

## ANALYSIS OF ELECTRONIC MONEY USAGE BEHAVIOR ON THE MILENNIAL GENERATION IN INDONESIA

**Leonardus Prakoso**

Magister Management Program, Faculty of Business and Economics, Airlangga University  
Jl. Airlangga 4-6, Surabaya  
E-mail: leo3895@gmail.com

### ABSTRACT

The Covid-19 pandemic that began in 2019 forced people to be able to carry out all aspects of life without interacting directly, including in saving and transacting activities. Under these conditions, electronic money is present as the main tool to accommodate people's needs. This study tries to identify the factors that influence the behavior of millennials in Indonesia regarding the use of electronic money. The model used in the study adopted the UTAUT and E-SQ models. The results of the study show that the millennial generation's intention to use electronic money in Indonesia is significantly influenced by application reliability, customer service, and electronic money application design.

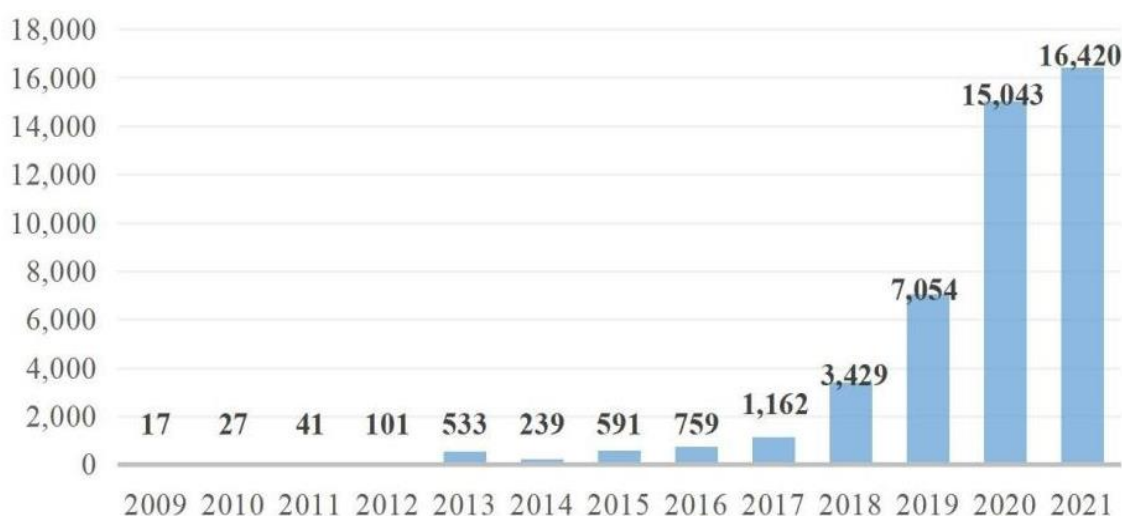
**Keywords:** Electronic Money, Millenials, Indonesia, Behaviour.

### INTRODUCTION

#### The Usage of Electronic Money

Technological progress is an absolute condition that occurs in this era. The Covid-19 pandemic which started in 2019 forced people to be able to carry out all aspects of life without direct interaction. In such conditions, technology is present as a tool for the community in carrying out daily activities, including the activities of saving money and transacting. In this condition, electronic money is present as the top tool to accommodate the needs of the community.

Based on data released by Bank Indonesia, in the last twelve years, there has been an increase in transactions by electronic money in Indonesia. Figure 1 provides an overview of the number of electronic money instruments circulating in Indonesia. In the last twelve years, there has been an increase in the amount of electronic money by 18950.33%, or a total of 572.3 million units. The largest increase was recorded in 2017-2021. This data can be interpreted that technological advances greatly affect changes in the way people transact, who increasingly use electronic money as a way of transacting.



