardano	10,730,622,858	0.34	31,112,484,646	2,455,679,992
8	Litecoin	8,602,571,147	129.57	66,392,815	4,539,387,378
9	Bitcoin Cash	7,452,675,944	399.77	18,642,413	3,699,019,612
14	Dogecoin	4,767,745,805	0.04	128,178,256,703	8,548,997,882
19	Monero	2,461,328,839	138.06	17,827,874	975,323,838
20	TRON	2,264,672,300	0.03	71,659,657,369	1,825,939,148
37	IOTA	1,131,528,331	0.41	2,779,530,283	43,518,572

Source: [www.coinmarketcap.com](http://www.coinmarketcap.com), 2021

### Phase Difference Analysis

The phase difference was indicated by arrows pointing to significant areas in the wavelet coherence plot. The arrow to the right in the time series showed a positive correlation where both time series moved with the same phase, while the arrow to the left showed the time series moving in the opposite phase. The vertical direction referred to the preceding movement in the time series. An up arrow meant that the first series led the second time series in positive correlation and a down arrow meant that the second series led in negative correlation (Torrence & Compo, 1998).

### Software Analysis Using R

Analysis using R software determined the level of comovement, which was categorized based on time and period. The sequence of coding in the R application was conducted according to the steps in Table 2.

**Table 2**  
**R Application Coding**

R Application Coding		
Step	Description	Coding
1	Installing program package	<code>install.packages("zoo")</code>
2	Installing program package	<code>install.packages ("biwavelet")</code>
3	Program Calling	<code>library(zoo)</code>
4	Program Calling	<code>library(biwavelet)</code>
5	Data Directory	<code>setwd("D:/Fras/Kuliah/Thesis/Data R")</code>
6	Data Files	<code>data&lt;-read.csv(file="Crypto Weekly.csv")</code>
7	Variable 1	<code>t1&lt;-cbind (1:109,data\$Ethereum_Return)</code>
8	Variable 2	<code>t2&lt;-cbind (1:109,data\$Bitcoin_Return)</code>
9	Dataset Randomization	<code>wtc.t1t2&lt;-wtc(t1,t2,nrands = 1000)</code>
10	Formatting	<code>jpeg(paste("Wavelet Coherence Ethereum dan Bitcoin", ".jpeg", sep=""), width = 600, height = 500)</code>
11	Formatting	<code>par(oma=c(0, 0, 0, 1), mar=c(4, 4, 6, 8) + 0.1)</code>
12	Wavelet Plotting	<code>plot(wtc.t1t2,plot.cb=TRUE)</code>
13	Wavelet Plotting	<code>plot(main='Wavelet Coherence : Ethereum dan Bitcoin',wtc.t1t2, plot.cb=TRUE,plot.phase = TRUE,lty.coi = 1,lwd.coi = 2, col.coi="grey",lwd.sig = 2, arrow.lwd = 0.07, arrow.len = 0.1)</code>
14	Formatting	<code>axis(side = 3, labels = monthly.labels, at = c(seq(0,108,1)))</code>
15	Formatting	<code>monthly.ticks &lt;- seq(as.POSIXct("2019-01-06 00:00:00", format = "%F %T"), as.POSIXct("2021-01-31 00:00:00", format = "%F %T"), by = "weeks")</code>
16	Formatting	<code>monthly.labels &lt;- strftime(monthly.ticks, format = "%d %b %Y")</code> <code>dev.off()</code>

After making the heatmap using the R application, the next step was to analyze the results. The analysis was based on the color description and scale of the heatmap. For example, the closer to 1 or the red color, the stronger the comovement of the first variable to the second variable. On the contrary, the closer to the blue color, the lower the comovement of the first variable to the second variable. The *x*-axis describes the time interval in the monthly scale (January–December), while the *y*-axis describes the period on the weekly scale (4, 8, 16, 32). Thus, if there was a heatmap with red color only for a period of <4 weeks, the second variable had a very low period of comovement. However, if there was a heatmap with red color for a period of >32 weeks, the second variable had a very high comovement. Moreover, if there was a read heatmap in only a <1-month timeframe, the second variable had a very low comovement, but if there was a red heatmap in a >10-month timeframe, both variables had a very high comovement (Table 3).

