# The Analysis of Factors That Influences People Intention to Use in Electronic Money

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## *Abstract*

The development of banking service technology now allows us to do non-cash transactions using various media. Electronic money as one of the favorite media that is widely used by the public is now experiencing innovation with the new breakthrough of Electronic Money Flazz Gen 2 that can conduct transaction services via smartphones. With this latest innovation comes a question related to what factors that influence people using electronic money Flazz Gen 2. Therefore, quantitative research using a questionnaire conducted using the Technology Acceptance Model (TAM) analyzed using the Structural Equation Modeling – Partial Least Square (SEM-PLS) method assisted by software SmartPLS 3.0. The factors studied were taken from the variables in the Technology Acceptance Model (TAM) developed by Davis et.al (1996), namely perceived ease of use, perceived usefulness and trust variables taken from Gefen's theory (2003).

Keywords: TAM, Electronic Money, SEM-PLS,

## 1. Introduction

Every year, technology continues to experience rapid evolution that create impact on daily activities, one of it is payment activities, which initially only cash transaction can be done but now evolved into non-cash transaction. One of the non-cash payment systems that are widely used in Indonesia is Electronic Money or commonly known as E-Money. The emergence of E-money was motivated by Bank Indonesia Regulation Number 11/12 / PBI/2009 with the aim of creating a less cash society in Indonesia. According to Bank Indonesia, Electronic Money is defined as a payment instrument that meets the following elements; issued on the basis of the value of money previously paid up to the issuer; the value of money is stored electronically in a medium such as a server or chip; and the value of electronic money managed by the issuer is not a deposit as referred to the law that governs banking. E-money is a tool used to make transactions using an electronic system as a non-cash transaction. These transactions usually require the help of special tools using computer networks and internet networks such as digital price storage systems and the internet. E-money has advantages including ease of use, from benefits to ease of using E-money in sales and purchase transactions (Surtikanti and Mustofa 2019). Electronic money was introduced as a cost-effective alternative to payment for small value transactions and as a convenient medium for payments over the internet. Value card storage equipped with Contactless technology is cheaper than debit and credit cards (pro-transaction fees do not include setup fees), and pre-loaded software provides an efficient and secure payment instrument for use on the internet (Papadopoulos 2007).

Electronic money growth, especially in Indonesia, is growing very rapidly, this can be seen from its transaction volume that continue to increase each month in 2019, as of December 2019, there were 515 million transactions based on data from Bank Indonesia. As of April 8, 2020, there are 48 electronic money issuers registered with Bank Indonesia. Along with the rapid development of technology in the non-cash payment system, namely E-money, Private Consumer Bank as a pioneer in the Indonesia's Private banking industry has dozens of

electronic banking products, one of which is electronic money with chip-based products which has been circulating since 2011, the Electronic Money has multi-functions. Besides being used for payments on toll roads it can also be used to make payments for public transportation, parking fees to payments for food and beverage at minimarkets or supermarkets, to make payments user can simply top-up the balance at various Private Consumer Bank ATM's or at cooperating merchants. The use of Electronic Money in the community is very large, this can be seen from the population data and volume of Electronic Money transactions in 2019, as of November 2019, there were 17 million cards population based on data from Private Consumer Bank.

Early 2020 Private Consumer Bank released a new version of electronic money with the addition of a new feature called, the advantage this new Electronic Money is the top-up feature can be done directly from Android Smartphone that supports NFC in Private Consumer mobile banking application, with this feature users no longer need to top-up balances at ATM machines or merchants. In recent years, due to the large number of smart phones equipped with Near Field Communication (NFC), various information can be obtained more easily. NFC is a kind of RFID (Radio Frequency Identification) system which means NFC is a type of TAG to Reader system. NFC performs short-range communication within 10 cm on the 13.56 MHz band. With the NFC feature on smartphones, we can make various electronic payments safe and fast because of the short communication distance (Jung 2014).

With the latest innovations made by Private Consumer Bank is the primary reason for the author's research on Analysis factors that influeces people intention to use electronic money especially in the Jabodetabek area. The model that will be used in this study is the Technology Acceptance Model (TAM) developed by Davis et.al (1989), TAM is a model used to analyze and understand the factors that influence the acceptance of technology use. In TAM there are two specific beliefs, Perceived Usefulness and Perceived Ease of Use are the main relevance for computer acceptance behavior (Davis, Bagozzi, and Marshaw 1989).

