

THE ADOPTION OF LINKAJA MOBILE PAYMENT USING UTAUT MODEL

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Abstract

Mobile payment is one of the alternative innovative payment methods that trigger the payment revolution in Indonesia. LinkAja, as one of the mobile payments in Indonesia, still has low brand awareness compared to other mobile payments. This study aims to examine the adoption of LinkAja referring to the Unified Theory of Acceptance and Use of Technology (UTAUT) that analyse the effect of performance expectancy, effort expectancy, social influence, and facilitating conditions on behavioural intention and the effect of behavioural intention on actual use. The sample of this research was LinkAja users in East Java Province taken using a purposive sampling technique. The final sample consisted of 100 respondents collected through an online questionnaire. Data were analysed using SEM (Structural Equation Modeling) with SmartPLS software. The results showed that performance expectation, social influence, and facilitating conditions had a significant effect on behavioural intention, and behavioural intention had a significant effect on actual use. However, effort expectancy had no significant effect on behavioural intention.

Keywords: behavioral intention, mobile payment, PLS-SEM, UTAUT

Abstrak

Mobile payment menjadi salah satu alternatif metode pembayaran inovatif yang memicu revolusi pembayaran di Indonesia. LinkAja, sebagai salah satu mobile payment di Indonesia, masih memiliki brand awareness yang rendah dibandingkan mobile payment lainnya. Penelitian ini bertujuan untuk mengkaji adopsi mobile payment LinkAja yang didasarkan pada Unified Theory of Acceptance and Use of Technology (UTAUT) dengan menganalisis pengaruh performance expectancy, effort expectancy, social influence, dan facilitating condition terhadap behavioral intention serta pengaruh behavioral intention terhadap actual use. Sampel penelitian ini diambil menggunakan teknik purposive sampling yang terdiri dari 100 orang responden pengguna LinkAja berdasarkan hasil distribusi kuesioner secara daring. Analisis data penelitian menggunakan pendekatan kuantitatif SEM (Structural Equation Modeling) dan dianalisis menggunakan software SmartPLS. Hasil penelitian menunjukkan bahwa performance expectancy, social influence, facilitating condition berpengaruh positif signifikan terhadap behavioral intention, dan behavioral intention berpengaruh positif signifikan terhadap actual usage. Sementara itu, effort expectancy tidak berpengaruh terhadap behavioral intention.

Kata Kunci: behavioral intention, mobile payment, PLS-SEM, UTAUT

Introduction

One form of the digital revolution is the increasing use of smartphones globally and in Indonesia. Not only with smartphones used as communication devices but also as socialization tools, entertainment tools, internet access tools, and even payment instruments (Rajgopal, 2012). The mobile payment application is one of the categories of financial technology that began to be developed in Indonesia. Financial technology, according to Bank Indonesia regulations, can be defined as the use of financial technology that can be used to obtain products or services with technological sophistication and business use with new models that will have an impact by providing efficiency, a safer system through the existence of a reliable payment system.

The enhancement of the number of smartphone users and the stretching of online shopping applications in Indonesia, triggering the growth of payment instruments through smartphones. In this context, smartphone payments can be defined as payments for goods, services, and bills with mobile devices such as cellphones, etc., by utilizing wireless and other communication technologies (Dahlberg et al., 2006). According to Bank Indonesia regulation, payment using cellular payments is an electronic service system that can be used to make payments only through cards or electronic money as a reserve of funds used for the payment process. Mobile payments in Indonesia are still under development, but users are actively involved in the use of mobile payments. Mobile payments enable consumers to eliminate the need to use cash (Pham & Ho, 2015), performance, and secure transfer of information between devices, from one transaction or individual to a high-volume payment environment, such as a restaurant or large retailer (Leong, L. Y., Hew, T. S., Tan, G. W. H., & Ooi, 2013). Bank Indonesia, as the authority holder in regulating the payment system in Indonesia has made policies related to digital technology innovation in transactions. Bank Indonesia launched the National Non-cash Movement (GNNT) starting on August 14, 2014, to make people aware that the digital transaction method has many benefits namely efficient, fast, convenient, easy, and safe.