**Table 3**  
**Comovement Category**

Comovement Category			
Period (weekly)	Category of Period	Time (monthly)	Category Time
<4	Very Low	<1	Very Low
4–8	Low	1–3	Low
8–16	Moderate	4–6	Moderate
16–32	High	7–10	High
>32	Very High	>10	Very High

**FINDINGS****Descriptive Statistics**

This research used thirty variables with weekly data from January 1, 2019–January 31, 2021 (109 observations). There are three clusters of data: cryptocurrency return (Table 4), Twitter (Table 5), and Google Trends (Table 6).

**Table 4**  
**Descriptive Statistics of Return**

Sample	Mean	Median	Std.	Skewness	Kurtosis	JB Statistics
Ethereum	0.03	0.02	0.12	0.06	2.15	3.36
Bitcoin	0.02	0.02	0.09	-0.25	1.90	6.61
XRP	0.01	0.00	0.15	1.92	1.92	71.99
Litecoin	0.02	0.01	0.13	0.55	0.55	32.75
Cardano	0.03	0.01	0.14	0.53	0.53	32.82
Bitcoin Cash	0.02	0.01	0.15	1.77	1.77	63.97
Dogecoin	0.05	-0.01	0.35	7.47	7.47	1,105.35
TRON	0.01	0.01	0.12	-0.09	-0.09	43.53
Monero	0.02	0.01	0.11	-0.31	-0.31	51.35
IOTA	0.01	0.01	0.12	0.35	0.35	34.11

**Table 5**  
**Descriptive Statistics of Twitter**

Sample	Mean	Median	Std.	Skewness	Kurtosis	JB Statistics
Ethereum Twitter	0.05	-0.01	0.31	1.85	6.82	128.81
Bitcoin Twitter	0.04	-0.02	0.24	1.50	4.16	46.98
XRP Twitter	0.17	-0.03	1.08	6.37	46.43	9,303.70
Litecoin Twitter	0.15	-0.02	0.77	3.84	21.82	1,877.09
Cardano Twitter	0.07	0.03	0.34	1.22	2.83	27.28
Bitcoin Cash Twitter	0.17	0.00	0.87	4.52	25.56	2,682.55
Dogecoin Twitter	1.22	-0.04	6.95	7.37	60.82	16,167.97
TRON Twitter	0.14	-0.01	0.61	1.63	3.97	52.77
Monero Twitter	0.13	-0.02	0.75	4.56	27.32	3,063.52
IOTA Twitter	0.50	0.10	3.80	9.80	101.73	46,018.95

**Table 6**  
**Descriptive Statistics of Google Trends**

Sample	Mean	Median	Std.	Skewness	Kurtosis	JB Statistics
Ethereum Google Trends	-0.02	0.00	0.35	-4.49	35.77	5,243.36
Bitcoin Google Trends	-0.01	-0.05	0.18	0.19	0.66	25.45
XRP Google Trends	-0.01	0.00	0.25	-0.07	1.32	12.98
Litecoin Google Trends	-0.01	0.00	0.22	0.19	-0.18	46.56
Cardano Google Trends	-0.02	0.00	0.28	-0.37	0.15	39.46
Bitcoin Cash Google Trends	-0.01	0.00	0.19	-0.76	2.81	10.78
Dogecoin Google Trends	0.00	0.00	0.18	-0.17	19.22	1,195.47
TRON Google Trends	-0.04	0.00	0.30	-0.89	1.90	19.97
Monero Google Trends	-0.01	0.00	0.17	-0.33	0.39	32.78
IOTA Google Trends	-0.45	0.00	1.33	-1.74	3.33	55.75

The tabulated analysis of the return value and volatility (standard deviation) from January 6, 2019–January 31, 2021 showed that all cryptocurrencies had positive mean return value, indicating that

cryptocurrency prices tended to rise (Table 4). The cryptocurrency with the largest mean return value was Dogecoin (0.05), whereas the one with the smallest was TRON (0.1). Furthermore, the volatility of each cryptocurrency, which shows the level of price volatility from time to time, overall was quite volatile because it was higher than the mean value. The highest volatility was Dogecoin (0.35) due to a significant increase in a short period at the end of the observation period. The results for Twitter showed that the mean return of each cryptocurrency was positive, meaning that conversations on Twitter about this cryptocurrency continued to rise during the observation period. In terms of volatility, which describes the instability of the number of tweets, it was found that each cryptocurrency was very volatile every week, but several cryptocurrencies tended to be significant for their volatility values, namely XRP, Dogecoin, and IOTA. This was due to the increase in tweets at the end of the observation period, for example, during December 2020–January 2021. The results for Google Trends showed that during the observation period from January 2019–January 2020, almost all cryptocurrencies had negative mean return value except for Dogecoin. This shows that the number of searches on Google on average tended to decrease. In terms of volatility, cryptocurrency with the highest volatility was IOTA because it had a value of more than 1.

