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Predicting the Behavioral Intention to Use Mobile Payment in an Emerging Country: The Role of Trust as a Mediating Variable

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ABSTRACT

The objective of this research was to analyze the predicting factors of Behavioral Intention to use a mobile payment service in an emerging country, namely Performance Expectancy, Effort Expectancy, Social Influence, Trust, and Perceived Security. The respondents in this study were limited to the users of LinkAja, one of the largest Indonesian mobile payment services, who lived in the Greater Jakarta (Jabodetabek) area. The data collected in this research (n=144) were examined using a quantitative method with structural equation modeling analysis using partial least squares (PLS-SEM) technique. In the end, there were seven out of ten hypotheses in the present study which was supported by the data. The results of this study also exhibited the strategic importance of trust as a mediating construct in this study. The adjusted coefficient of determination for Behavioral Intention was 67.7%, suggesting a moderate-to-substantial in-sample predictive power. This research also offered a few managerial implications for LinkAja and the mobile payment industry in Indonesia.

Keyword: Mobile Payment, Behavioral Intention, Performance Expectancy, Effort Expectancy, Social Influence

Introduction

Lately, smartphones have become one of the essential consumer goods ever introduced in this new digital age (Aydin & Burnaz, 2016). The world's mobile internet has also been developing rapidly. In this regard, mobile payment has expanded as a new tool in the payment ecosystem, whereby money can be transferred electronically with ease (Popovska-Kamnar, 2014). The proliferationof mobile phones has also grown dramatically in recent years, propped up by the increasing mobility of modern society, resulting in the growing market for smartphones (Schierz et al., 2010). In line with these developments, Mobile services have increasingly become part of everyday life (Hwang et al., 2007). In particular, mobile payment services attract consumers with their mobile devices to pay for products. Above all, electronic transactions via handheld devices offer consumers the ability to make payments efficient, comfortable, and useful (Phonthanukitithaworn et al., 2016).

In Indonesia, there were already around 150 million people connected to the internet in the first quarter of 2019, which had surpassed half of the country's population at nearly 270

million people (Basari, 2019). By 2017, it was found that the number of sales made with digital wallet had reached IDR 12.37 trillion, and the number skyrocketed in just a year to around IDR 47.19 trillion (Multazam, 2019). This trend showed that Indonesians had begun their shift into a cashless society (Widyanto et al., 2020). Some of the largest players in the industry included Go-Pay, Ovo, Dana, ShopeePay, LinkAja, among others. However, according to the report by KPMG Siddharta Advisory (2017), traditional forms of the transaction still dominated the market, which is still heavily reliant on cash and conventional bank transfer.

On top of that, the payment infrastructure in the country is all over the place, resulting in a relatively low trust among the people to adopt cashless payment services like mobile payment. With this backdrop, the researchers believe it is essential to understand the factors that could explain the behavioral intention to use mobile payment services in Indonesia. In this regard, LinkAja is chosen as a focus of the present study since it is one of the largest players in the industry, which is backed by some of the largest state-owned companies in the country. However, it is still struggling to make a dent in the ever-competitive market, placing fourth since its inception and fifth in growth during the second quarter (Q2) of 2020 (Syarizka, 2020). For the predicting factors of the behavioral intention to use mobile payment, the researchers combined earlier studies by Alalwan et al. (2017) and Oliveira et al. (2016) by examining the UTAUT 2 model combined with the variables of Trust and Perceived Security, which are particularly relevant for mobile payment but still rarely examined, if any. This approach is essential to explore especially in Indonesia, as an emerging country with a relatively low cashlessadoption rate (KPMG Siddharta Advisory, 2017). Additionally, Trust should be considered as one of the most critical factors affecting intention to conduct online transactions as there is no direct control of the customers in their interaction with the merchants (Roca et al., 2009). Perceived Security is adopted from the UTAUT model, which is a framework proposed by Venkatesh et al. (2012) to provide a more specific model of mechanism to explain the acceptance and use of technology.

Therefore, the current study will investigate the predicting factors that could help explain the customer's behavioral intention to use mobile payment by using LinkAja as a case in point. The following sections will elaborate on the literature review, the research methods, followed by the results and analysis. Finally, the paper will conclude the results and provide some managerial implications for relevant stakeholders.

