



USAGE ANALYSIS OF MOBILE PAYMENT SYSTEM TO CONSUMER CONTINUANCE INTENTION IN JABODETABEK

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ARTICLE INFO	ABSTRACT
Published: September 30 th , 2023	<i>This research aims to study the continuous intention of mobile payment usage using the Technology Acceptance Model (TAM) theory with the extended model using perceived trust and subjective norms. A survey conducted through 25 questions questionnaire using a 5-point Likert scale with a total of 158 respondents was obtained by multiplying indicators by 6, with SEM-PLS method using SmartPLS 4.0. The analysis shows that perceived satisfaction significantly affects continuance intention to use mobile. The effect of subjective norms on continuance intention to use mobile payment is significant, and perceived ease of use and perceived usefulness have shown a positive relationship to perceived satisfaction. The perceived trust does not significantly affect the continuance intention to use mobile payment. In the previous study, continuance usage of mobile payment is conducted in South Africa, which is a gap in people's finances. The main limitation of this research is the limited data and a very diverse profile of respondents, which may have needed to be more fairly represented in this study. These results suggest that the mobile payment service provider effectively improves customer satisfaction. Gaining more trust in many aspects to make customers use mobile payment continuously. Perceived satisfaction has a positive relationship to keep the continuance intention to use mobile payment systems.</i>
Keywords: mobile payment, technology acceptance model, continuance intention, subjective norms, perceived trust, perceived satisfaction	
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INTRODUCTION

The development of technologies nowadays improves speedily. Humbani and Wiese (2018) explained that technological development disrupted the market in developing and developed countries. This affects many factors, including payment, and EDC devices which are a system that contains ATM service, being a transaction and payment media (Hayati & Lestaringati, 2018). This development keeps increasing, and made changes by using smartphones to conduct transactions or what we usually call mobile payment.

According to Leng et al. (2018), the definition of mobile payment is a payment system to pay for goods, services, bills, and many others using a mobile connected to the internet that enables mobile phones to make transactions. Mobile payments currently provide convenience, benefits, and a significant impact on our daily lives with the rapid development of technology and creating gaps in technology in society.

The uneven distribution of existing technological advances makes many unable to experience existing mobile payments. According to data from the Central Statistics Agency, in 2019 that internet users in the eastern part of Indonesia, one of which is in the West Java area, the percentage of internet users is 82.18%, with DKI Jakarta, where the users enormous with percentage of 93.24% (BPS Indonesia, 2020).

This also affects service providers and consumers who have to keep up with technological developments. In the last five years, the use of Information and Communication Technology (ICT) in Indonesia has shown rapid development. The most rapid development is seen in the use of the internet in society which reached 78.18%, followed by the growth of the population that uses cellular phones reached 62.84% in 2020. The internet population increased from 2016-2020, from around 25.37% to 53.73% in 2020 (BPS Indonesia, 2021).

Indonesia is one of the countries experiencing growth in mobile payments. Reporting to Statista (2021), from 2019 to 2020, Indonesia experienced an increase in the number of electronic transactions ranging from electronic payments to mobile payments by 41.15%. It was also stated that in 2020 there were online transactions with a value of 204.9 trillion Rupiah. The data taken from Statista shows that until 2025 it is estimated that the number of mobile payment users will continue to increase by quite a large number. This indicates that compared to Indonesia's population in 2020, which reached 270 million people, more than 41.15% already use a mobile wallet or mobile payment in various applications available in Indonesia today.

The Technology Acceptance Model (TAM) is one model that has been widely used in various research studies and is often used for research related to technology adaptation (Alshurideh et al., 2020). TAM aims to explain and estimate user acceptance of the factors that affect the acceptance of technology in an organization. TAM states that users tend to use a system when the system is easy to use and valuable for users (Subawa et al., 2021). This model places the trust factor of each user's behavior with two variables: perceived usefulness and perceived ease of use.

