



Level of Acceptance and Use Measurement of Electronic Money Technology Using UTAUT Model

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Abstract

By increasing transaction speed and decreasing transaction costs, electronic payment innovations make cashless payment systems more effective. Electronic money is used in a variety of transactions, such as paying for commuter line tickets, paying for Trans Jakarta tickets, paying tolls, and shopping at supermarkets. However, in practice, it shows that users' understanding and awareness of electronic money are still not optimal, and there are problems with electronic money reader sensors. Therefore, it is crucial to undertake research on the acceptance and use of electronic money because this is one of the key elements in the system's successful deployment. In order to ascertain the current state of user acceptance and usage of electronic money, this study used the PLS-SEM analytic technique to look at the factors from the UTAUT 2 model that have an impact on user acceptability of electronic money. According to the findings, users who utilize electronic money have behavioral intentions and use behaviors that are 88% and 26%, respectively. Then, of the 12 hypotheses put out, Social Influence on Behavioral Intention and Facilitating Conditions on Behavioral Intention were the two that were rejected. Despite the fact that 60% of new users continue to use electronic money after one to two years, not enough nominal is utilized in a single week, according to the results of using it.

Keywords: Electronic Money, User Acceptance, Use Behavior, Cashless Payment, UTAUT.

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1. Introduction

A new way of thinking has emerged as a result of the current technological advancement and is also evolving with the times. With the advancement of Internet technology in recent years, financial electronic payment systems have advanced significantly. Not only can online payments solve the physical problem of time and labour, but they can also provide a safe, fast environment and many convenient benefits. When the payment system is obligated to always fulfill each community requirement in terms of rapid, secure, and efficient transfer of funds, numerous technological advancements in payment are rapidly emerging to offer alternative services for non-cash payments in the form of a transfer system and means of payment using an electronic card (electronic card payment) that is secure, rapid, efficient, and global in nature [1]. Cash is the primary tool in every payment transaction. The trend of transitioning from utilizing paper-based payment instruments such as checks and giro to using card-based and electronic payment instruments can be observed in the general public, who are increasingly accustomed to using payment instruments such as credit cards, ATM/debit cards, electronic transfers through clearing and Real Time Gross Settlement (RTGS), Scripless Securities Settlement System (SSSS), electronic money in the form of cards (chip-based) and server-based, payments through online banking, mobile payment channels, and other derivative features. Even so, there are certain groups of people who are still or are more comfortable using checks [2].

Electronic money is a form of payment that is issued based on the amount of money that the user has placed with the issuer in advance. The medium or server used as a payment method stores the money electronically. Since electronic money offers the benefit of making transactions simpler, quicker, and less expensive, it is extremely possible that it will replace cash, which is presently the primary form of payment. According to Bank Indonesia Regulation No. 11/12/PBI/2009 about electronic money, electronic money is a form of payment that satisfies the following criteria: Users that deposit money in advance will receive electronic money from the issuers. An electronic storage device for monetary values is a server or chip [3]. Electronic money is used as a form of payment by merchants who are not electronic money issuers. The value of digital currency held by issuers and deposited by users is not a deposit as defined by the law governing banking. The form of electronic money being discussed here is distinct from other card-based electronic payment methods like credit and debit cards. Credit and debit cards are access products, not prepaid ones. The reported funds reveal the distinction between prepaid and access items.

Recorded funds for prepaid products are entirely at the user's control, whereas funds for recorded access products are under the bank's supervision [4]. The value of electronic money on the owner's managed electronic devices is immediately decreased when payment transactions involving electronic money are completed by sending monies electronically to the merchant terminal [5].

Implementation of a technology is always associated with user acceptance. The intended acceptance is whether the convenience and benefits that exist in the system can maximize the system and be able to provide very informative analysis for stakeholders. The UTAUT 2 (Unified Theory of approval and Use of Technology 2) model, a development of the UTAUT model, is one of many models for gauging user approval, and it will be employed in this study. UTAUT 2 investigates how a technology is adopted and used in a consumer environment. The UTAUT 2 model aims to change some of the existing relationships in the notion of the UTAUT model and introduce new ones [6]. It does this by identifying three significant constructs from research into the acceptance and usage of technology for both the general public and customers. Hedonic motivation, price value, and habit were three new constructs included. Factors that determine user acceptance of a new system or technology are determined by two determinants: namely, people will tend to use or not use new technology if they believe it will be useful to help them do a better job, and if they believe that what a new technology provides is useful, but they believe that the technology is difficult to use. So they will not use the technology [7]. In addition to the benefits of a technology, there is also the convenience factor of using it, which is the most important thing. The premise for accepting a new technology is therefore the value of the advantages and ease of usage. If a technology's advantages and usability are highly valued, then it will also be widely accepted, which will raise the urgency with which it is implemented [8].