Literature Review

Effort Expectancy

Effort Expectancy is defined as the degree of ease associated with using a system (Venkatesh et al., 2003). In line with Davis (1989), consequently, owing to the specific nature of mobile payment, which requires a certain level of knowledge and skill, the Effort Expectancy could play a crucial role in determining the intention of customers to use this technology (Alalwan et al., 2017). Effort Expectancy is the degree of minimal effort by customers in using technology (Venkatesh et al., 2012). According to Miltgen et al. (2013), it contributes to the correct prediction of a new technology being adopted. When users feel that mobile payment is simple to use and needs little effort, they expect higher performance (Venkatesh et al., 2003). Lastly, Effort Expectancy has been used in earlier study to predict the adoption of new technology (Alalwan et al., 2017; Miltgen et al., 2013).

H1: Effort Expectancy has a significant influence on the Performance Expectancy of mobile payment
H2: Effort Expectancy has a significant influence on the Behavioral Intention to Use mobile

payment

Social Influence

According to the UTAUT model, Social Influence is depicted as the degree to which a person considers the importance of others in shaping their belief regarding the adoption of a new system (Venkatesh et al., 2003). Social influence may also be defined as the effect of the social makeup on the intent of the consumers to take on a new technology. This could include reference groups, relatives, colleagues, and influencers (Zhou et al., 2010). In the theory of perceived behavior (TPB) model, Social Influence is similar conceptually to Subjective Norm (E. Slade et al., 2013), which has been associated in earlier studies with Performance Expectancy (Teo & Milutinovic, 2015; Venkatesh & Davis, 2000). Social Influence also has a significant impact on Trust, as suggested by Chin et al. (2009) as well as Chaouali et al. (2016). Finally, Social Influence is also found in several past studies to be significantly affecting Behavioral Intention to Use (Martins et al., 2014; Venkatesh & Davis, 2000)

H3: Social Influence has a significant influence on the Performance Expectancy of mobile payment
H4: Social Influence has a significant influence on the Trust of mobile payment
H5: Social Influence has a significant influence on the Behavioral Intention to Use mobile payment

Perceived Security

Perceived Security is defined as the degree to which people believe a technology or service is secured (Kim et al., 2010). The perception of security is an individual's expectancy concerning their subjective beliefs vis-à-vis data authenticity and authorization, as well as the absence of rejection (Pavlou, 2001). Surveys that shed some light on the relationship between perceived security and users' mindset towards mobile payment use maintain a consistent view that perceived mobile payment security has a positive impact on users' attitude toward mobile payment (Shah et al., 2014). According to earlier study by Gupta and Dhami (2015) as well as Kim et al. (2010), Perceived Security has a significant and linear relationship with Trust. Chellappa and Pavlou (2002) also stressed the importance of Perceived Security in developing Trust on the internet. Finally, Security is also considered as one of the challenges in building an e-payment system which could make or break consumers' intention to use the system (Widyastuti et al., 2017). Several other studies in the past also confirmed the significant relationship between Perceived Security and Behavioral Intention (e.g. Moraes & Meirelles, 2017; Ramos et al., 2018).

H6: Perceived Security has a significant impact on the Trust of mobile payment
H7: Perceived Security has a significant impact on the Behavioral Intention to Use mobile payment

Performance Expectancy

Performance Expectancy is the degree to which using technology in certain activities will benefit consumers (Venkatesh et al., 2012). Alalwan et al. (2017) showed that individuals would be encouraged to use new technology to implement in daily activities. The perception that using mobile payment will be valuable in transaction settlement can affect the behavioral intention of mobile payment adoption (Oliveira et al., 2016). Performance Expectancy has been associated with the development of Trust (Gadabu et al., 2019; Singh et al., 2017). The relationship of the construct with intention to use was widely introduced by Venkatesh et al. (2012). Chaouali et al. (2016) and Sheikh et al. (2017) also argued that Performance

Expectancy is considered as a latent variable that can provide robust predictions for technology use interest.