According to Davis (1989), perceived ease of use (PEOU) generally describes the extent to which a person believes that using a particular system will be effortless. Perceived Ease of Use is a person's belief that using technology will reduce excessive effort (Naufaldi & Tjokrosaputro, 2020). Perceived ease of use is a technology defined as a benchmark for someone who believes that computers can be understood and used efficiently. Several indicators that can be used to measure perceived ease of use include being flexible, easy to use and being able to control work.

Perceived Ease of Use can be defined as the extent to which users believe that using the application is free from effort; the application is also considered easier to use and will be more easily accepted by users (Nangin et al., 2020). If the individual considers the information media easy to use, he will use it. On the other hand, if the individual thinks that the information media is not easy to use, he will not use it. Davis and Venkatesh (2000) suggested that perceived ease can be measured by the following indicators: clear and understandable, less effort, and easy to use. According to this view, Humbani and Wiese (2019) identified that perceived ease of use positively influences perceived satisfaction with mobile payment systems.

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Trust is commonly used to research continuance usage, especially regarding electronic payment systems such as mobile payments (Shao et al., 2019). Building trust in mobile payments is believed to have the ability to reduce doubts and increase trust in sustainably using a mobile payment system for financial transactions (Kumar et al., 2020). When user trust arises in a payment mechanism system that is safe, reliable, and trustworthy, it will motivate people to reuse the system.

Mobile payment transactions can run with the rapid development of mobile payments, especially with the support of many parties, including the government and merchants. This study was conducted to discover further intentions to use mobile payments as a transaction tool and become the primary transaction tool to replace transaction methods. Traditional or cash transactions. This research will use TAM (Technology Acceptance Model) with the variables: Perceived Ease of Use, Perceived Usefulness, Perceived Satisfaction, Perceived Trust, Subjective Norms, and Continuance Usage. This research also contributes to increasing the number of studies conducted on mobile payments, specifically for payment applications in Indonesia, as not much is discussed in the context of the sustainable use of mobile payment systems.

The hypotheses used were:

- 1) H1: Perceived ease of use has a positive influence on perceived satisfaction on mobile payment systems
- 2) H2: Perceived usefulness has a positive influence on perceived satisfaction in the mobile payment system
- 3) H3: Perceived satisfaction has a positive influence on continuance intention to use mobile payment
- 4) H4: Subjective norms has a positive influence on perceived trust in mobile payment
- 5) H5: Subjective norms has a positive influence on continuance intention to use mobile payment
- 6) H6: Perceived trust has a positive influence on continuance intention to use mobile payment

METHOD

The data collected is 150 (94.9%) respondents were found to be usable, excluding eight (5.1%) respondents that did not meet the requirement. The data collection of this research was carried out only in Jabodetabek (Jakarta, Bogor, Depok, Tangerang, and Bekasi). Further research

can be carried out in other areas with different demographic characteristics and consider the effect of perceived risk, especially for respondents who are not familiar with the mobile payment system as a source of information as another indicator in evaluation. The data collection method used in this study used a questionnaire distributed 100% online via google form with a Likert scale with five points of assessment from Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4), and Strongly Agree (5). The respondent's statistics can be seen in the following table. The demographic profile of the respondents is presented in Table 1.

After collecting data and cleaning, this research uses Partial Least Squares Structural Equation Modeling (PLS-SEM) method with SmartPLS 4.0 software. PLS-SEM method for the following reasons. First, the research model used in this study extends the existing structural theory. Second, the sample size in this study amounted to 150, which is not a large sample size, and the PLS-SEM method can analyze the data. The second reason is that the research uses a conceptual model, so the PLS-SEM method is the proper method for analyzing this research. We use bootstrapping with 5000 subsamples as a minimum recommendation (Hair et al., 2014).

