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The influence of perceived ease of use, perceive usefulness, and trust on customer's intention to use "Bebas Bayar" mobile payment application in Indonesia

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Abstract. The presence of a mobile payment application has changed the way people to do a financial transaction. It enables people to send, process and receive money at anywhere and anytime. "Bebas Bayar" is one of the most downloaded mobile-based apps in Indonesia that support the payment for the electricity bill, telephone, and all financial transaction which connected with user's banking account. Therefore, this study aims to analyze the influence of customer perceived value of this app to its customer's purchase decision based on Technology Acceptance Model 2 (TAM 2). The research method is Multiple Regression that tested the influence of perceived ease of use, perceived usefulness and trust to customer's intention to use 'Bebas Bayar' service. The study result is the customer perceived usefulness, and customer trust are significantly influenced the customer's intention to use, whereas customer's perceived ease of use does not significantly influence the customer's intention to use. This study is expected to give managerial implication about how to improve the app developer's service and product development based on the customer's perceived value and customer's intention to use. The research about consumer adoption to mobile payment application that measured by Technology Acceptance Model (TAM 1) were frequently done. Nevertheless, there is less research on how to measure the influence of customers perceived values on their intention based on the latest development of TAM 2. Besides, there is still no research about the relationship of TAM 2 variables to customer's intention to use.

Keywords. *Perceived Ease of Use, Perceived Usefulness, Trust, Technology Acceptance Model 2, Customer Intention*

1. Introduction

The e-commerce payment app is an internet and mobile phone-based payment system that facilitates electronic payment for an online transaction which integrated to the merchant bank. This is a part of Electronic of Data Interchange (EDI) that enables the consumers to do a

transaction without place and time boundaries. The e-commerce payment system's popularity is influenced by the high volume of e-commerce activities and internet-based banking transaction. It has a function as the intermediaries which enables consumers on creating an account quickly and transfers their funds between their online accounts and bank accounts. Therefore, it offers an easy, fast, practical and flexible financial transaction in one hand for busy consumers. The e-commerce payment app also has sophisticated hardware and software that support the desktop-based task for financial transaction. It offers more customer experience through its flexibility and agility to be operated anywhere and anytime. The e-commerce payment app has become the disruptive technology that moves forward the development of the ICT industry.

The app-provider such as Google Play Store, AppStore, Windows Store, and Blackberry has provided an opportunity for an app developer in Indonesia to market their products. Based on Statista (2017), there are 178.1 billion apps downloaded from apps providers. The most downloaded app is a non-gaming app in Google Play Store are Facebook and Whatsapp. In Indonesia, the internet penetration rate is about 21% which put Indonesia as the fourth-largest smartphone market in the world and become one of the leading destinations for original equipment manufacture (OEM) and app developers(Khan, 2015).

As it becomes the worldwide trend, mobile apps have influenced people's daily activities, including the way they do shopping, travelling and social interaction. It is also able to encourage the creative economy sector in Indonesia and enforce the government to invest in internet infrastructure. In the other side, the emergence of mobile apps also followed with the security protection towards users data, especially in the mobile payment app. Based on Statista (2019), about 70% of the mobile payment app users are most concerned about their data protection security in doing a financial transaction. There are 50% of mobile app users in Indonesia who stated that the security in online-transaction should be improved because of the potentials of (1) financial loss because of fraudulent risk, (2) user data leakage, (3) the misuse of access on confidential data by unauthorized parties, (4) decreased customer trust and (5) other unexpected losses. Therefore, it is essential to know how to consumer's technology adaptability by analyzing the users' perceived ease of use, usefulness, and trust and its influence of customer's intention to use. The perception of perceived ease of use, usefulness and firm intention is fundamental variables on Technology Acceptance Model (Venkatesh, 2008). TAM proposes a theory to study and understand the user's behaviour in perceiving and using the system of information, and the concept used involves perceived usefulness, perceived ease of use, behavioural intention, and actual usage system. Technology Acceptance Model (TAM) is a theory about information system that models how the users/customer come to accept and use technology. It suggests that there is the number of factors that influence users decision about how and when users use new technology, such as perceived usefulness (PU) and perceive ease of use (PEOU) (Davis in Venkatesh&Bala, 2008). Perceived usefulness is the degree to which a user believes that use a particular technology system will enhance their performance. In terms of financial transaction, the perceived usefulness of the mobile payment app depends on how the technology able to increase the performance of the financial transaction. Meanwhile, the perceived ease-of-use is the degree to which a user believes that using a specific system of technology would be free of effort. In terms of financial transaction, the perceived ease-of-use will depend on how the mobile payment app offers less cost (free download) and easy to operate in anywhere and anytime than other payment technology. The theory about TAM has been simultaneously studied which resulted in two major advanced theory, TAM 2 (Venkatesh&Bala, 2008), Unified Theory of Acceptance and Use of Technology (Venkatesh et