### Comovement Analysis

#### *Ethereum and Nine Cryptocurrencies*

The results of the analysis (Figure 1) showed that overall, Ethereum had a strong correlation by period and time (Table 7) except for Dogecoin, all of which were in the same phase and positively correlated. Ethereum took the lead when compared to XRP and TRON. This high turnover occurred in the period of 0–>32 weeks. However, Dogecoin, TRON, and Monero only had strong comovements from 0–16 weeks (Table 8). In terms of time, all of them had high comovement with an interval of 1–25 months or throughout the research period, which was considered in the long period.

**Table 7**  
**Comovement Stages of Cryptocurrency Returns**

Object	Comovement Stage (Period)	Comovement Stage (Time)
Ethereum vs Bitcoin	High	Very High
Ethereum vs XRP	Very High	Very High
Ethereum vs Litecoin	Very High	Very High
Ethereum vs Cardano	High	Very High
Ethereum vs Bitcoin Cash	Very High	Very High
Ethereum vs Dogecoin	Moderate	Moderate
Ethereum vs TRON	High	Very High
Ethereum vs Monero	High	Very High
Ethereum vs IOTA	Very High	Very High

**Table 8**  
**Analysis of Cryptocurrencies Based on Preceding Series and Correlation**

Object	Leading	Correlation
Ethereum vs Bitcoin	Bitcoin	Positive
Ethereum vs XRP	Ethereum	Positive
Ethereum vs Litecoin	Litecoin	Positive
Ethereum vs Cardano	Cardano	Positive
Ethereum vs Bitcoin Cash	Bitcoin Cash	Positive
Ethereum vs Dogecoin	-	Positive
Ethereum vs TRON	Ethereum	Positive
Ethereum vs Monero	Monero	Positive
Ethereum vs IOTA	IOTA	Positive