Table 1. Summary of 158 Sample Respondents

Variable	Information	Frequency	Percent (%)
Survey Method	Online	158	100%
Have you ever?	Yes	150	94.9%
	No	8	5.1%
Gender	Female	94	63%
	Male	56	37%
Age	25-28	64	43%
	37 >	36	24%
	29-32	17	11%
	33-36	17	11%
	< 24	16	11%
Education	Bachelor's Degree	118	79%
	< High School	22	15%
	Master's Degree	10	7%
Income per Month	Rp 5.000.001 – Rp 10.000.000	64	43%
	Rp 2.000.001 – Rp5.000.000	37	25%
	Rp 10.000.001 – Rp 25.000.000	30	20%
	<Rp 2.000.000	13	9%

	>Rp 25.000.001	6	4%
	Rp 2.000.001 – Rp 5.000.000	58	39%
	Rp 500.001 – Rp 2.000.000	53	35%
Expense per Month	Rp 5.000.001 – Rp 10.000.000	20	13%
	<Rp 500.000	11	7%
	>Rp 10.000.001	8	5%
	5-10 times	65	43%
Transaction using Mobile Payment System per Month	10-20 times	38	25%
	>20 times	28	19%
	<5 times	19	13%
	GoPay	138	92%
	OVO	93	62%
Type of Mobile Payment	ShopeePay	79	53%
	Dana	42	28%
	LinkAja	14	9%

RESULT AND DISCUSSION

To assess the reliability and validity of the proposed measurement model, the PLS-SEM algorithm was carried out using the SmartPLS 4.0 software. From these results, 23 of the 25 indicators were maintained to proceed to the following process. Two items with outer loading below 0.7 (Hair et al., 2014) were identified and excluded, PU1 ($\beta = 0.636$, $p < 0.7$) and PU6 ($\beta = 0.660$, $p < 0.7$).

Table 2. Outer Loading, Reliability, and Validity

Variable	Indicator	Outer Loadings	CR	rho_a	AVE
Continuance usage	<i>I will continue to transact using Mobile Payment System</i>	0.912	0.732	0.814	0.788
	<i>I intend to continue using the Mobile Payment System instead of using other alternatives</i>	0.868			
	<i>I will use Mobile Payment System more often in the future</i>	0.881			
Perceived ease of use	<i>I can easily use the Mobile Payment System</i>	0.868	0.811	0.820	0.641

	<i>I'm having no trouble using the Mobile Payment System</i>	0.843			
	<i>It didn't take much effort to use the Mobile Payment System</i>	0.805			
	<i>In general, Mobile Payment System is easy to use</i>	0.794			
Perceived usefulness	<i>I find transacting using Mobile Payment System more practical</i>	0.852			
	<i>I feel that transacting using Mobile Payment System is faster</i>	0.883			
	<i>I find transacting using Mobile Payment System easier</i>	0.926	0.867	0.870	0.714
	<i>I feel the benefits of using Mobile Payment System</i>	0.862			
Perceived satisfaction	<i>I feel satisfied using Mobile Payment System</i>	0.909			
	<i>I feel happy transacting using Mobile Payment System</i>	0.931			
	<i>I am happy to transact using Mobile Payment System</i>	0.921	0.908	0.908	0.783
	<i>My experience using Mobile Payment System was very satisfying</i>	0.903			
Subjective Norms	<i>In making transactions, I was directed to use the Mobile Payment System</i>	0.738			
	<i>My relatives approve of me using the mobile payment system</i>	0.881	0.762	0.787	0.680
	<i>Most people who are important to me think that I should use a Mobile Payment System</i>	0.905			
Perceived trust	<i>I feel that the Mobile Payment System can keep the commitment made</i>	0.913	0.898	0.902	0.712
	<i>I feel the Mobile Payment System is trustworthy</i>	0.932			

<i>I feel the Mobile Payment System provides accurate information</i>	0.887
<i>I feel that Mobile Payment System has a good responsibility for the transactions made</i>	0.819
<i>In general, I trust Mobile Payment System as a payment method</i>	0.910