al. 2003) and TAM 3 that more focused on e-commerce which employed the influence of customer trust and perceived risk on the usage of the system(Venkatash&Bala, 2008).

Furthermore, "Bebas Bayar" is one of the complete payment applications in Indonesia by offering 250+ payment services ranging from electricity bills, airline tickets, taxes, insurance, and also offers business opportunities for users who use this application to do business online or advertising. There have not been many studies that discuss consumer perceptions of "Bebas Bayar" applications. However, Gotama & Indarwati (2019) have researched the influence of e-trust, e-service quality on e-loyalty with e-satisfaction as mediation variable of 250 "Bebas Bayar" users. The result of e-trust of user influence significantly on their loyalty. Nevertheless, e-service quality did not influence significantly on loyalty. Therefore, this raises assumptions that the main problem in operating "Bebas Bayar" is its technology adaptability by their users. Hence, this previous research underly this research that aims to analyze the perceived ease of use, perceived usefulness, consumer trust on consumer intention to use "Bebas Bayar" application.

2. Literature Review

2.1 Technology Acceptance Model (TAM)

Before TAM was constructed, a former theory called *Theory of Reasoned Action* (TRA) had long been developed by Martin Fishbein and Icek Ajzen. Following its previous studies derived from the theory of behaviour and attitude, TRA focused on its theory on people's behaviour in terms of psychological view. The basic principle was determining how to measure the components of appropriate behaviours, distinguishing between trust and behaviour, and determining any external stimulus. Thus, the TRA model evoked the users' reaction and perception on the system of information which might define their behaviour and attitude (Fatmawati, 2015). In his dissertation, Davis (1980) argued that the goal of his study was to develop and test a theoretical model of the effect of system characteristics on users' acceptance of computer-based information systems. However, the model which was considered as technology acceptance model (TAM) was being developed with two primary objectives in his mind.

Technology Acceptance Model (TAM) is a model that Fred Davis introduced it in 1986 through his dissertation entitled "*technology Acceptance Model for Empirically Testing New End-User Information System: Theory and Results*". It was published in a scientific article entitled *Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology*" in 1989. TAM is considered as a means to analyze the acceptance level of e-commerce marketing technology. Hence, TAM is like a knife to investigate the users' acceptance of the presence of technology (Fatmawati, 2015).

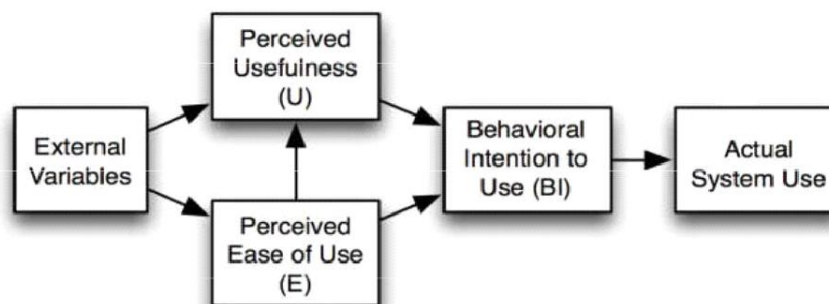


Figure 1 Technology Acceptance Model (TAM)

Source: Davis in Fatmawati (2015)

Davis in Fatmawati (2015), argued that through TAM, researchers might see two factors that influence people to use a new information system, as follow.