H8: Performance Expectancy has a significant influence on the Trust of mobile payment
H9: Performance Expectancy has a significant influence on the Behavioral Intention to Use mobile payment

Trust

Trust is viewed as the perceptual prospect that customers assume a financial action will transpire in a manner consistent with their confident aspirations. In the context of digital commerce, Trust has received considerable attention due to the great uncertainties and risks typically associated with online transactions (Chellappa & Pavlou, 2002). Trust has been found to impact the adoption of different services by users, such as Internet banking (Lu & Su, 2009). Trust already should be one of the factors that affect online transactions because individuals do not have direct control with merchants (Roca et al., 2009). Trust has been regarded as one of the crucial predictors of technological adoption (Aboobucker & Bao, 2018; Zhou, 2013).

H10: Trust has a significant impact on the Behavioral Intention to Use mobile payment

Behavioral Intention

According to Namkung and Jang (2007), Behavioral Intention is the behavior of consumers who are loyal to the company and would be willing to recommend it to others because they have received good service from the company. Shiau (2014) explained that Behavioral Intention is defined by the subjective possibility of the particular behavior of an individual which reflects their willingness to adopt a person's behavior. Saha and Theingi (2009) defined Behavioral Intention as the customer's ability to do something positive about a service provider to other people, such as using word-of-mouth, with the intention of buying back and becoming loyal to said service provider.
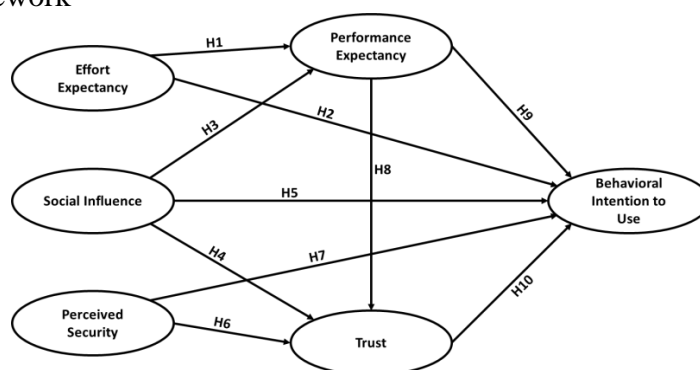
Theoretical Framework

Figure 1. Theoretical Framework

Research Method

In this study, the researchers use quantitative method by spreading questionnaires to gather data and analyze the relationships between the latent constructs. A likert scale between 1 (strongly disagree) and 5 (strongly agree) is used in this research to gauge the respondent's

responses. According to Sekaran and Bougie (2016), the likert scale is useful in measuring the attitude of respondents in a substantiated way. The collected data is analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The scope of this research is to understand the predicting factors of Behavioral Intention to Use mobile payment by using Trust as a mediatingvariable. The research is limited to LinkAja's customers who lived in the Greater Jakarta (Jabodetabek) area. According to Duong et al. (2013) sample represents a specific population number representing the entire population. Since the population characteristics in this research cannot be clearly computed, the researchers used the non-probability sampling technique which does not allow the entire population an equal chance to be selected to be a sample. The sample of this research is people who lived and had used LinkAja's mobile payment services in the Greater Jakarta (Jabodetabek) area.

Results and Discussion

Data Analysis
The present study employs the Partial Least Squares Structural Equation Modeling (PLS-SEM) using the SmartPLS 3 application (Ringle et al., 2015). Before analyzing the data using PLS-SEM, the researchers conducted a pre-test analysis in SPSS to ensure the validity and reliability of the questionnaire. There are two separate models that are analyzed in PLS-SEM, namely, the outer/measurement model as well as the inner/structural model (Garson, 2016).

Outer Model Analysis
Before conducting a structural model analysis to understand the relationships between the latent constructs, the researchers conducted an outer model analysis to determine the validity and reliability of the measurements. For the reliability test, as can be observed in Table 1, the researchers found that the values of both the Cronbach's Alpha and Composite Reliability for all constructs have exceeded 0.7, which the minimum threshold is recommended by Hair et al. (2019). Similarly, all the Average Variance Extracted (AVE) values in the present study are above 0.5 with relatively high factor loadings for all items (>0.7), which indicate convergent validity.