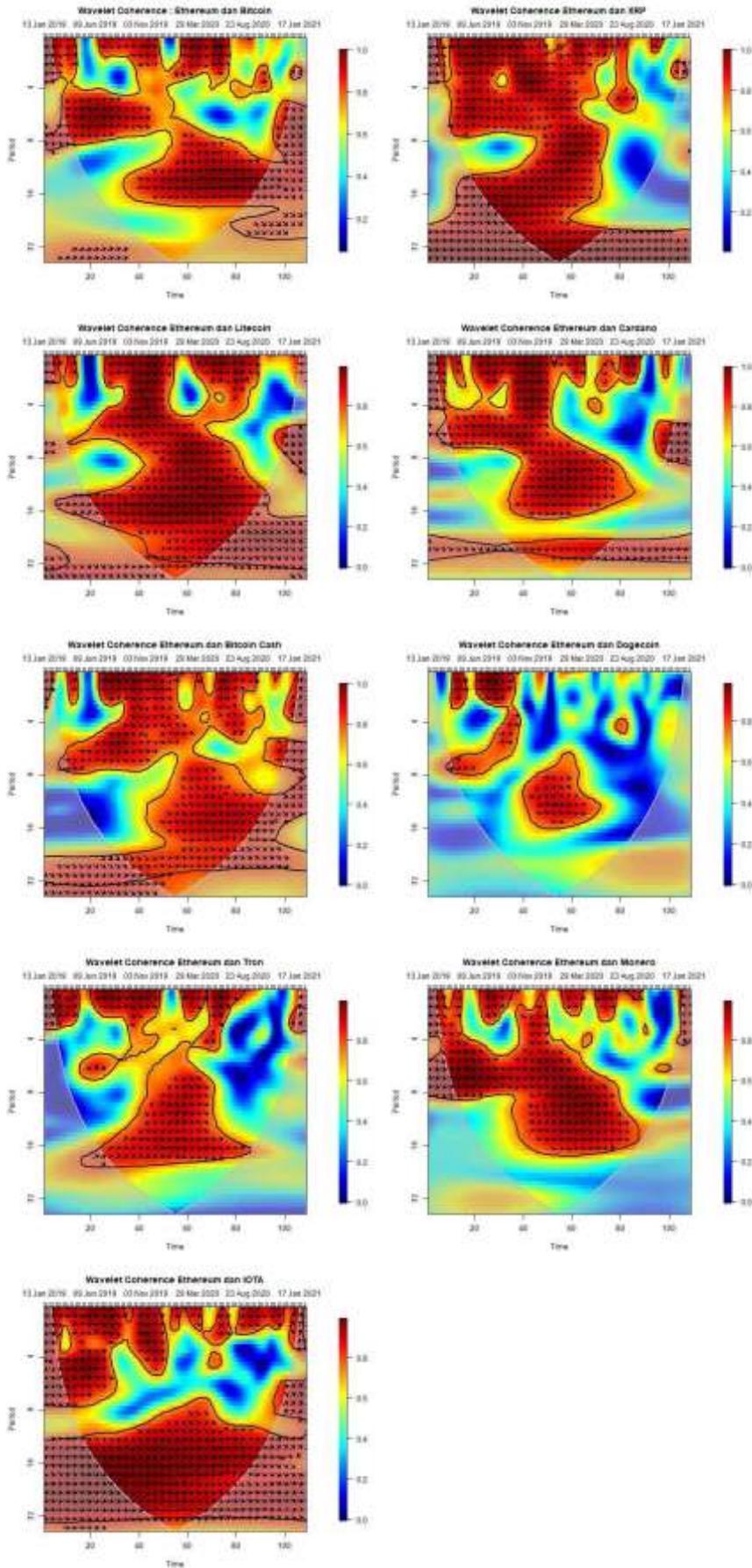


Figure 1. Comovements between Ethereum and other cryptocurrencies.

### ***Comovement with Twitter***

Analysis of Twitter's comovement attention was carried out on ten types of cryptocurrencies (Figure 2). The result was that for Bitcoin, Cardano, and Dogecoin, the equation with a very high comovement on a scale of >32 weeks and intervals of >10 months was in the same phase and positively correlated (Table 9). Based on the direction of the arrow (Table 10), Bitcoin return led Bitcoin tweets, Cardano Twitter led Cardano return, and Dogecoin return led Dogecoin Twitter. Tron, which had a very high comovement on a scale of >32 weeks after 7–10-month intervals, was in a different phase and negatively correlated. TRON return led TRON Twitter. Meanwhile, Ethereum and XRP had high comovements on a scale of 16–32 weeks with intervals of 4–6 months for XRP and 7–10 months for Ethereum. Both Ethereum and XRP were in the same phase and positively correlated. Based on the direction of the arrow, XRP Twitter was leading XRP return. IOTA had moderate comovement on a scale of 8–16 weeks with intervals of 7–10 months, was in the same phase, and was positively correlated. Based on the direction of the arrow, IOTA returns led IOTA Twitter. Moreover, Litecoin and Monero had low comovement on a scale of 4–8 weeks with intervals of 1–3 months. Both Litecoin and Monero were in the same phase and positively correlated. Based on the direction of the arrow, Litecoin Twitter direction, Litecoin return, and Monero Twitter were leading Monero return. Bitcoin Cash had very low comovement on a scale of 0–4 weeks with intervals of 1–3 months, was in a different phase, and was negatively correlated. Based on the direction of the arrow, Bitcoin Cash return led Bitcoin Cash Twitter. Overall, the Twitter factor had a positive correlation with cryptocurrency returns. The number of tweets per week factor tended to precede the return movement for some cryptocurrencies, so the Twitter factor tended to take the lead.

**Table 9**  
**Comovement Stages of Cryptocurrency Twitter**

<b>Object</b>	<b>Comovement Stage (Period)</b>	<b>Comovement Stage (Time)</b>
Ethereum vs Ethereum Twitter	High	High
Bitcoin vs Bitcoin Twitter	Very High	Very High
XRP vs XRP Twitter	High	Moderate
Litecoin vs Litecoin Twitter	Low	Low
Cardano vs Cardano Twitter	Very High	Very High
Bitcoin Cash vs Bitcoin Cash Twitter	Very Low	Low
Dogecoin vs Dogecoin Twitter	Very High	Very High
TRON vs TRON Twitter	Very High	High
Monero vs Monero Twitter	Low	Low
IOTA vs IOTA Twitter	Moderate	High