2.1.1 *Perceived Ease of Use*

Davis (1989) used the term "*ease to perceived*", defined as "*the degree to which a person believes that use a particular system would be free of effort*". His study found that if the perception of perceived ease of use might explain the reason for using a system.

2.2.1 *Perceived Usefulness*

Davis (1989) also used the term "*the degree to which people believes that using a particular system would enhance their job performance*". This perception of usefulness constructed a trust for users to whether the use or not use an information system. It assumed that users might use a particular system when they feel comfortable with that system, as well as the vice versa.

TAM describes how users perceive and use new technology. Psychological approach referring to users' trust, attitude, interest, and behavioural relationship is applied. The characteristic of TAM is capable but straightforward to predict both technology acceptance and usage (Fatmawati, 2015).

2.2 Perceived Ease of Use

Davis in Venkatesh (2008) defined the term '*perceived ease of use*' as a trust on perceived access, in which the users believed that a technology/system was easy to use and less effort to operate. The interaction and intensity of use between users and the system might also indicate the perceived ease of use. Besides, Wen et al. (2011) defined it as to what extent the users perceived the ease of interaction with e-commerce and accessed the information of products they needed. Davis (1989), Chin and Todd in Wen et al. (2011), defined the term '*perceived ease of use*' as to what extent the technology of computer was relatively easy to understand and use.

2.3 Perceived Usefulness and Trust

Liaw & Huang (2013) defined the term '*perceived usefulness*' as the level of an individual's trust in using a particular object which might bring benefits for them. This perception of use directly affects the use of innovation in information technology. In term of financial transaction, a Bebas Bayar-service is considerably better in providing advantages toward users, and thus, it makes them tend to keep using such a service. The advantage can be in the form of efficiency and fast-speed for online payment service.

Trust should be taken into account as the quality of any buyer-seller transactions in order to reach consumers' satisfaction. Sumarwan (2014:166) argued that 'trust' was any consumers' insights into various objects, attributes along with the advantages perceived. It may not be necessary if the behaviour is fixed, and no risk happened (Mayer, Davis, & Schoorman, 1995).

The factor of trust is crucial, particularly to the technology-based transaction. The concept is that users trust on particular advantages of a technology which provides security for them to have a transaction. In this case, it means that the technology should be very secure, minimizing any opportunity of data/information leakage. Following Mayer et al. (1995), three factors were constructing an individual's trust of others, including ability, benevolence, and integrity. Those three factors are further described as follow.

2.3.1 Ability

It refers to the competence and characteristics of an organization/seller to persuade and authorize a specific area. In this case, it refers to the seller's capability to provide, serve, and secure a transaction from any disruption. The consumers may have assurance for satisfaction and security from their seller during the transaction they do.

2.3.2 Benevolence

It is the sellers' willingness to have mutual satisfaction with their customers. Thus, their profit will be increased along with the customers' satisfaction. However, the sellers do not only seek for high profit but also pay great attention to bring satisfaction to their customers.

2.3.3 Integrity

Integrity relates to how the sellers' treatment and custom for their business. Does the information they provide for the customers correspond to the facts or not? Is the quality of the products trusted or not?. Overall, it shows that 'trust' is the crucial aspect of consumers' competence and judgment to do online transactions in order to meet their needs. According to Braun (2013), trust and usefulness are significant predictors of consumer intention to use social media and website. Perceived usefulness has been confirmed as the main factor for the adoption of online shopping behavioural intention (Rezaei and Amin, 2013).