The results of a survey conducted by PricewaterhouseCoopers (PwC) in 2019 showed that 47% of respondents in Indonesia had used mobile payments for transactions. This figure has increased by 9% from 2018 which is 38%. This shows that mobile payment has become a trend or lifestyle of people in Indonesia (Indonesia, 2019). Electronic payment systems have several characteristics which include: convenience, security, transparency, and transaction cost savings (Gholami et al., 2010). After knowing the challenges and benefits of using digital payment systems, the knowledge of the various factors influencing the adoption from the citizen's perspective is crucial. The developers have invested a large number of resources for the development and deployment of digital payment systems for their citizens; however, success ultimately depends on user adoption and acceptance. In Indonesia, several mobile payments have been widely used by the public, including Go-Pay, OVO, Dana, PayTren, and LinkAja. Among these players, Go-Pay Brand awareness reaches 100% among millennials. This figure outperformed other players such as OVO associated with Grab (96.2%), Dana (50.3%), PayTren (47%), LinkAja (35%).

LinkAja is a synergistic financial technology product (fintech) managed by eight state-owned enterprises in Indonesia including Pertamina, Telkomsel, Jiwaseraya, Danareksa, Bank Nasional Indonesia, Bank Rakyat Indonesia, Bank Mandiri, and Bank Tabungan Negara. LinkAja was officially launched on 30 June 2019. This mobile payment platform is managed by PT Fintek Karya Nusantara (which previously managed Tcash). LinkAja provides holistic services with various payment features such as bill payments (electricity, PDAM, BPJS, internet); transactions at traders such as Pertamina, payment for transportation modes, and online purchases. Until June 2020 LinkAja has been used by more than 49 million people in Indonesia. Collaboration conducted by LinkAja with several local governments through the digitalization of payments in traditional markets, the retribution system, and the development of MSMEs are forms of cross-sector collaboration strategies for developing the ecosystem of LinkAja (Hana, 2020). Although the government manages LinkAja's brand awareness value is still

relatively low. These symptoms include the transaction value and the low level of differentiation in the LinkAja application, which is only 1% compared to other mobile payment applications (Alda & Aurachman, 2020). This study addresses this gap by investigating the adoption of LinkAja mobile payments in East Java.

Digital acceptance or IT is the most discussed field of research. There are many competing models with different determinants to explain Technology Acceptance Model (TAM). After extensive research from previous studies on technology adoption models, it has been found that the Unified Theory of Acceptance and Use of Technology (UTAUT) model is a contemporary model, that has four constructs: performance expectations (PE), effort expectancy (EE), social influence (SI) and facilitation conditions (FC) (Venkatesh et al., 2012). Many previous studies have confirmed that the UTAUT model has been widely used for research into technology adoption in the domains of e-banking, e-learning, e-commerce, and e-government (Lai, 2011). Usage or actual usage is a real response in the situation provided to the target given (Brijesh, 2019). Actual usage states that users actually use the application. Numerous factors change an individual's decision to use technology (Venkatesh et al., 2012). The acceptance of technology can be determined by the intention of the individual (Hill et al., 1975).