Table 1. Outer Model Measurements

	Cronbach's Alpha	Composite Reliability	AVE
Threshold	>0.7	>0.7	≥0.5
BIU	0.919	0.943	0.805
EE	0.846	0.896	0.684
PE	0.902	0.925	0.672
PS	0.887	0.930	0.816
SI	0.862	0.916	0.784
T	0.915	0.933	0.665

Source: Data processed in SmartPLS 3

For the discriminant validity, Hair et al. (2019) suggested the use of Heterotrait-Monotrait Raio (HTMT) as opposed to Fornell-Larcker Criterion since it is proven to be much more powerful in establishing convergent validity. On Table 2, all of the values for HTMT are below the 0.85 cutoff, which is considered to be the best appraisal of discriminant validity especially in marketing research (Voorhees et al., 2016).

Table 2. Heterotrait-Monotrait Ratio (HTMT)

	BIU	EE	PE	PS	SI	T
BIU						
EE	0.673					
PE	0.748	0.751				
PS	0.527	0.560	0.313			
SI	0.718	0.517	0.752	0.162		
T	0.824	0.620	0.684	0.736	0.585	

Source: Data processed in SmartPLS 3

Inner Model Analysis

To understand the relationships between the latent constructs and test the hypotheses in the present research, the data collected were bootstrapped using SmartPLS 3. The results of the structural model analysis are available on Table 3 and Figure 2.

Table 3. Structural Model Measurements

Path	Estimate	*t*-value	p-value	Decision
EE -> BIU	0.123	1.575	0.116	Not supported
EE -> PE	0.451	6.862	0.000	Supported
PE -> BIU	0.147	1.305	0.192	Not supported
PE -> T	0.315	4.297	0.000	Supported
PS -> BIU	0.053	0.586	0.558	Not supported
PS -> T	0.545	8.547	0.000	Supported
SI -> BIU	0.258	3.010	0.003	Supported
SI -> PE	0.465	7.220	0.000	Supported
SI -> T	0.232	3.491	0.001	Supported
T -> BIU	0.429	4.383	0.000	Supported

Source: Data processed in SmartPLS 3

The current study also revealed an adjusted R^2 value of 0.677 for the endogenous variable, which suggests that the exogenous constructs explain the variation in the Behavioral Intention to Use mobile payment by 67.7%; the rest of which are explained by other variables not investigated here
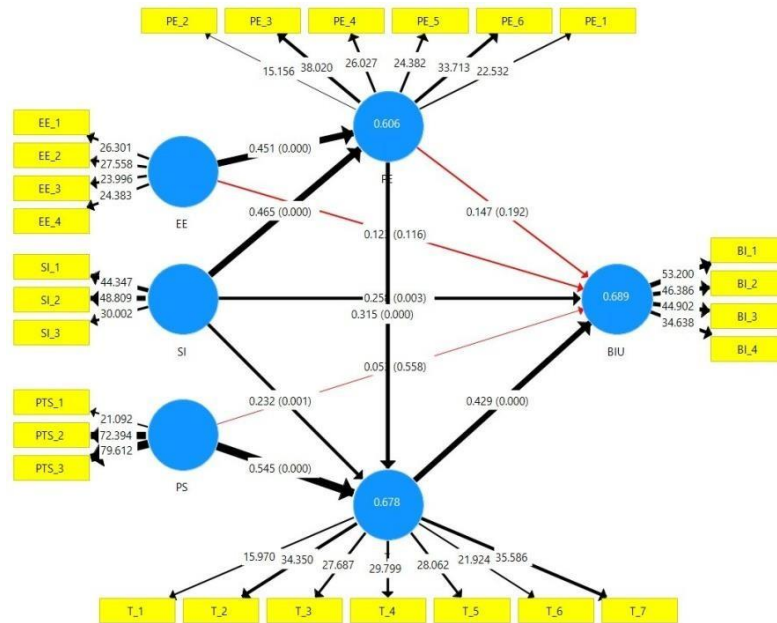
Figure 2. Structural Model Source: Data processed by SmartPLS 3

Discussion

Out of the ten hypotheses proposed in the current study, seven hypotheses are supported by the data, while the other three are not found to be significant. To begin with, Effort Expectancy is found to significantly affect Performance Expectancy, with a p-value of 0.000 and a path coefficient of 45.1%, which demonstrate a relatively strong effect between the constructs. However, Effort Expectancy does not have a significant impact on Behavioral Intention to Use mobile payment, as can be seen from the p-value of 0.116 (p>0.05) and t-value of 1.575 (t<1.96). This finding is in line with the findings by Slade et al. (2015) and Tarhini et al. (2016).