Outer Loading and Reliability and validity

The suitability of the measurement scale is assessed by examining the values of the outer loading and average variance extracted (Fornell & Larcker, 1981). The methods used to measure reliability are Cronbach's alpha, the average variance extracted (AVE), and rho_A. The results are shown in Table 2, indicating that the CR value's consistency is quite good, and the value of Cronbach's is greater than the recommended limit of 0.7. The cleaned outer loading value is above 0.7, and the AVE value exceeds the cut-off point of 0.5 (Hair et al., 2018), which shows that each indicator can represent the construct and supports convergent validity.

Discriminant Validity

In testing the Discriminant Validity, we assessed using the results of the Fornell-Lacker criterion; the diagonal element is the square root of the AVE construct. Our findings show that each diagonal element is greater than the corresponding correlation with other constructs. This shows that there is Discriminant Validity (Fornell & Larcker, 1981). Table 3 illustrates that each variable has a greater value than the relationship between those variables and other variables. The output on the outer loading shows that the assessment of Discriminant Validity is met above 0.7 (Taber, 2016).

The square root value of AVE on the variable Continuance Intention (CI) is 0.851, greater than the construct correlation value on other latent variables. So is the square root value of AVE on the variable perceived ease of use (PEOU) is 0.801, AVE square root value on variable perceived satisfaction (PS) is 0.8285, the square root value of AVE on the perceived trust (PT) variable is 0,844, AVE square root value on variable perceived usefulness (PU) is 0,845, the square root value of AVE on the Subjective Norm (SN) variable is 0,825, all of them are greater when compared to construct correlation values in other latent variables (0.7). This can prove that all research variables have been met discriminant validity.

Table 3. Discriminant Validity

	CI	PEOU	PS	PT	PU	SN
CI	0.851					
PEOU	0.369	0.801				

PS	0.691	0.593	0.885		
PT	0.632	0.517	0.769	0.844	
PU	0.506	0.726	0.676	0.608	0.845
SN	0.668	0.317	0.6	0.646	0.474
					0.825

In Table 4, the value of the R-Square shows how big the predictor variable can explain the percentage of the response variable. The higher the R-Square, the better the model. The results of the R square calculation found that continuance intention, perceived satisfaction, and perceived trust were moderate. Based on the research results, R-Square for the variable Continuance Intention (CU) of 0.579 means satisfaction, subjective norms, and trust have 57.9%. Then for Perceived Satisfaction R-Square is 0.479, it is explained that users' usability and ease of use is around 47.9%. For the Perceived Trust, the R-Square is 0.418; it is explained that the subjective norm is around 41.8%.

Table 4. R Squares

	R-square	R-square adjusted
CI	0.579	0.571
PS	0.479	0.472
PT	0.418	0.414

Hypothesis Testing

As shown in Table 5, the path analysis results support as many as 5 of the six hypotheses tested in this study. The hypothesis on perceived trust is not supported because the P value in the hypothesis exceeds the threshold ($p < 0.05$). Hypotesis about perceived ease of use has a positive influence on perceived satisfaction on mobile payment systems accepted based on the results of the p-value of $0.048 < 0.05$. Hypotesis about perceived usefulness has a positive influence on perceived satisfaction in the mobile payment system accepted based on the results of the p-value $0.000 < 0.05$. Hypotesis about perceived satisfaction has a positive influence on continuance intention to use mobile payment rejected based on the results of the p-value $0.551 > 0.05$. Hypotesis about subjective norms has a positive influence on perceived trust in mobile payment accepted based on the results of the p-value $0.000 < 0.05$. Hypotesis about subjective norms has a positive influence on continuance intention to use mobile payment accepted based on the results of the p-value $0.000 < 0.05$. Hypotesis about perceived trust has a positive influence on continuance intention to use mobile payment based on the results of the p-value $0.000 < 0.05$.