Development of Hypotheses

1. Performance expectancy
Performance expectancy is an individual's level of trust that through the use of the system can help himself to gain benefits in his activities (Venkatesh et al., 2012). Lai used the extended model of UTAUT and reported that PE affected individual intention while adopting mobile commerce (Lai, 2011). The hypothesis used for PE is:
H₁: Performance expectancy has a positive positive effect on behavioral intention.
2. Effort expectancy
Effort expectancy is how much the level of ease associated with the use of the system (Venkatesh et al., 2012). Venkatesh explains that with increasing age a person is proven to influence his ability to use or receive information that is usually required when using a system. Rawwash examined the adoption of e-learning and reported that perceived ease of use significantly affected the individual intention (Rawwash et al., 2020). A similar result is also reported (Phonthanukitithaworn et al., 2016). The hypothesis used for EE is:
H₂: Effort expectancy has a positive effect on behavioral intention.
3. Social Influence
Social influence is the level which an individual considers that people who are close to him or people he thinks are important in this case friends or family believe he should use a new system/technology. It reflects the effect of environmental factors such as the opinions of friends, relatives, and the user's boss on behavior when they are positive it can encourage users to adopt mobile payment services (Venkatesh et al., 2012). The hypothesis used for SI is:
H₃: Social influence has a significant positive effect on behavioral intention.
4. Facilitating Condition
Facilitating Condition is the level of one's confidence in the availability of technical and organizational infrastructure in supporting the use of the system (Venkatesh et al., 2012). Thompson, Higgins, & Howell explain that facilitating conditions are objective factors in the observing environment, giving clues to easier use, including the availability of good technical support (Venkatesh et al., 2012). The hypothesis used for FC is:
H₄: Facilitating condition has a significant positive effect on behavioral intention.
5. Behavioral Intention
Behavioral Intention is related to an individual's willingness to perform certain behaviors. Behavioral Intention is an antecedent of Actual Use (Brijesh, 2019). According to Venkatesh & Hall, the intention to adopt can represent user acceptance (Venkatesh et al., 2012). According to the studies of Cunningham, Gerlach, & Harper, the intention to use technology varies and highly depends on the features of the technology (Cunningham et al., 2005). The hypothesis used for BI is:
H₅: Behavioral intention has a positive positive effect on actual usage.

Methods

The conceptual model of our study is illustrated in Figure 1. The model demonstrates the effect of UTAUT constructs that are performance expectancy, effort expectancy, social influence, facilitating condition, and behavioral intention on actual usage of LinkAja mobile payment.

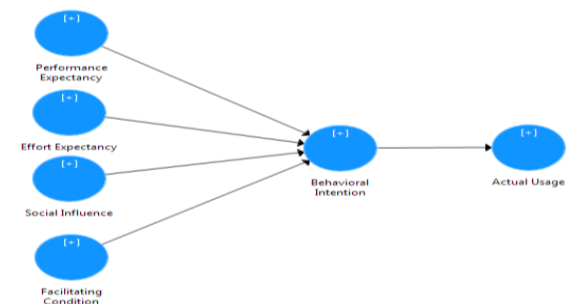


Figure 1. Conceptual Model

Population and Sample

The population in this study were LinkAja users in East Java. The sampling method used non-probability sampling with a purposive sampling technique. Questionnaires were distributed online using Google Forms. From the distribution of questionnaires obtained 100 respondents who are mobile payment users. According to Gerbing & Anderson, a sample size of 150 is sufficient for a convergent and appropriate solution (Gerbing, D. W., & Anderson, 1988). For structural equation modeling (SEM) techniques, Dawn and Gilbert, report that it can work well even on 50-100 samples (Iacobucci, 2018). Therefore, our sample size is sufficient to estimate. The measurement scale uses a Likert scale of 1-5., where 1 = "strongly disagree" and 5 = "strongly agree".

Respondents' demographic data which presented in Table 2. showed there were more females (62%) than males (38%). Most of the respondents were 26-35 years old (45%), followed by 16-25 years old (34%), and 36-45 years old (15%). The majority of respondents had bachelor's degree (43%), followed by master's and doctorate's degree (27%). Technology acceptance studies have been carried out through surveys, data on this study were also collected through questionnaires (Venkatesh et al., 2012). The questionnaire is

based on a five-point Likert scale from strongly disagree (1) to strongly agree (5). The questionnaire consisted of three parts: UTAUT construction, behavioral intention, and actual use. Items of the three variables were adapted from Sholihin and Sivathanu (Sholihin, Mahfud, Ph.D dan Ratmono Dwi, 2013) (Brijesh, 2019). During the data collection process, all respondents were asked to participate voluntarily, and certainty was given that their information would be kept confidential. In this study, the impact of independent variables (UTAUT, user intentions) on the dependent variable (actual use) was observed.