In its application in Indonesia, electronic money is used in a variety of transactions, such as paying for commuter line tickets, paying for Transjakarta tickets, paying tolls, and shopping at supermarkets. It is thought to be quite challenging to convert all transactions from cash to electronic money in the near future. This problem can occur due to the habits of people who, until now, are still happy to use cash. Besides that, people still don't know the use and convenience of electronic money, which can be used anywhere. Failure in the actual application of information technology might result from being unprepared [9]. The balance or notional money included in electronic money is excluded from deposits under the law that governs banking. In order to prevent the use of electronic money by someone who does not own the card from being tracked and the electronic money from being blocked in the event that something unfavourable occurs, like damage or loss to the electronic money. The electronic money sensor reading machine's delayed reaction is seen as a barrier to toll payment transactions, which is at odds with the device's intended objective of accelerating toll payment transactions [10].

In a survey on the application of electronic money conducted by Bank Indonesia, it was shown that users' understanding and awareness of electronic money are still not optimal, and the interoperability of electronic money has not been well coordinated, so users have to use many electronic money products. A poll by MARS Indonesia in 2013 on the knowledge of electronic money users in numerous cities revealed that usage of the technology was still fairly low and that just 23.8% of the populace was unfamiliar with it. "After more careful study, it turns out that Law Number 7 of 2011 states that legal money is rupiah in paper and metal forms, no electronic money," the attorney for the Jakarta Citizens Forum said. The Jakarta Citizens Forum (Facts) admits that they are not against the era of electronic money, but that there is a need for a law to regulate the circulation of electronic money. In Indonesia's Banten Province, Tatar Pasundan is home to the city of South Tangerang. Tangerang City, Bogor Regency (West Java Province), Tangerang Regency, and the Special Capital Region of Jakarta are its northern, southern, western, and eastern neighbours, respectively. South Tangerang is the fifth largest city in the Greater Jakarta area after Jakarta, Bekasi, Tangerang, and Depok. It is the second most populous city in Banten Province after Tangerang City. The Tangerang Regency, which has as its objective the realisation of a smart, qualified, and competitive city based on technology and innovation, is what gave rise to the South Tangerang region. While its mission is to develop reliable and competitive human resources, improve functional city infrastructure, create livable cities that are environmentally sound, develop a populist economy based on innovation and superior products, and improve good governance based on information technology [11].

The community's need for a payment system (in terms of fund transfers) is expected to be met quickly, safely, and efficiently. People are becoming more accustomed to utilising payment instruments like electronic money in transactions, which is a sign that the shift from using paper-based payment instruments to using card-based and electronic payment instruments is expanding every year. However, in its implementation in Indonesia, several obstacles were found, such as the lack of understanding and awareness of users of electronic money, inadequate facilities, a lack of trust in electronic money, and the absence of a security system for electronic money. Therefore, the habit of people who still like to use cash has not disappeared until now. This also occurs in cities that have adopted the smart city idea in order to realise the vision of a high-quality, competitive smart city that can address issues facing its citizens by utilising relevant technology, such as the use of electronic money. Consequently, conducting research becomes intriguing. The results of this study should demonstrate how widely electronic money technology is used and accepted [12].

The UTAUT model, which is a development of the UTAUT model and a model to describe user behaviour towards information technology, is adopted and updated in this study. Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Facilitating Conditions (FC), Hedonic Motivation (HM), Price Value (PV), and Habit (HT) are the seven variables that make up this model. Additionally, researchers added the variables Perceived Security and Perceived Trust to the current UTAUT 2 model. A crucial component and the cornerstone for growing enterprises in online transaction services is perceived trust. The degree of trust and the intention to use are positively correlated. To allay worries about using technology to make online payments, it's crucial to feel secure when making financial transactions online. In a commercial context, perceived security reflects the consumer's perception that a particular system is safe for conducting transactions. Then in the UTAUT 2 model, there are moderator variables, namely gender, age, and experience.