This result (57.9% of variance explained) is better when compared to similar studies. Kumar et al. (2020) reported only a 37.7% variance explained in their mobile payment study. The study from Zhou (2013) reported only a 37.1% variance explained in their mobile payment study.

Table 5. Hypothesis Result

	STDEV	T Value	P values	Result
PEOU -> PS	0.109	1.981	0.048	Supported

PS -> CI	0.116	3.515	0.000	Supported
PT -> CI	0.133	0.596	0.551	Not supported
PU -> PS	0.094	5.541	0.000	Supported
SN -> CI	0.096	3.872	0.000	Supported
SN -> PT	0.062	10.42	0.000	Supported

Discussion

Based on previous research on mobile payment systems only investigated several factors that influence continuance intention to continue using the mobile payment system. This study tries to fill the research gap from previous studies by introducing an extended model of TAM mediated by perceived satisfaction and new variables such as subjective norms and perceived trust.

First, the initial TAM research results show that the perceived usefulness indicators may no longer be relevant for people with the level of use of the mobile payment system because they are considered to have the same role in transactions using traditional methods in the Greater Jakarta area.

The explanation is quite reasonable for the results of the study because TAM is used to determine the level of public acceptance of the new technology, so if it is used to test the continuance intention of using a mobile payment system, it is because they already have experience and habits in using a mobile payment system.

The overall indication is that the mobile payment system provider should focus more on the perceived trust of the customer to ensure that customer continuance intention continues to occur. Service providers must make reasonable solutions to increase customer confidence in their products regarding transaction security and speed.

In addition, perceived ease of use and perceived usefulness strongly contribute to customer satisfaction, so mobile payment system providers must maintain their system remains effortless and valuable. Thus, perceived satisfaction also strongly contributes to the continuance intention to use a mobile payment system.

This study also strengthens the findings of Humbani and Wiese (2019) states that satisfaction is the strongest predictor of continuance intention to use a mobile payment system. Our study also found that satisfaction is a reinforcing factor in the continuance intention of using mobile payments in Indonesia, especially in Greater Jakarta.

Regarding continuance intention to use the mobile payment system, the findings validate most of the extended TAM hypotheses, except for H6, which does not support continuance intention. This differs from Liébana-Cabanillas et al.'s (2020) study, which found that perceived trust supports continuance intention to use a mobile payment system. The result also indicates that perceived satisfaction is an important antecedent of the intention to use.

CONCLUSION

The purpose of this study is to see the relationship generated by perceived ease of use and perceived usefulness with perceived satisfaction, then the relationship between subjective norms

and perceived trust, and the relationship between perceived satisfaction, subjective norms, and perceived trust with continuance intention to use mobile payment systems. This study successfully validated the proposed relationship and suggested that perceived satisfaction has a significant positive effect on continuance intention and is an essential variable in continuance intention to use a mobile payment system. Therefore, the results of this study contribute to theoretical and managerial knowledge in continuance intention to use a mobile payment system.

From a theoretical abstinence point of view, the findings of this study provide better insight into perceived satisfaction, subjective norms, and perceived trust that influence continuance intention to use a mobile payment system. With extended TAM with unconfirmed perceived trust, UTAUT or UTAUT 2.0 might be more applicable model to explore continuance intention to use mobile payment.

Overall, this model explains 52.9% of the variance in the continuance intention to use mobile payment systems, in which the percentage much higher when compared with the variance explained in previous related studies. These results indicate that the approved model is quite suitable even though it has limited validation on perceived trust. Validation is needed in further research to confirm the predictive ability of continuance intention to use a mobile payment system.

The limitation of this study is focused on the mobile payment system users on Jabodetabek, which is only limited to one country. With a reasonably large area coverage, the researcher feels that the number of responses found is still tiny to represent the area. Since not all hypotheses in this study were confirmed, further replication studies are needed to ensure that similar models can work in different demographics.

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