**Table 10**  
**Analysis of Cryptocurrency Twitter Based on Preceding Series and Correlation**

<b>Object</b>	<b>Leading</b>	<b>Correlation</b>
Ethereum vs Ethereum Twitter	-	Positive
Bitcoin vs Bitcoin Twitter	Bitcoin Return	Positive
XRP vs XRP Twitter	XRP Twitter	Positive
Litecoin vs Litecoin Twitter	Litecoin Twitter	Positive
Cardano vs Cardano Twitter	Cardano Twitter	Positive
Bitcoin Cash vs Bitcoin Cash Twitter	Bitcoin Cash Twitter	Negative
Dogecoin vs Dogecoin Twitter	Dogecoin Return	Positive
TRON vs TRON Twitter	Tron Return	Negative
Monero vs Monero Twitter	Monero Twitter	Positive
IOTA vs IOTA Twitter	IOTA Return	Positive

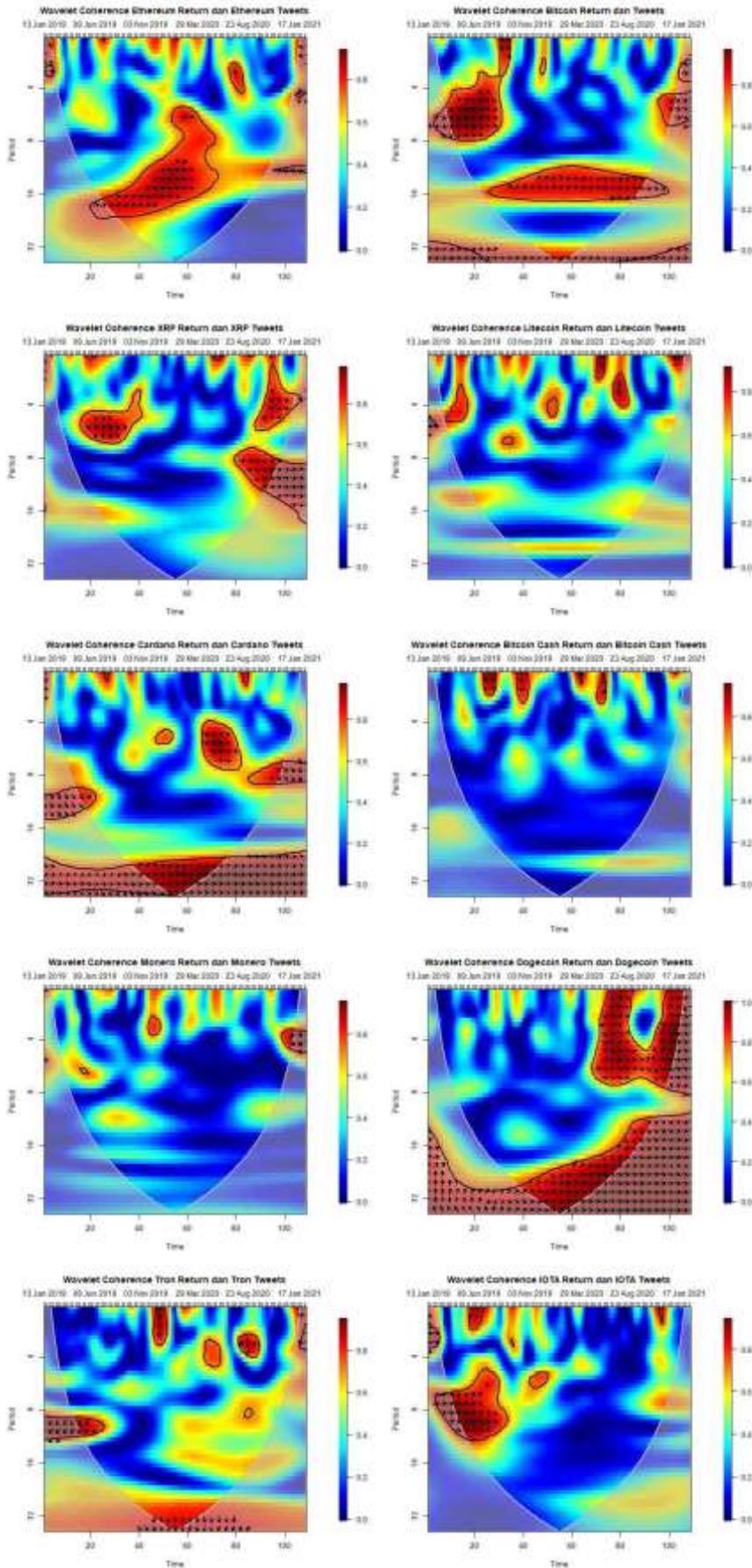


Figure 2. Comovements between cryptocurrencies and Twitter.