The present study also finds that Social Influence has a significant impact on Performance Expectancy, Trust, and Behavioral Intention to Use mobile payment with p-values of 0.000, 0.001, and 0.003, respectively. These findings show that Social Influence plays a huge role in shaping people's expectation of, level of trust in, and intention to use mobile payment services. In particular, Social Influence directly affect Performance Expectancy the most, with a regression weight of 46.5%. Additionally, in terms of total effect to Behavioral Intention to Use mobile payment, Social Influence scores the highest regression weight in the study at 48.9%, which further signifies the strategic role of social presences in shaping the respondents' intention to use mobile payment.

When it comes to Perceived Security, the present study does not find the exogenous construct to have a directly significant impact on Behavioral Intention to Use mobile payment, with a p-value of 0.558 (p>0.05) and a t-value of 0.586 (t<1.96). However, Perceived Security could still indirectly affect Behavioral Intention through Trust as a mediating variable with a total indirect effect of 23.4%. The researchers also found that Performance Expectancy does not have a directly significant relationship with Behavioral Intention to use mobile payment, with a p-value of 0.192 (p>0.05) and a t-value of 0.147 (t<1.96). This result is supported by earlier study by Sobti (2019). That said, similar to Perceived Security, Performance Expectancy is found to have an indirectly significant impact on Behavioral Intention through

Trust, with a total indirect effect of 13.5%. Performance Expectancy itself is found to be a significant predictor of Trust with a p-value of 0.000 ($p<0.05$) and a t-value of 4.297 ($t>1.96$), which is in line with the finding by Ramos et al. (2018). In other words, if people consider a mobile payment service to be valuable and worthwhile to them, the more likely they would trust the offering. Finally, Trust has a significant relationship with Behavioral Intention to Use mobile payment with a p-value of 0.000 ($p<0.05$) and a t-value of 4.383). Additionally, Trust is found to affect Behavioral Intention by 42.9%, which is the highest direct effect on the endogenous construct. This finding further solidies the strategic importance of Trust as a mediating variable in the present study.

Conclusion and Implications

Conclusion

In this study, the researchers discovered a few important insights that could contribute to the ongoing discussion on the adoption of mobile payment, especially in emerging market. First, this study revealed the strategic importance of Trust as a mediating variable. Without the mediating role of Trust, the latent variables of Effort Expectancy, Performance Expectancy, and Perceived Security could not affect Behavioral Intention to use mobile payment, since none of their direct paths toward the endogenous construct yield a significant result. To put it another way, Trust must be developed first in order to build people's intention to use mobile payment, especially due to the rather delicate nature of online transactions in emerging countries like Indonesia which is prone to scams and misconducts.

In particular, the path between Perceived Security and Trust has a coefficient of 54.5%, which is the highest direct effect among all the hypotheses. Since Trust has been established as an important mediating variable in this study, the relatively high predicting effect of Perceived Security demonstrates how highly people consider the issue of security in the context of mobile payment. That is to say, the more secure a mobile payment system, including transaction, is perceived by people, the more likely they will trust such system. Third, the researchers also uncovered the central role of Social Influence in shaping people's perception on Performance Expectancy, Trust, and Behavioral Intention, since the former has significant influences on all three latent variables.

Managerial Implications

There are a few managerial implications that could be taken away from the current study. First, mobile payment providers in Indonesia, especially LinkAja, should focus on developing their trustworthiness in the minds of their customers. By ensuring that the service is perceived as secure, reliable, and popular, mobile payment providers could increase the probability that people would be inclined to use the service. The higher people's trust toward the system, the higher their behavioral intention to use it. For instance, in the promotional materials, mobile payment providers could emphasize on the aspects of security, features, social engagement, and ease of use to entice people. Secondly, providers should realize the importance of social influence in shaping people's intention to use mobile payment. Since it acts as a "gateway" between sellers and buyers, securing critical mass is imperative to ensure long term longevity of the service. This can be done by introducing products and services that enhances social interaction and engagement, such as the ability to split the bill or transfer money to others with little to no charge, having a joint account scheme, hiring relevant and prominent influencers, among others.

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