2. Research Methods

This study uses quantitative methods. Then this hypothesis will be tested using the data that has been collected from the questionnaire. Questionnaires are designed in the form of statements that are in line with research approaches and strategies and are then distributed to targeted respondents. Researchers also conduct literature reviews to support current hypotheses and ensure the objectivity of their work. All of the respondents to this study used electronic money. To produce a sample that is representative of this group because it is challenging to reach, a sampling technique will be used. The accidental sampling method of purposive sampling was used to collect samples. Purposive sampling was used in the first stage to identify a subset of the population, and accidental sampling was used in the second stage to identify respondents who just so happened to be present. Purposive sampling was used to identify participants who had prior experience using the system. Questionnaires were distributed directly and indirectly to respondents. Direct dissemination was carried out by researchers to find the right respondents face-to-face. Meanwhile, the dissemination was indirectly carried out by researchers by spreading links through social media with the help of the Google Forms feature for filling them out. After that, all collected questionnaires will be filtered and classified using Ms. Excel. Based on the data collection, 228 valid data points were obtained to be used. The process of quantitative data analysis uses the PLS-SEM approach with SmartPLS version 3.0. Afterward, interpretation is done in light of the analysis' findings. Finally, conclusions are reached based on the research limits highlighted and the research questions that have been asked.

3. Results and Discussion

The researcher analysed and discussed the analysis' findings as follows based on the findings of the analysis of the demographic data on the respondent's profile: It is clear that the majority of the respondents in this survey were male, numbering 134 individuals (59%), while the remainder came from female respondents, numbering as many as 94 individuals (41%). This can happen because when researchers distribute questionnaires, the male gender tends to agree more to fill them out than the female gender. Most of the respondents came from students, namely as many as 83 people (36%), followed by respondents from private employees, namely as many as 59 people (26%). The least number of respondents came from entrepreneurs, namely 25 people (11%). Researchers suspect that the most likely reason this can happen is because most of the questionnaires are distributed freely online via Google Forms, so they can be filled out freely by any group without any coercion or restrictions. The number of respondents was roughly the same in each district, according to the 228 respondents data used in this study. This was done so that the distribution of the questionnaires was even. Most respondents were aged 17–25 years, namely 117 people (51%), followed by respondents aged 26–35 years, namely 64 people (28%). The least number of respondents aged >45 years was 19, namely 19 people (8%). Thus, the researchers assume that the level of use of electronic money at the age of 17–25 is higher, perhaps because people at that age are more familiar with the use of electronic money and their activities are supported by transactions using electronic money.

Most of the respondents came from the Bachelor's degree education level, namely 89 people (39%), followed by respondents from the senior high school education level, namely 79 people (35%). The least number of respondents came from the doctoral education level, namely 2 people (1%). Thus, it can be concluded that the majority of the educational levels of the research respondents are S1. This shows that 65% of respondents to the questionnaire have a high level of education to be used as a research sample related to electronic money technology. Most respondents used electronic money from Mandiri issuers, namely 85 people (37%). Most respondents have used electronic money for 1-2 years, namely 65 people (32%). Most respondents in one week used electronic money 2-4 times, namely 69 people (30%). Most respondents use electronic money for toll road transactions, namely 72 people (32%). The majority of respondents using electronic money spent less than IDR 100,000, namely 99 people (43%). Thus, researchers can conclude that electronic money users are not optimal in using electronic money, that the majority have only used electronic money since 2016, and that their use is not too frequent, with not enough nominal used in one week.