**Figure 1.** Electronic Money Transaction Volume In Indonesia (in Billion transactions).  
Source: Bank Indonesia

## **Millennials and Technology**

Research conducted by Rahi et, al. (2019) tries to identify what factors influence the intention to use technology in the form of internet banking, using a model based on technology and social psychology (UTAUT - Unified Theory of Acceptance and Use of Technology and E-SQ - E-Service Quality) with research locations in Pakistan. Suggestions for further research in that study state that the model used in this study can be used in other technologies related to consumer transaction behavior in its utilization. Then suggestions for applying this research to other Asian countries are also suggested, to be able to provide an overview of behavior in several countries. Therefore, electronic money and the millennial generation in Indonesia were chosen to be the subjects of this study.

This study has the intention of continuing the previous research, namely to provide an overview of generational behavior related to electronic use intentions.

## **LITERATURE REVIEW**

### **Electronic Money**

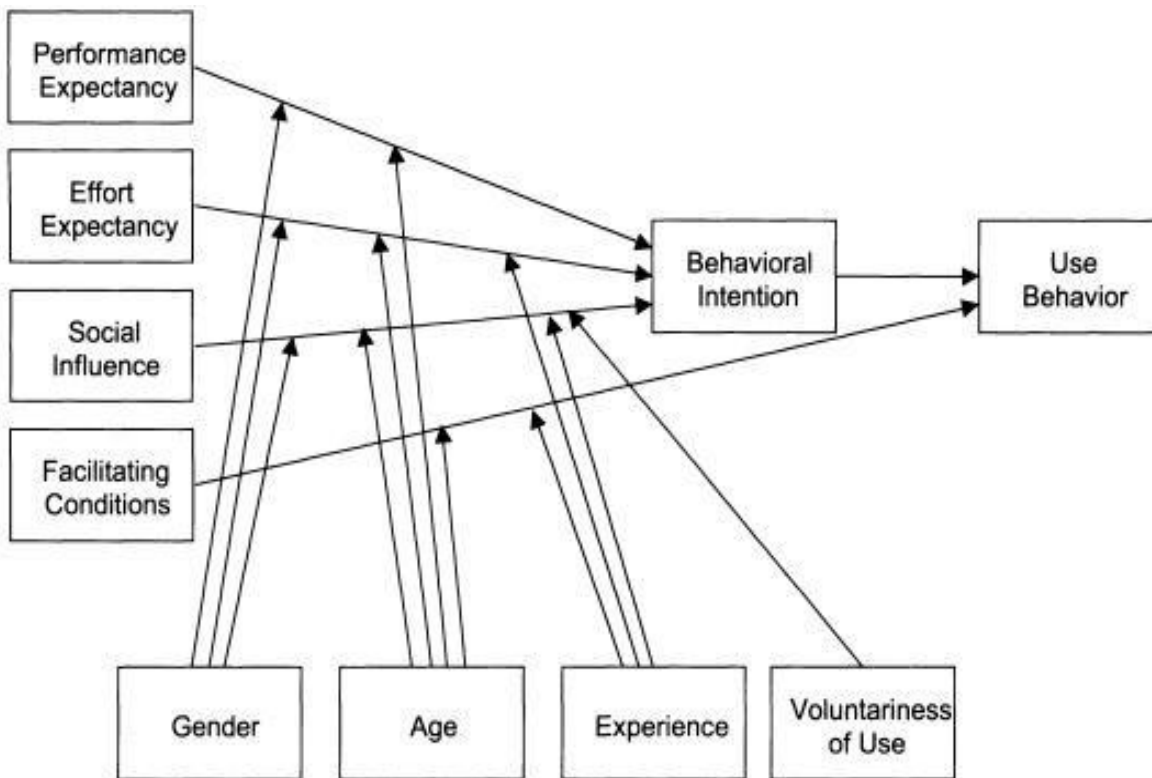
Digital Wallet is a place to store electronic money. Bank Indonesia then defines electronic money as a means of payment in electronic form where the value of the money is stored in certain electronic media. Users must first deposit their money to the issuer and store it in electronic media before using it for transaction purposes. According to Peraturan Bank Indonesia (PBI) No. 11/12/PBI/2009, Electronic Money (Electronic Money) is a means of payment that meets the following elements: (1) Issued on the basis of the value of money that was deposited in advance by the holder to the issuer; (2) The value of money is stored electronically in a medium such as a server or chip; (3) Used as a means of payment to merchants who are not the issuers of the electronic money; and (4) The value of electronic money deposited by the holder and managed by the issuer is not a deposit as referred to in the law governing banking. Meanwhile, according to the type, electronic money can be in the form of applications or chips.