### ***Comovement with Google Trends***

Below is the analysis of comovement between ten types of cryptocurrencies and the attention from Google Trends (Figure 3). Based on the analysis, Ethereum, Litecoin, Cardano, Dogecoin, and TRON had very high levels of comovement based on both time and period (Table 11), were in the same phase, and were positively correlated (Table 12). Based on the direction of the arrow, Ethereum Google Trends led Ethereum return, Litecoin Google Trends led Litecoin return, Cardano Google Trends led Cardano return, Dogecoin Google Trends led Dogecoin return, and TRON Google Trends led TRON return. XRP based on contour plots had a high comovement rate on a scale of 16–32 weeks for a period and a very high comovement rate for time with intervals of >10 months. Being in the same phase and positively correlated, Google Trends XRP led XRP return. Bitcoin and Bitcoin Cash had sufficient comovement rates for periods on a scale of 8–16 weeks and sufficient comovement rates for intervals of 4–6 months. Being in the same phase and positively correlated, Bitcoin Google Trends led Bitcoin return and Bitcoin Cash Google Trends led Bitcoin Cash return. Meanwhile, IOTA had a sufficient comovement rate for periods on a scale of 8–16 weeks and a sufficient comovement rate for intervals of 4–6 months. Being in a different phase and negatively correlated, IOTA returns led the IOTA Google Trends. Monero had a low comovement rate for periods on a scale of 4–8 weeks and a low comovement rate for time intervals of 1–3 months. Being in the same phase and positively correlated, Monero return led Monero Google Trends. Overall, the Google Trends factor had a positive correlation with cryptocurrency returns. Furthermore, in some cryptocurrency factors, Google Trends was leading compared to cryptocurrency returns.

**Table 11**  
**Comovement Stages of Cryptocurrency Google Trends**

<b>Object</b>	<b>Comovement Stage (Period)</b>	<b>Comovement Stage (Time)</b>
Ethereum vs Ethereum Google Trends	Very High	Very High
Bitcoin vs Bitcoin Google Trends	Moderate	Moderate
XRP vs XRP Google Trends	High	Very High
Litecoin vs Litecoin Google Trends	Very High	Very High
Cardano vs Cardano Google Trends	Very High	Very High
Bitcoin Cash vs Bitcoin Cash Google Trends	Moderate	Moderate
Dogecoin vs Dogecoin Google Trends	Very High	Very High
TRON vs TRON Google Trends	Very High	Very High
Monero vs Monero Google Trends	Low	Low
IOTA vs IOTA Google Trends	Moderate	Moderate

**Table 12**  
**Analysis of Cryptocurrency Google Trends Based on Preceding Series and Correlation**

<b>Object</b>	<b>Leading</b>	<b>Correlation</b>
Ethereum vs Ethereum Google Trends	Ethereum Google Trends	Positive
Bitcoin vs Bitcoin Google Trends	Bitcoin Google Trends	Positive
XRP vs XRP Google Trends	XRP Google Trends	Positive
Litecoin vs Litecoin Google Trends	Litecoin Google Trends	Positive
Cardano vs Cardano Google Trends	Cardano Google Trends	Positive
Bitcoin Cash vs Bitcoin Cash Google Trends	Bitcoin Cash Google Trends	Positive
Dogecoin vs Dogecoin Google Trends	Dogecoin Google Trends	Positive
TRON vs TRON Google Trends	Tron Google Trends	Positive
Monero vs Monero Google Trends	Monero Return	Positive
IOTA vs IOTA Google Trends	IOTA Return	Negative