Table 1. Main Characteristic of the Sample

Demographic	Value	Frequency	Percentage
Gender	Male	38	38%
	Female	62	62%
Age	16-25	34	34%
	26-35	45	45%
	36-45	15	15%
	46-55	4	4%
	>55	2	2%
Education	High School	22	22%
	Diploma	8	8%
	University	43	43%
	Graduate Degree	27	27%

Data Analysis

In this study, the variance-based method, namely PLS-SEM, is used to evaluate the hypothetical model. PLS-SEM is carried out with SmartPLS 3.3.2 software (Ringle, C.M. Wende, S. and Becker, 2014). PLS (SEM) is considered suitable several research situations (Henseler et al., 2009). Furthermore, this method has a minimum limit related to sample size and distribution of residues compared to other covariant-based techniques (Chin, 1988). This estimation is based on the guidance of a two-step approach and is carried out in two steps (Gerbing, D. W., & Anderson, 1988). In the first step, the reliability and validity of the model have been assessed, and in the second step, the assessment of the structured model and the hypothesis are tested.

Result and Discussion

Measurement Model: Evaluation of the Convergent Validity Measurement Model (Outer Model)

Model competence is evaluated by construct reliability, individual item reliability, convergent validity, and discriminant validity. As seen in Table 1, all variables have alpha and Cronbach composite reliability greater than 0.7 which meets the criteria (Straub, 1989). The individual reliability of all variables is greater than 0.7 that matches the criteria given by (Churchill, 1979). Convergent validity is evaluated through Average Variance Extracted (AVE), and all variables have a minimum value of 0.50 that meets the benchmarks proposed by (Fornell, C., and Larcker, 1981).

Table 2. Convergent Validity Test Results (Outer Loading Value)

	Actual Usage	Behavioral Intention	Effort Expectancy	Facilitating Condition	Performance Expectancy	Social Influence
AU1	0,882					
AU2	0,819					
AU3	0,903					
AU4	0,773					
BI1		0,873				
BI2		0,864				
BI3		0,905				
BI4		0,914				
BI5		0,891				
BI6		0,841				
EE1			0,887			
EE2			0,877			
EE3			0,904			
EE4			0,892			
FC1				0,820		
FC2				0,913		
FC3				0,745		
FC4				0,811		
PE1					0,890	
PE2					0,910	
PE3					0,829	
PE4					0,928	
SI1						0,901
SI2						0,928
SI3						0,889

Discriminant validity was assessed after convergent validity using cross-loading analysis and AVE. Table 2 shows the square root of AVE in diagonal form and fulfilling the criteria that AVE must be higher than the correlation between variables (Fornell, C., and Larcker, 1981). Average Variance Extracted (AVE) in each construct is above 0.5 so that it can be declared to pass the convergent validity test.

Table 3. Average Variance Extracted (AVE)

	Cronbach's Alpha	AVE
Actual Usage	0,867	0,715
Behavioral Intention	0,943	0,777
Effort Expectancy	0,913	0,793
Facilitating Condition	0,841	0,679
Performance Expectancy	0,912	0,792
Social Influence	0,891	0,821

Reliability Test

The reliability test is carried out to see the consistency of a construct. The reliability test can be measured using Composite Reliability which must be more than 0.7. In the table, it can be concluded that all variables have composite reliability values Nilai 0.7 so that it can be concluded that all variables have a high level of internal consistency reliability.