### **Unified Theory of Acceptance and Use of Technology (UTAUT)**

Unified Theory of Acceptance and Use of technology (UTAUT) is a model which is a combination of several models that can identify the level of individual acceptance of a technology. A study conducted by Momani (2020) explains the development of the UTAUT theory. In 2003, Venkatesh and his research group reviewed eight theories related to technology acceptance: Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), Technology Acceptance Model (TAM), a combination of TAM and TPB (C- TAM-TPB), Model of PC Utilization (MPCU), Innovation Diffusion Theory (IDT), Motivational Model (MM), and Social Cognitive Theory (SCT). The results of the study led to a new theory that can accommodate, take the strengths and minimize the weaknesses of each theory used. Furthermore, the matrix of advantages and disadvantages of each theory is described and the combination of the eight theories becomes the UTAUT theory.

### **Electronic Service Quality (E-SQ)**

Electronic Service Quality (E-SQ) is a theory related to the provision of existing services in electronic (online) services. Parasuraman et.al. (2005) stated that E-SQ must cover all online services which include information retrieval, product ordering, product delivery, online payments, and post-purchase services. Blut (2016) then identified the factors that influence E-SQ, namely Website Design, Fulfilment/Reliability, Privacy/Assurance, and Customer Service.



**Figure 2.** UTAUT Model  
Source: Venkatesh et.al. (2003)

## Previous Research

The four previous studies used different approaches, with different research objectives as well. Mazuri, Ghanib, and Ngah (2019) used the UTAUT-ESQ model with research findings Security is the most influencing factor for internet banking users to use the technology. Sharma, Singh, and Sharma (2020) use a simpler UTAUT model with research findings: (1) Intention to use IB has a positive impact on user behavior which has an impact on customer satisfaction, (2) Avoidance of uncertainty reduces the effect of performance expectations and facilities on the intention to adopt internet banking, and (3) the individual's value of internet banking has an effect on understanding the behavior of using internet banking. A slight difference is shown in the research of Aboobuckera and Bao (2018) which only uses a simpler model, with 7 variables with research findings: (1) Trust and benefits are the most influencing factors for customers in using internet banking, (2) Intermediation variables show the significant mediating effect on the independent variable. The difference in some of these studies lies in the depth of the model. Naeem and Ozuem (2021) used a qualitative approach by interviewing several sources. In addition, the discussion by reviewing various written literature with an epistemological and ontological approach was carried out before the discussion of the interview. The results of the research are: (1) Social actors in social media play a role in providing customer understanding of the uncertainty that occurs during Covid-19 which changes behavior towards the use of internet banking, and (2) Information shared through social media to avoid ATM use, Credit and debit cards are no longer safe for both customers and banks.

## Research Hypothesis

This research is a follow-up study to the first research. Therefore, the conceptual framework used in this study is based on the first research. The room for development from the first research lies in the differences in the technology used and the research respondents. The conceptual framework in this study was then adapted to the object of research.