According to the findings of the model structure analysis, it is evident that the H1 relationship PE→BI is accepted. Therefore, it may be concluded that PE has a favourable impact on BI. Additionally, it is confirmed by the path

coefficient (β) values of 0.119, which indicate that PE also significantly affects BI similar to earlier studies. This is consistent with several earlier research that found PE to have a big impact on BI. In this study, it was discovered that using electronic money can aid and facilitate users in the transaction process since transactions can be completed quickly and effectively, which influences the user's intention to use electronic money. So it can be concluded that H1 is accepted in this study. In H2, the relationship $EE \rightarrow BI$ is accepted. Therefore, it may be concluded that PE has a favourable impact on BI. Additionally, it is corroborated by the path coefficient (β) results of 0.209, which are consistent with earlier studies and indicate that EE also significantly affects BI. Additionally, this is reinforced by academics' actual findings that consumers value simplicity when using electronic money; the less effort required, the easier it is for the system to persuade users to use it. Therefore, it can be said that H2 is considered valid for this investigation.

In H3, the relationship $SI \rightarrow BI$ is rejected so that it is possible to conclude that SI has no impact on BI. Additionally, it is corroborated by the path coefficient (β) results of 0.016, which indicate that SI has no impact on BI. Based on direct observations made by researchers, there is one transaction that requires the use of electronic money. For example, in toll payment transactions, users are required to use electronic money to be able to use toll roads. Users also feel that electronic money is a necessity to support their activities, so they use electronic money without any influence or coercion from those around them. Researchers assume that the reason H3 is rejected is because users feel confident in using this electronic money technology, so there is no influence or coercion from other parties. This can be seen from the t-test value of the trust variable, which is quite high. The relationship $PS \rightarrow BI$ is accepted, so it can be interpreted that PS has a positive influence on BI. Additionally, the path coefficient (β) results of 0.275, which indicate that PT also significantly affects BI, confirm this conclusion. This is also supported by direct observations by researchers that users attach importance to security when making transactions using electronic money, and the safer the system, the more likely users are to use it. So it can be concluded that H4 is accepted in this study. This is in accordance with the initial assumptions that the researchers put forward based on the theory or concept regarding the importance of the influence of security variables on the use of technology. In H5, the relationship between $PT \rightarrow BI$ is accepted, so it can be interpreted that PT has a positive influence on BI. Additionally, it is confirmed by the path coefficient (β) values of 0.238, which show that PT significantly influences BI. This is consistent with the researchers' initial hypotheses, which were based on the notion or idea that there is a correlation between the degree of trust and the desire to use. Therefore, it can be said that this study accepts H5 as valid.

In H6, the relationship $FC \rightarrow BI$ is rejected, so it can be interpreted that FC has no influence on BI. This is consistent with earlier studies, which also asserts that FC does not significantly affect user intention. Based on direct observations made by researchers, there is one electronic money transaction that has a reader sensor with a long response and also a lack of experts who can help if there are infrastructure problems in using electronic money. This occurs in toll payment transactions and when topping up electronic money balances, even though users still use electronic money. Researchers assume that the reason for rejecting H6 is that the user's level of trust in using electronic money is quite high, so that users feel that the facilities provided in electronic money technology do not affect their use of electronic money technology. In H7, the relationship $FC \rightarrow UB$ is accepted, so it can be interpreted that FC has a positive influence on UB. Besides that, it is also supported by the results of the path coefficient (β) of 0.187, which means that FC also has a significant effect on UB according to previous research. The relationship between $HM \rightarrow BI$ is accepted, so it can be interpreted that HM has a positive influence on BI. However, the results of the t-test are not supported by the path coefficient (β) value of 0.082, which means that the significant relationship between HM and BI is weak. This is also consistent with previous studies where HM has an effect but has a weakly significant level of BI. The H9 $PV \rightarrow BI$ relationship is accepted, so it can be interpreted that PV has a positive influence on BI. In addition, it is also supported by the results of the path coefficient (β) of 0.171, which means that PV also has a significant effect on BI; this is consistent with previous research. This is also supported by the researcher's direct observations, where the price of electronic money is relatively cheap and transactions using electronic money sometimes get discounts. Therefore, researchers think that users will be more interested in using electronic money in transactions.