Meanwhile, mobile services aim to provide the flexibility of access to consumers. Furthermore, the development of mobile technology and its prospective development is a part of different factors which force customers to perceive usability (Alahuhta et al., 2005). In recent years, the most obvious consumer question they ask relates to operator trust. PU is a significant factor affecting initial usage and continued usage (Detlor et al., 2013).

2.4 Intention to Use

Intention to use refers to the kind of user's willingness to either one-time use or continued use particular objects. This intention is one of the individual's psychological aspects which tend to give attention or feel more convenient with particular objects that may lead to particular goals (Ayeh et al. 2013). The study about TAM focused on the user who never used and the user who has ever used before. Nevertheless, this study focused on the second object. The previous study, for instance, Wen *et al.* (2011), investigated a rebuying activity through the online shop. Wen *et al.* (2011) found that two indicators measured the intention of reusing an online payment service such as the intention to use; (1) continually using mobile payment apps, and (2) using mobile payment apps for other payment activities. Some previous studies that predict the consumer intention by TAM variables by Ayeh et al. (2013) conclude that perceived similarity of interest has a significant relationship with consumer intention to use consumer-generated media (CGM) of travel planning. Kim (2012) also stated that consumer trust and perceived usefulness of online shopping platform on their consumer intention that mediated by attitude. Yang and Zhou (2011) also confirmed that planned behaviour and TAM have a positive influence on consumer attitude, behaviour and intention of mobile viral.

Research Hypothesis

According to the research problem of the current and the previous studies, some hypothesis was formulated as follow.

H1: *Perceived Ease of Use* (PEOU) positively influenced the *intention to use* Bebas Bayar applications.

H2: *Perceived Usefulness* (PU) positively influenced the *intention to use* Bebas Bayar applications.

H3: *Trust* (T) positively influenced the *intention to use* Bebas Bayar applications.

3. Methods

There are 100 students from the Faculty of Economy in Universitas Negeri Surabaya who selected purposively to be respondent in this study. Purposive sampling is used as a method of selecting the sample of this study. The criteria for selecting respondents are aged 17-25 years (Generation Z), who are already familiar, install and have used the "Bebas Bayar" application, assuming the respondents are millennials who have better adaptability of technology compared to Generation X or Y (Bejtkovský, 2016).

Perceived ease of use variable on Bebas Bayar service was measured by six indicators which referred to Davis(1989)andWen *et al.* (2011). It involved (1) the instruction of the application was easy to understand, (2) Bebas Bayar service was easy to operate, (3) the language used was easy to understand, (4) Bebas Bayar service facilitated the transaction of online payment, (5) The design was easy to operate, and (6) the design was easy to understand.

Perceived usefulness variable was measured by six indicators which referred to Davis (1989) and Wen *et al.* (2011). Those involved (1) Bebas Bayar application was more beneficial for an online payment transaction, (2) Bebas Bayar application assisted in online payment, (3) Bebas Bayar application was more efficient for an online payment transaction, (4) Bebas Bayar application was cheaper rather than offline payment, (5) Bebas Bayar application is faster in processing an online payment transaction, and (6) Bebas Bayar application might save more time rather than paying on some offline outlets such as minimarket.

Following Mayer *et al.* (1995) and Wen *et al.* (2011), the indicators for measuring *trust* variable involved (1) Bebas Bayar application was able to work as expected, (2) Bebas Bayar application should not disadvantage the consumers, (3) Bebas Bayar application could keep the customers' privacy, and (4) Bebas Bayar application provided the right information. Finally, the intention to use the application, in this case, referred to the intention of reusing the application. Two indicators measured this variable; (1) continually using Bebas Bayar application, and (2) using Bebas Bayar application for other payment activities.

4. Result and Discussion

4.1 Data Collection Method

There are 100 of 117 students were considerably qualified as the respondents of this study as they met the qualification for data collection. In terms of gender, 65 of them were female, and 35 others were male. The respondents in 18 – 25 years old were from the faculty of economy, State University of Surabaya, and they had already used a Bebas Bayar application more than twice.