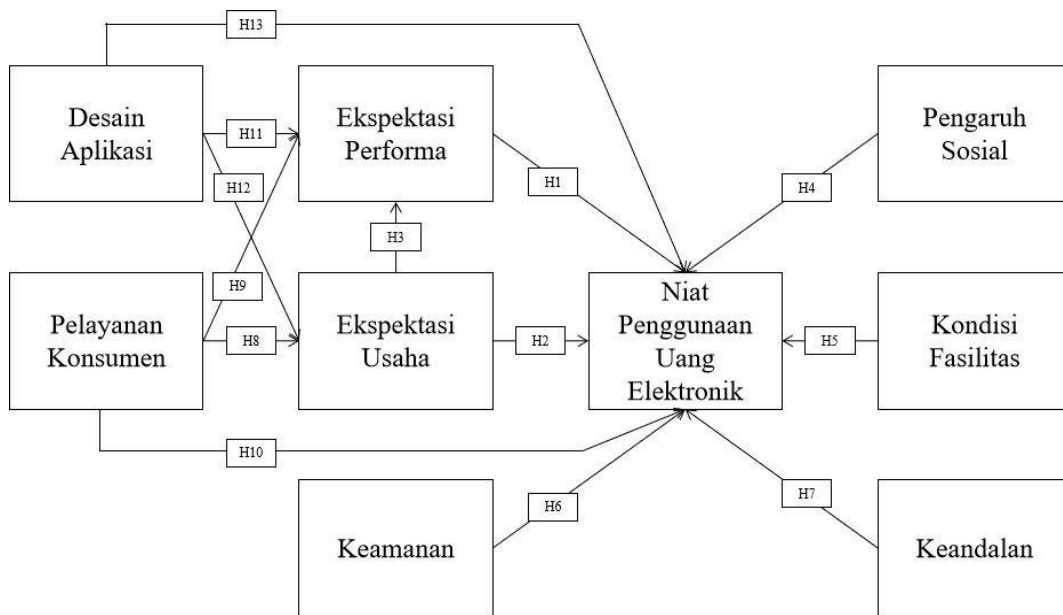


Figure 3. Research Model

The hypotheses used in this study are as follows:

- H1 : Performance Expectations have a positive influence on the Intention to Use Electronic Money
- H2 : Business Expectations have a positive influence on the Intention to Use Electronic Money
- H3 : Business Expectations have a positive influence on Performance Expectations
- H4 : Social Influence has a positive influence on the Intention to Use Electronic Money
- H5 : The condition of the facility has a positive influence on the Intention to Use Electronic Money
- H6 : Security has a positive influence on the Intention to Use Electronic Money
- H7 : Reliability has a positive influence on the Intention to Use Electronic Money
- H8 : Customer Service has a positive influence on Performance Expectations
- H9 : Consumer Service has a positive influence on Business Expectations
- H10: Consumer Service has a positive influence on the Intention to Use Electronic Money
- H11: Application design has a positive influence on Performance Expectations
- H12: Application design has a positive influence on Expectations
- H13: Application design has a positive influence on the Intention to Use Electronic Money

## METHODOLOGY

### Research Method

This research uses quantitative methods. To get answers to the hypotheses that have been formulated, a survey will be used to obtain data. The questions compiled in the survey cover topics around the variables used in the research. The types of questions in the survey use a Likert scale approach, ranging from 1 (strongly disagree) to 5 (strongly agree).

The type of data used in this research is secondary data. Secondary data was obtained by conducting an online survey. The target respondents of this research have several criteria, namely as follows:

- i. Indonesian citizens;
- ii. Aged between 15 - 35 years (millennials according to the Central Statistics Agency);
- iii. Have Electronic Money, both chip-based and server(application).

The population of this research is the Millennial Generation in Indonesia, users of electronic money. The results of the population census conducted by the Central Statistics Agency in 2020 illustrate that 25.87% of Indonesia's population is the millennial generation. If the population of Indonesia is 270 million people, then the millennial generation in Indonesia is  $\pm 70$  million people. The sample of the study was designed for as many as 60 people.

The type of data used in this study is secondary data, which relates to information collected from existing sources. Secondary data is obtained by conducting a bold survey. The estimated time for collecting answers to the survey is 1 month.

The technique used in data analysis is multiple regression. The PLS (Partial Least Square) approach is used because the purpose of this study is to predict the factors that influence the dependent variable.

To assess the significance and relevance of the research model, several tests were used, including the F test, T-test, and significance test which can provide an overview of the results of PLS data analysis.

## **Variable Description**

### ***Security (AM)***

Security is an important factor, especially when it comes to transactions conducted online. Data security in the form of user personal data and user transaction data must be ensured for the convenience of users in using electronic money. Thus, it can be assumed that security will have a positive effect on the intention to use electronic money.

### ***Customer Service (PK)***

Blut (2016) states that customer service contributes to the overall quality of consumer ratings of online websites. This means that an application/website needs to be oriented to customer service in order to make every user carry out transactions again, which is related to loyalty. Thus, it can be assumed that customer service will have a positive effect on the intention to use electronic money.