In H10, the relationship between $HT \rightarrow BI$ is accepted, so it can be interpreted that HT has a positive influence on BI. However, the results of the t-test are not supported by the results of the path coefficient (β) -0.093, which means that the significant level of HT to BI is weak. This is not in accordance with previous research conducted by previous researchers, which resulted in a significant level of HT against strong BI. In H11, the relationship $HT \rightarrow UB$ is accepted, so it can be interpreted that HT has a positive influence on UB. In addition, it is also supported by the results of the path coefficient (β) of 0.147, which means that HT also has a significant effect on BI. This is in accordance with previous research conducted by previous researchers, which found that HT had an effect on UB. In H12, the relationship $BI \rightarrow UB$ is accepted, so it can be interpreted that BI has a positive influence on UB. In addition, it is also supported by the results of the path coefficient (β) of 0.415, which is the highest score compared to the others, which means that BI also has a significant effect on UB according to previous studies. This is also supported by direct observations by researchers that electronic money users usage behaviour is

influenced by their interest in use; this can be proven from the independent variables related to the dependent variable, behavioural intention, where the test results found that users feel that using e-money improves their performance and makes it easier for them to transact, so that they feel that using e-money is profitable for them. Therefore, it can be concluded that it is true that behavioural intention influences use behaviour.

The R2 value of the gender moderator variable represents the value of the association between the influence of each independent variable and the dependent variable, according to the findings of the researcher's moderator variable study. Differences in technology acceptance behaviour between the gender group are explained by the variation in the value of R2 on the behavioural intention and use behaviour variables. The analysis's final findings indicate that the gender moderator variable has a negligible impact on the behavioural intention variable (0.05%) and usage behaviour variable (1.57%), respectively. Both of these values can be said to have an influence that is not too large. The influence link between each independent variable and the dependent variable is depicted by the R2 value of the moderator variable age. Differences in technology acceptance behaviour among the age group are explained by the difference in the value of R2 on the behavioural intention and use behaviour variables. Based on the analysis's final findings, it can be seen that the moderator variable age has a negligible impact on the variables measuring behavioural intention (0.65%) and use behaviour (3.36%). Both of these values can be said to have an influence that is not too big.

4. Conclusion

From the results of data processing, it is known that as many as 37% of respondents use electronic money from Mandiri issuers; 32% of electronic money users are users who have only used it for 1-2 years; and 30% of respondents use electronic money 2-4 times a week. In addition, 43% of respondents spend less than IDR 100,000 for transactions using electronic money in one week, and 32% of respondents use electronic money for toll payments. So, it can be concluded that the use of electronic money for toll payments is higher than other transactions because this transaction was the beginning of the use of electronic money. Then electronic money users are not optimal in using electronic money; the majority have only used electronic money since 2016, and their use is not too frequent, with not enough nominal money used in one week. There was no deletion of the 35 indicators proposed; this was due to the use of question items in the indicator questionnaire, which was quite appropriate. Two of the 12 hypotheses, namely SI→BI and FC→BI were declared rejected because most of them had little effect in testing the model structure, especially in the f2 or q2 test. The rejection of the hypothesis shows the difference in results with previous similar studies. Researchers argue that this difference is a natural thing, considering that there are differences in objects, samples, and research instruments, as well as limitations or constraints during research implementation, which are also factors that can affect research results. The ten hypotheses accepted are PE→BI, EE→BI, PS→BI, PT→BI, FC→UB, HM→BI, PV→BI, HT→BI, HT→UB, and BI→UB. So, the factors that affect user acceptance are as follows: PE (performance expectancy) affects user acceptance. EE (effort expectancy) affects user acceptance. PS (perceived security) affects user acceptance. PT (perceived trust) affects user acceptance. HM (hedonic motivation) influences user acceptance. PV (price value) affects user acceptance. HT (habit) affects user acceptance. FC (facilitating condition) affects user behavior, but does not affect user acceptance. In the process of distributing questionnaires, it is better to do it directly without online distribution. So that respondent can get a direct explanation of the statement items that exist when filling out the questionnaire in order to avoid misunderstanding the statements in the questionnaire. The data collected in this study were not in large numbers and were only carried out in one city. To get better results in the future, it is hoped that future researchers will get more data and cover various regions in Indonesia. Suggestions for issuers of electronic money: looking at the influence generated by facilitating conditions and social influence, the issuers should build better facilities to support the transaction process using electronic money so that users get better service and build a mindset towards users about the importance of using electronic money for transactions so that they can recommend, support, and oblige the use of electronic money to their friends and family.

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