4.2 Validity and Reliability Testing

Table 1 Validity and Reliability Result

Variables / indicators	Corrected item-total correlation	Cronbach Alpha	Conclusion
Perceived ease of use			
1. Hints application layout is easy to learn	0.552	0.823	Valid and reliable
2. Free service Pay-easy to operate	0.577		Valid and reliable
3. Language in the app pay free services easily understood	0.632		Valid and reliable
4. Free service pay facilitate online payments	0.583		Valid and reliable
5. View of application services free pay-easy to operate	.530		Valid and reliable
6. view of application services are non-paid easily understood	0.683		Valid and reliable
Perceived usefulness			
1. the service application is free and gives more profitable for online payments	0,392	0,795	Valid and reliable
2. service offers free application and helpful in making online payments	0.582		Valid and reliable
3. free service paid is more efficient than any online payment transactions	0.595		Valid and reliable
4. services free applications pay less than offline payment	0.561		Valid and reliable
5. application services are free and enhance online payments process	0.659		Valid and reliable
6. application service is free and saves users time than to pay at the outlet (Indomaret / counter)	0.522		Valid and reliable
Trust			
1. services free applications payable able to work well as promised	0.503	0.762	Valid and reliable
2. services free application will not harm consumers payment	0.672		Valid and reliable
3. services free application can maintain the privacy of consumers payment	0,58		Valid and reliable
4. reliable service pay free application	0,517		Valid and reliable
Intention to use			
1. Continue to use	0.604	0.753	valid and reliable
2. use of other payment transactions <i>online</i>	0.604		valid and reliable

Source: Data processed by the researcher

From table 1, it found that the *corrected item-total correlation* for *perceived ease of use* variable was > 0.3 , indicating that the six indicators of that variable were found precisely correct in its measurement. Similarly, the six indicators of *perceived usefulness* variable reached the value of *corrected item-total correlation* on > 0.3 , indicating that those indicators succeeded in measuring the variable. Furthermore, it also happened on the *trust* variable and the intention to

use Bebas Bayar application. The result of reliability showed a high value for all items in each of the variables measured the value of the Alpha Cronbach was > 0.70 .

4.3 Regression Assumption Test

Before applying the regression model, it needed to test the linear regression assumption as the regression model should meet some standard assumptions, including normality, non-multicollinearity, non-autocorrelation, and non-heteroscedasticity. Using *One-Sample Kolmogorov-Smirnov Test*, it resulted in $Z = 1,094$ with $p\text{-value} = 0,182 > 0,05$. This finding showed that the residual regression distribution was not different from the normal one, and thus, it was normally distributed.

The test of Multicollinearity was measured from the value of VIF (*Variance Inflation Factor*) of each of the independent variables. The result showed a Multicollinearity in which if $VIF > 5$ or $R_{ij}^2 > 0,8$. The result of Multicollinearity test showed that the value of $VIF = 2,343$ for the perception of *perceived ease of use*, $VIF = 1,930$ for the perception of *perceived usefulness*, and $VIF = 1,748$ for *trust*. According to these results, it found that the Multiple Regression Model had no multicollinearity, and thus, the result of the partial t-test could be well interpreted.

The indication of heteroscedasticity was predicted through the significance of correlation test of Rank Spearman (r_s) between independent variables and the residual value (e_i). The test was conducted on $\alpha = 5\%$. Thus, it reaches a heteroscedasticity if r was significant $\leq 5\%$. However, the test of heteroscedasticity found that r_s was not significant for all of the independent variables, including *perceived ease of use* variable ($r_s = -0,087$; $p\text{-value} = 0,392$), the perception of *perceived usefulness* ($r_s = -0,037$; $p\text{-value} = 0,712$), and the perception of *trust* ($r_s = 0,061$; $p\text{-value} = 0,548$).