## 2. Research Method

The Technology Acceptance Model (TAM), introduced by Davis in 1989, is an adaptation of Theory of Reasoned Action (TRA) which is devoted to modeling user acceptance of technology. Several similar studies have been carried out by adding modifications based on this model such as (Gefen, Karahanna, and Straub 2003), (Venkatesh and Davis 2000), other modifications to the TAM model, namely (Pavlou 2003) which added trust and risk variables in their model. The aim of the TAM is to provide an explanation of the determinants of common computer acceptance, capable of explaining user behavior across a wide range of end-user computing technologies and user populations, while at the same time being both very economical and theoretically justified (Davis, Bagozzi, and Marshaw 1989). In the Technology Acceptance Model (TAM), there are two main relevances in technology acceptance behavior, namely Perceived Usefulness and perceived ease of use. Perceived Usefulness is defined as the subjective likelihood that users using certain application systems will improve their work performance and organizational context while Perceived Ease of Use refers to the level at which potential users expect the system to be used to be free of effort or easy to use (Davis, Bagozzi, and Marshaw 1989). According to Venkatesh (2000) from many empirical studies of the TAM model, Perceived Usefulness has always been a strong candidate in measuring the intention to use a technology and also TAM has consistently explained the proportion of substantial variance (around 40%) in usage intention and behavior, and that TAM is better than alternative models such as TRA and TPB. Even though the TAM model is an old model, the TAM model is still used and developed as in the research conducted by Severt et.al (2020) which uses the TAM model by adding Hedonic Motivation. Overall, the results of his research indicate that perceived usefulness (PU) is the largest predictor of application users' attitudes towards mobile applications, followed by Hedonic Motivation. The trust variable was added by the author based on research done by (Wibowo, Rosmauli, and Suhud 2015) which stated that the Trust variable had a significant influence on the interest in using e-money card products for Jakarta commuterline service users also other research such as Tileng & Loanata (2016) which adds the Trust variable to Intention to Use E-Commerce Traveloka, and Research by Budiantara, Gunawan & Utami (2019) which add Trust as the trigger in online purchase intentions of "Made In Indonesia" UMKM products through the use of the E-commerce Marketplace.
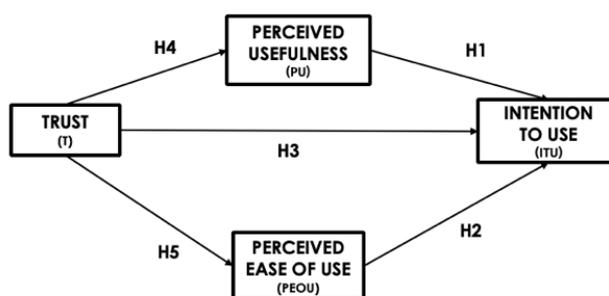
Figure 1. Research model

H1a: Perceived Usefulness has positive and significant effect on intention to use Flazz Gen 2.
H2a: Perceived Ease of Use has positive and significant effect on intention to use Flazz Gen 2.
H3a: Trust has positive and significant effect on people's intention to use Flazz Gen 2.
H4a: Trust has positive and significant effect on Perceived Usefulness.
H5a: Trust has positive and significant effect on Perceived Ease of Use.

## 2.1. Population and Sample

In this study, the population to be studied were Electronic Money User who made transaction and live in Jabodetabek area, based on data obtained from the Private Consumer Bank Electronic Money Reports in November 2019 there are 17,344,693 cards population. To obtained small sample, the authors use the Slovin formula with 10% error rate which resulting 100 sample.

The Questionnaire will be given to 100 respondents across the Jabodetabek by using The purposive sampling, Purposive Sampling is chosen to limits the scope of the research by providing specific criteria.

## 2.2. Operational Variables

Perceived Usefulness

This research uses elements of perceived usefulness variables based on the concept of Fred Davis (1980) which consist of: a) Work More Quickly, b) Job Performance, c) Increase Productivity, d) Effectiveness, e) Makes Job Easier, f) Useful

Perceived Ease of Use

This research uses elements of perceived ease of use variables based on the concept of Fred Davis (1980) which consist of: a) Easy to Learn, b) Controllable, c) Clear and Understandable, d) Flexible, e) Easy to Become Skillful, f) Easy to Use

Perceived Ease of Use

This research uses elements of Trust based on the concept of Gefen (2003) which consist of: a) Predictability, b) Integrity, c) Ability.