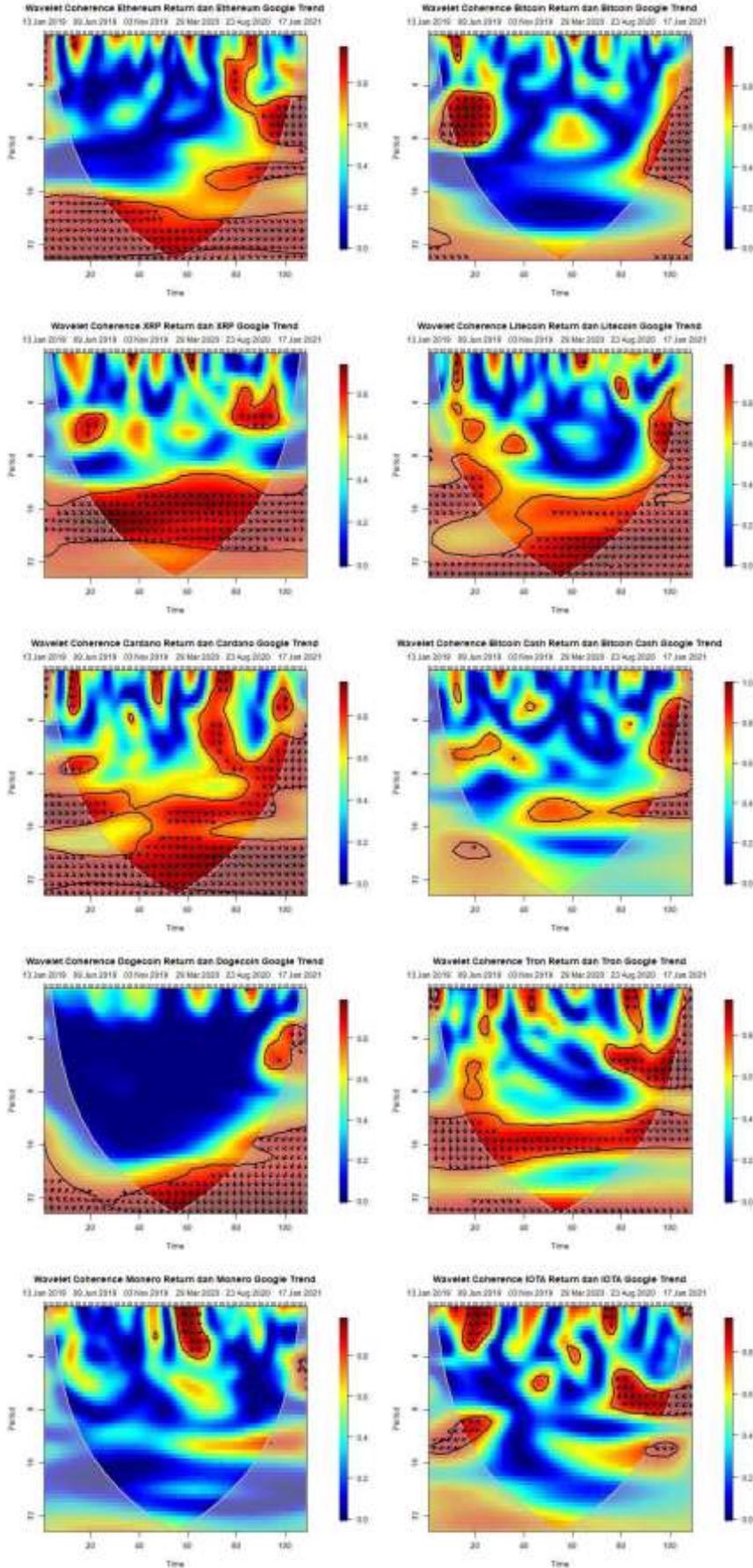


Figure 3. Comovements between cryptocurrencies and Google Trends.

## **DISCUSSION**

Fluctuations in cryptocurrency prices are closely related to sentiment as well as global conditions. For example, in several periods, such as March 2020, the cryptocurrency market had a flash crash due to the Covid-19 outbreak (Mariana *et al.*, 2021; James, 2021). However, cryptocurrencies tend to experience faster recovery (Caferra & Vidal-Tomás, 2021).

Based on the results, an analysis of the mean return and standard deviation described the average growth return of each cryptocurrency and volatility. Investors can consider those parameters in determining the type of cryptocurrency as a speculative asset certainly by adjusting to the investor risk profile, whether they tend to be risk-takers or risk-averse. However, overall, the cryptocurrencies that were chosen as research variables in this study tended to be volatile. There were several limitations related to cryptocurrency diversification. The authors could not find evidence of portfolios for institutional investors related to ownership of the entire cryptocurrency sample. Therefore, the analysis was assumed to only apply to investors that only had one cryptocurrency asset. For example, between investors who owned Ethereum and Bitcoin, it was assumed that they were not the same investor.