Table 4. Composite Reliability

	rho_A	Composite Reliability
Actual Usage	0,883	0,909
Behavioral Intention	0,944	0,954
Effort Expectancy	0,922	0,939
Facilitating Condition	0,864	0,894
Performance Expectancy	0,921	0,938
Social Influence	0,898	0,932

Discriminant Validity

Discriminant Validity is a test comparing the square root of the Average Variance Extracted (AVE) of each construct with the correlation between constructs and other constructs. A

good model result is if the roots of AVE are greater than the correlation between constructs and other constructs.

Table 5. Fornell-Larcker Criteria Matrix

	Actual Usage	Behavioral Intention	Effort Expectancy	Facilitating Condition	Performance Expectancy	Social Influence
Actual Usage	0,846					
Behavioral Intention	0,855	0,882				
Effort Expectancy	0,558	0,596	0,890			
Facilitating Condition	0,648	0,630	0,759	0,824		
Performance Expectancy	0,537	0,587	0,849	0,719	0,890	
Social Influence	0,674	0,626	0,614	0,643	0,690	0,906

The result shows the good measurement and structural model, and support the four hypotheses. The path between the PE and BI is significant, and positive, $p < 0.1$ and $b = 0.118$. The relationship between PE and BI is consistent with the past literature (Zhou et al., 2010), (Baptista & Oliveira, 2015). H_2 shows the insignificant positive relationship ($p < 0.1$, $b = 0.096$). The studies which support this (Carlsson, et al, 2006) (Venkatesh et al., 2012). H_3 shows the significant, and positive ($p > 0.1$, $b = 0.327$). The studies which support this relationship include (Baptista & Oliveira, 2015). The path between the FC and BI was significant and positive and hence supported the hypothesis ($p < 0.1$, $b = 0.261$). The results are consistent with the study of (Zhou et al., 2010), (Lancelot Miltgen et al., 2013). We found that SI was the factor that most strongly affected BI. The effect of SI on behavioral intentions implies that environmental factors can encourage users to adopt mobile payment services. However, the environmental factors currently have broader connotations. User opinion is not only obtained from the immediate environment. Now, the opinions of other users can be seen openly for example in the user review column. This should be the focus of the mobile payment developer to improve the performance of the technology.

H_5 is also supported and shows that BI has a significant positive effect on the actual usage of the technology ($p < 0.1$, $b = 0.855$) which is supported by the studies of (Teo, 2011). This implies that behavioral intention leads to the usage of technology (Teo, 2011).

Tabel 6. Path Analysis

Hypothesis	Regression path	SRW	Remarks
H_1	PE → BI	0,118	Supported
H_2	EE → BI	0,096	Not Supported
H_3	SI → BI	0,327	Supported
H_4	FC → BI	0,261	Supported
H_5	BI → AU	0,855	Supported

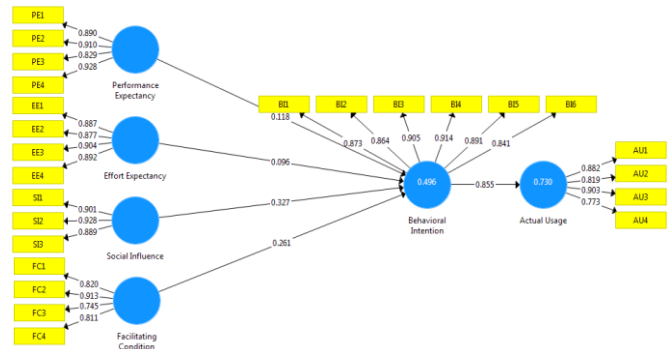


Figure 2. Results of Path Analysis

Conclusion

The results of this research lead to the following conclusions: 1) performance expectancy significantly positive effect on behavioral intention mobile payment application Linkaja, 2) effort expectancy does not have a significant positive effect on behavioral intention of the mobile payment application Linkaja, 3) social influence has a significant positive effect on behavioral intention of the Linkaja mobile payment application, 4) facilitating condition has a significant positive effect on behavioral intention of the Linkaja mobile payment application, and 5) behavioral intention has a significant positive effect on the actual usage of mobile payment application Linkaja.

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