## 3. Result and Discussion

The data in this research is processed using Structural Equation Modeling – Partial Least Square (SEM-PLS). Structural Equation Modeling (SEM) is a collection of statistical techniques that allows a series of relationships between one or more independent variables, either continuous or discrete, and one or more dependent variables (Ullman and Bentler 2012). According to (J. F. Hair, Ringle, and Sarstedt 2011) PLS-SEM (Partial Least Square-Structural Equation Model) is a causal modeling approach that aims to maximize the variance described from the dependent latent construct. When using PLS-SEM, researchers benefit from the method's greater statistical power compared to factor-based SEM, even when estimating data generated from a common factor model population. Because of its greater statistical power, the PLS- SEM method is more likely to identify an effect as significant when it is indeed (Joe 2017). PLS path modeling is recommended in an early stage of theoretical development in order to test and validate exploratory models, Another powerful feature of PLS path modeling is that it is suitable for prediction-oriented research (Henseler, Ringle, and Sinkovics 2009).

## 3.1. Validity and Reliability

Validity tests in this study were conducted to measure the accuracy of questionnaire statements. According to Gunawan (2020:88) A questionnaire is said to be valid if the question in the questionnaire is able to reveal something that will be measured by the questionnaire.

Validity testing in this study will use the Pearson Correlation method with the help of the SPSS version 25. To be able to find out the validity of the statement can be done by comparing the calculated r value that has been processed in the SPSS program with the r table value, If the value of r > r table value then there is a correlation or valid, but if the value of r < r table then there is no correlation or invalid. In this study the number of respondents (N) was 100 people with a significance value of 5% 2-tailed so the value of r table was 0.194. Here are the validity test results from this study:

Table 1. Validity test result (Perceived Usefulness)

| Item | r value | r table | Description | Conclusion |
|------|---------|---------|-------------|------------|
| PU1 | 0,813 | 0,194 | r value > r table | Valid |
| PU2 | 0,858 | 0,194 | r value > r table | Valid |
| PU3 | 0,779 | 0,194 | r value > r table | Valid |
| PU4 | 0,803 | 0,194 | r value > r table | Valid |
| PU5 | 0,767 | 0,194 | r value > r table | Valid |
| PU6 | 0,822 | 0,194 | r value > r table | Valid |

Source: Research findings (2020)

Based on the data above PU1 statement has a r value of 0.813, PU2 with a value of 0.858, PU3 0.779, PU4 0.803, PU5 0.767 and PU6 with a r value of 0.822. in conclusion if the r value compared to the r table value of 0.194 by using the formula of r value > r table value then all items are valid.

Table 2. Validity test result (Perceived Ease of Use)

| Item | r value | r table | Description | Conclusion |
|------|---------|---------|-------------|------------|
| PEUO1 | 0,731 | 0,194 | r value > r table | Valid |
| PEUO2 | 0,735 | 0,194 | r value > r table | Valid |
| PEUO3 | 0,818 | 0,194 | r value > r table | Valid |
| PEUO4 | 0,767 | 0,194 | r value > r table | Valid |
| PEUO5 | 0,835 | 0,194 | r value > r table | Valid |
| PEOU6 | 0,841 | 0,194 | r value > r table | Valid |

Source: Research findings (2020)

Based on the data above PEOU1 statement has a total r value of 0.731 and PEOU2 with a total value of 0.735 and so on. If using the previous formula by comparing the r value with the r table value of 0.194 then all items are valid.

Table 3. Validity test result (Trust)

| Item | r value | r table | Description | Conclusion |
|------|---------|---------|-------------|------------|
| T1 | 0,863 | 0,194 | r value > r table | Valid |
| T2 | 0,866 | 0,194 | r value > r table | Valid |
| T3 | 0,868 | 0,194 | r value > r table | Valid |
| T4 | 0,830 | 0,194 | r value > r table | Valid |
| T5 | 0,816 | 0,194 | r value > r table | Valid |

Source: Research findings (2020)

Based on the data above the statement T1 has a total r value of 0.863 and T2 with a total value of 0.866 and so on. It can then be concluded that all items in the Trust variable are valid.