The assumption of autocorrelation was tested using residual regression by regressing the n^i residual case (e_i) with the next residual case (e_{i+1}). The result of t-test was found not significant, and thus, it had no autocorrelation within the model. The t-test resulted in $t = -0.121$ with the $p\text{-value} = 0.904$. Hence, it argued that the Multiple Regression Model of this present study had no autocorrelation in its nature. Therefore, the regression model could be interpreted as it met the criteria of classic assumptions, and was considered as a model with BLUE criteria (*Best Linear Unbiased Estimator*).

4.4 Hypothesis Testing

Multiple Regression Model aimed to predict or appraise the variation of the value of dependent variables due to the value of independent variables. The result of data analysis through SPSS was presented in Table 2.

Table 2 Results of Hypothesis Testing

Variable	B	SE	t	Sig.	Conclusion
Constant	0.536	0.748	0.717	0.475	-
Perceived ease of	0.056	0.040	1.400	0.165	H0 rejected
Perceived usefulness	0.079	0.037	2.113	0.037	H0 rejected
Trust	0.267	0.053	5.047	0.000	H0 rejected
Multiple R	0.724	F _{count}		35.180	Significant
R Square	.524	Significant F _{count}		0,000	

Source: Data from respondents mixed

The equation of the multiple regression based on the empirical data of this present study was as follow.

$$Y = 0,536 + 0,056X_1 + 0,079X_2 + 0,267X_3 + e$$

According to the result of regression and t-test, as presented in table 2, it found that the perception of *perceived ease of use* did not affect the perception of *usefulness*. The result of t-test for the perception of *perceived ease of use* was $t_{count}(X_1) = 1,400$ with the probability = $0,165 > 0,05$. Based on the rule of the test, H_0 was not supported, indicating that *perceived ease of use* variable did not bring any impact on the users' intention to use Bebas Bayar application. However, it should be noted that although the variable did not bring any influence in Multiple Regression Model, the simple correlation between the *perceived ease of use* and the intention to use Bebas Bayar application were still significant.

The effect of *perceived usefulness* on the *intention to use* the application was found significant. This was showed by the value of its $t_{count}(X_2) = 2,113$ with the value probability = $0,037 < 0,05$. As H_0 was not supported, it indicated that *perceived usefulness* variable had a significantly positive influence on the intention to use Bebas Bayar application.

The effect of *trust* on the intention to use the application was found significant. The result of its t-test (X_3) was $t_{count} = 5,047$ with the value of probability = $0,000 < 0,05$. Therefore, H_0 was not supported, indicating that the *trust* variable (X_3) had a significantly positive influence on the intention to use Bebas Bayar application. Regarding the value of the t-test, it found that *trust* gave the highest contribution in explaining the users' intention to use Bebas Bayar application.

4.5 Conclusion and Suggestion

According to the data analysis of this present study, it found that the perception of *perceived ease of use* did not affect the users' intention to use Bebas Bayar application. The *perceived usefulness*, however, had a significant influence on the intention of using the application, as well as the perception of *trust*, which also had a significant influence on such intention. Also, *trust* is a variable that gave the highest contribution in explaining the intention of using Bebas Bayar application. Besides, because the characteristic of respondents as Generation Z is more adaptive in digital and internet-based technology, the application's *ease of operation* is no longer become the main factor that makes them interested in using this application. Although the respondents are aware and believe that "Bebas Bayar" application is useful as indicated by significant perceived usefulness and trust, this Generation Z users need more charms when using this application such as better UX (User Experience) Design.

4.6 Limitation and Study Forward

The limitation of this study is the respondents who limited to students at universities who use the "Bebas Bayar" mobile payment application. As a result, it can not generalize the overall picture of the user of this application. Therefore, for further research, the researcher suggests expanding the number of respondents and using UTAUT2 as examining more factors that influence consumer behaviour intention, such as performance expectancy and effort expectancy.

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Tias Andarini Indarwati was analyzing the data and preparing the article; Ika Diyah Candra was translating and proofreading the manuscript.

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