Based on the results of the comovement analysis between Ethereum and other cryptocurrencies, it could be concluded that Ethereum, as an alternative coin with the largest market capitalization, had a very high interdependence with other cryptocurrencies. Especially for XRP, Litecoin, Bitcoin Cash, and IOTA, they had very high levels of comovement both in terms of period and time. In addition, for investors who bought cryptocurrencies that had positive correlations, when there was an increase or decrease in the price of Ethereum, it had a direct impact on other cryptocurrencies. Therefore, the strategy that can be applied is that investors see the heatmap of comovement between Ethereum and other cryptocurrencies, which tend to be lagging compared to Ethereum, so the determination of buying or selling cryptocurrencies that tend to be lagging can be adjusted to price movements from Ethereum, for example, XRP and TRON, as well as being adjusted to the comovement period.

Furthermore, based on the analysis, the relationship between the comovement of cryptocurrency and the percentage changed according to the number of tweets. For example, Bitcoin, Cardano, Dogecoin, and TRON had very high levels of comovement of tweets and were positively correlated. On the other hand, Cardano tended to be lagging compared to an increase in the percentage change in tweets. Therefore, investors can monitor the movement of the number of tweets from Cardano as a consideration for buying or selling.

In addition, based on the analysis, the relationship between the comovement of cryptocurrency and Google Trends, namely Ethereum, Litecoin, Cardano, Dogecoin, and TRON, had very high levels of comovement and were positively correlated. Therefore, investors can consider Google SVI to make a purchase or sale by choosing which returns tend to be lagging, for example, Ethereum, Litecoin, Cardano, to increase their returns compared to the increase in Google SVI.

## **CONCLUSION**

### **Conclusion**

The mean return for each cryptocurrency was positive, which indicates that the price of cryptocurrency tended to rise, including the mean return of the number of tweets from Twitter which was also positive. At the same time, the overall Google Trends showed a negative mean return except for Dogecoin, which indicates that cryptocurrency prices tended to fall. For cryptocurrency, all variables tended to be volatile because the value deviated from the mean, especially Dogecoin. Furthermore, comovement between Ethereum and other cryptocurrencies had high to very high levels in terms of period and time, except for Dogecoin, which was moderate. It shows that the entire samples had the same movement as Ethereum. This is evidence that there was a contagion effect on cryptocurrency returns. Overall, Ethereum had a positive correlation with other cryptocurrencies, but Ethereum only led XRP and TRON.

In addition, the results of comovement between the cryptocurrency samples and Twitter was quite varied. Cardano, Dogecoin, Ethereum, and TRON had high to very high levels based on time and

period. On the other hand, XRP and IOTA had moderately high level based on time and period, whereas Litecoin, Bitcoin Cash, and Monero had very low to low levels. Overall, Twitter positively correlated with cryptocurrency returns, factoring in the number of tweets per week, and returns tended to be the same to more advanced moves. The results of comovement between the cryptocurrency samples and Google Trends was also quite varied. Ethereum, XRP, Litecoin, Cardano, Dogecoin, and TRON had high to very high levels in terms of period and time, while Bitcoin, Bitcoin Cash, Monero, and IOTA had low to moderate in terms of period and time. Overall, Google Trends had a positive correlation with cryptocurrency returns. Google Trends cryptocurrencies tended to lead compared to cryptocurrency returns except for Monero and IOTA.

There is a contagion effect in cryptocurrency. Therefore, the strategy that can be done is to look for cryptocurrencies that positively correlate with Ethereum and tend to be lagging, such as XRP and TRON, when the price of Ethereum rises. However, when a cryptocurrency experiences a bearish period, it will impact the entire cryptocurrency samples.

### Limitation

This research only used weekly data due to the limitation of historical data from the Google Search Volatility Index, thus could only issue weekly data for an extended period. Second, there was no data related to the portfolio composition of large institutional investors, so the authors could not provide recommendations regarding diversification. Last but not least, this research is only a model or market simulation, so it will be challenging to adopt the results to actual conditions because of the pattern changes from time to time.

### Further Research

This study focuses more on social media attention, so it is better to categorize positive and negative sentiments to determine the most significant effect. In addition, investor trading patterns can also be added to sharpen the analysis. Finally, for further research, it is suggested to increase the number of samples to determine whether cryptocurrencies have negative correlations for the entire periods so that there will be an alternative topic related to hedging between cryptocurrencies.

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