Table 4. Validity test result (Intention To use)

| Item | r value | r table | Description | Conclusion |
|------|---------|---------|-------------|------------|
| ITU1 | 0,744 | 0,194 | r value > r table | Valid |
| ITU2 | 0,826 | 0,194 | r value > r table | Valid |
| ITU3 | 0,888 | 0,194 | r value > r table | Valid |
| ITU4 | 0,822 | 0,194 | r value > r table | Valid |

Source: Research findings (2020)

Based on the data above ITU1 statement has a total r value of 0.744 and ITU2 with a total value of 0.826 and so on. It can then be concluded that all items in the Intention To Use variable are valid.

After the validity test is done and all items are valid then the Reliability Test is carried out, According to Siregar (2013:55) Reliability is conducted to know the extent to which the measurement results remain consistent when measured several times against the same symptoms using a similar measuring instrument. According to (Wahyuni 2014) If the alpha value > 0.90 then reliability is declared perfect, If the alpha value is between $0.70 - 0.90$ then the reliability is high, and if the alpha value is between $0.50 - 0.70$ means moderate reliability whereas if the alpha value < 0.50 means low reliability this can occur if there are some invalid items. Here are the reliability test results from this study:

**Case Processing Summary**

|  |  | N | % |
|---|---|---|---|
| Cases | Valid | 100 | 99.0 |
|  | Excluded[a] | 1 | 1.0 |
|  | Total | 101 | 100.0 |

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

| Cronbach's Alpha | N of Items |
|---|---|
| .889 | 6 |

Figure 2. Reliability Test result (perceived usefulness)

Based on the above data, it can be concluded that the reliability test on perceived usefulness variables is declared reliable because it has an alpha value that is between $0.70 - 0.90$ i.e. 0.889.

**Case Processing Summary**

|  |  | N | % |
|---|---|---|---|
| Cases | Valid | 100 | 99.0 |
|  | Excluded[a] | 1 | 1.0 |
|  | Total | 101 | 100.0 |

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

| Cronbach's Alpha | N of Items |
|---|---|
| .878 | 6 |

Figure 3. Reliability Test result (perceived ease of use)

Based on the above data, it can be concluded that the reliability test on perceived ease of use variables is declared reliable because it has an alpha value that is between $0.70 - 0.90$ which is 0.878 so that reliability is declared high.

**Case Processing Summary**

|  |  | N | % |
|---|---|---|---|
| Cases | Valid | 100 | 99.0 |
|  | Excluded[a] | 1 | 1.0 |
|  | Total | 101 | 100.0 |

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

| Cronbach's Alpha | N of Items |
|---|---|
| .902 | 5 |

Figure 4. Reliability Test result (trust)

Based on the above data, it can be concluded that the reliability test on trust variables is declared reliable because it has an alpha value that is above 0.90 which is 0.902 so that reliability is declared perfect.0.90 i.e. 0.878 so reliability is declared high.

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**Case Processing Summary**

|  |  | N | % |
|---|---|---|---|
| Cases | Valid | 100 | 99.0 |
|  | Excluded[a] | 1 | 1.0 |
|  | Total | 101 | 100.0 |

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

| Cronbach's Alpha | N of Items |
|---|---|
| .835 | 4 |

Figure 5. Reliability Test result (Intention To Use)

Based on the above data, it can be concluded that the reliability test on the Intention To Use variable is declared reliable because it has an alpha value that is between 0.70 – 0.90 i.e. 0.835 so that reliability is expressed high.

## 3.2. Evaluation of Measurement Model

Table 5. Composite Reliability value

| Variable | Composite Reliability |
|---|---|
| T | 0.927 |
| PU | 0.918 |
| PEOU | 0.910 |
| ITU | 0.892 |

Source: Research findings (2020)

Based on the data above shows that the constructs of T, PU, PEOU and ITU have a Composite Reliability value of > 0.70 which mean that all constructs passed the criteria and are reliable.

Table 6. AVE value

| Variable | Nilai AVE |
|---|---|
| T | 0.719 |
| PU | 0.652 |
| PEOU | 0.628 |
| ITU | 0.674 |

Source: Research findings (2020)

Based on the data above shows that the highest Average Variance Extracted (AVE) value is in the T variable with a value of 0.719 and the rest is above 0.5 so it can be concluded that all indicators are valid.

## 3.3. Evaluation of Structural Model

Table 7. R Square $(R^2)$ value

| Variable | R Square $(R^2)$ |
|---|---|
| PU | 0.509 |
| PEOU | 0.531 |
| ITU | 0.573 |

Source: Research findings (2020)

Based on the data above shows that the value of the Determination Coefficient of the endogenous variable ITU has a value of $R^2$ 0.573 which is moderate which means that the PU and PEOU variables simultaneously have a 57% effect on the ITU variable, while PEOU and PU variables have a value of $R^2$ 0.531 and $R^2$ 0.509, which means that the T variable simultaneously has an effect of 53% on PEOU and 50% on PU.

Table 8. Effect Size value

| Paths | ITU | PEOU | PU |
|---|---|---|---|
| PU | 0.165 |  |  |
| PEOU | 0.015 |  |  |
| T | 0.212 | 1.130 | 1.036 |

Source: Research findings (2020)

According to (Hair, Sarstedt, Kuppelwieser, & Hopkin, 2014) the effect size value is used to determine the effect of exogenous variables on endogenous variables. The effect size value of 0.02 has a weak effect, 0.15 has a medium or moderate effect, 0.35 has a large effect.

Based on the data above, the PEOU variable has a effect size of 0.015, which means that the effect of PEOU on ITU is weak, while the PU variable to ITU has a value of 0.165 which means moderate effect. In other variables such as T to ITU has a effect size of 0.212 which means it has a moderate effect, the influence of T to PEOU has a the highest value of 1.130 which means it has a large influence and for the influence of the T to PU it has a value of 1.036 which consider as large effect as well.

Table 9. Original Sample value

| Paths | Original Sample (*O*) | Explanation |
|---|---|---|
| PEOU -> ITU | -0.151 | Negative |
| PU -> ITU | 0.491 | Positive |
| T -> ITU | 0.459 | Positive |
| T -> PEOU | 0.728 | Positive |
| T -> PU | 0.713 | Positive |

Source: Research findings (2020)

Based on the data above, the original sample value in the PEOU-> ITU has a value of -0.151 which means the relationship is negative because it reached -1 this can be triggered by several things such as one of predictor with a higher value in this case is T -> PEOU with a value of 0.728 and T -> PU with a value of 0.713. Meanwhile, the PU -> ITU path has a value of 0.491 which means positive because it reached +1 and T -> ITU which has a value of 0.459 which means positive. Overall, among the 5 paths coefficient there is one path that has a negative value.

### 3.4. Hypothesis Testing

To analyze whether the hypothesis can be accepted or rejected, there is a standard to follow, if the t-statistic value is > of 1.984 (N = 100, sig 5%) and the path coefficient value is above 0.1 (positive) and p value < of 0.05 (α) then the hypothesis can be accepted. The following is the value of each path.

Table 10. Hypothesis Testing

| Paths | Original Sample (*O*) | T Statistic | P Value |
|---|---|---|---|
| PU -> ITU | 0,491 | 3,619 | 0,000 |
| PEOU-> ITU | -0,151 | 0,921 | 0,358 |
| T -> ITU | 0,459 | 3,766 | 0,000 |
| T -> PU | 0,713 | 13,278 | 0,000 |
| T -> PEOU | 0,728 | 12,381 | 0,000 |

Source: Research findings (2020)

Among the five hypothesis, there is one hypothesis that has a negative and non-significant relationship, namely PEOU to ITU. PEOU to ITU has a minus value on original sample -0,151 which mean the relationship has negative relationship and T statistic value lower than 1.984 shows that the paths has a nonsignificant relationship. PEOU is defined as the extent to which a person believes that using a special system will be free from effort or difficulty, in this study PEOU has a value that does not meet criteria so it can be concluced that Electronic Money users still find it difficult to use the electronic money during transactions.

### 4. Conclusion

Based on the research result all of the variables that have been used have effects but not all of them has positive and significant relationship. The study concludes, i.e. (1) Trust and Perceived Usefulness, in the SEM-PLS analysis this variable shows a significant influence and has a positive relationship to intention to use so that means that the user consider Trust and Perceived Usefulness as important elements on using Electronic Money, (2) Perceived Ease of Use, this variable has an nonsignificant effect and has a negative relationship with intention to use, Perceived ease of use defined as how a system when used can be free from effort or difficulty. Therefore, it can be concluded that the User still experience difficulty in using the Electronic Money. The recommendations for the Private Consumer Bank is to create awareness that can be understand easily regarding how to use the Electronic Money product. For the next researcher that has intention to do the same research might add more variables and get the sample from different area to gain new persepectives and more varied result.

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