### ***Facility Conditon (FS)***

When an electronic money infrastructure is fully available, the tendency of user intentions increases. Conversely, if the user does not have the ability to use the infrastructure, the user's intention will be reduced. Thus, it can be assumed that the condition of the facility will have a positive effect on the intention to use electronic money.

### ***Reliability (AN)***

Reliability relates to the possibility of users to change the transaction process at any time without or remaining informed about the transaction process. Blut (2016) states that users expect there are instructions provided by technology providers, relating to the transactions they will carry out. Thus, it can be assumed that reliability will have a positive effect on the intention to use electronic money.

### ***Social Influence (PS)***

The use of new technology will be greatly influenced by others. Advertising using public figures or the user's immediate environment will determine the technology used by the individual. This also applies to the use of electronic money. Thus it can be assumed that social influence will have a positive effect on the intention to use electronic money.

### ***Appllication Interface Design (DA)***

Especially for application-based electronic money, the appearance of the application that provides convenience will increase consumers' intention to use electronic money. Thus, it can be assumed that the application design will have a positive effect on the intention to use electronic money.

### ***Effort Expectancy (EU)***

When users feel that using technology is easy, they tend to continue using the technology. This also applies to technology owned by electronic money, namely the easier it is to use, the more often users use it. Thus, it can be assumed that business expectations will have a positive effect on the intention to use electronic money.

### ***Electronic Money Usage Intention (NP)***

Intention to use electronic money can be interpreted as user expectations to be able to use electronic money and with the level of technology that is already available (Momani, 2020). In this study, the intention to use electronic money was used as the dependent variable.

### ***Performance Expectancy (EP)***

Relates to a user's expectations regarding the use of electronic money technology. Thus, it can be assumed that performance expectations will have a positive effect on the intention to use electronic money.

## **ANALYSIS AND DISCUSSION**

The data used in the study used primary data collected from online surveys. The survey was conducted using an online method (google form) which was distributed in several communities with millennial members. Subjects who will be respondents in this study have the following requirements: Indonesian citizen, 15-35 years old (millennials) and have Electronic Money. The data collected to conduct this preliminary research amounted to 60 respondents.

### **Analysis**

#### ***Descriptive Statistics***

In the group of questions related to Electronic Money Security (AM), information was obtained that most of the respondents agreed (1 statement) and strongly agreed (2 statements) with the statement given. The statement in question relates to the electronic money used by the respondent being safe and the respondent feels comfortable in transacting. This implies that in general, respondents feel safe and comfortable transacting with electronic money.

More or less the same condition was found in the Consumer Service (PK) statement group. In this group of statements, respondents agreed (3 statements) and strongly agreed (1 statement). In this group, the statement relates to the respondents feeling that the electronic money used can work properly and accurately, and if there are obstacles, the electronic money organizer has a special section to deal with these obstacles.

In the Facility statement group (FS), 3 statements received a majority response, strongly agree and 1 in the majority group agreed. This group of statements relates to respondents feeling that the facilities provided by electronic money providers are adequate and respondents have sufficient facilities (tools) to use electronic money. The implication is that respondents have the facilities and the organizers provide the right facilities for the use of electronic money.

In terms of reliability (AN), the majority of the statements that were submitted to the respondents responded by strongly agreeing (3 statements). This group relates to how accurate and reliable the transaction experience experienced by the respondent is. This result means that respondents feel that transactions made through electronic money are accurate and reliable.

Different results were shown in the Social Influence (PS) statement group. The majority of respondents responded with 2 statements agreeing, and 1 statement each neutral and disagreeing. This group of

statements relates to whether the respondent's decision to use electronic money is influenced by influential people who are around the respondent. The implication is that some respondents' decisions to use electronic money are influenced by the surrounding environment and some are not affected by the surrounding environment.

The Application Interface Design (DA) question group had a majority response of 2 statements agreeing and 2 statements strongly agreeing. This group relates to the appearance of applications that provide the convenience that will increase consumer intentions to use electronic money. This finding indicates that respondents feel that the electronic money application design is quite easy to use and learn.

Electronic Money Usage Intention to use denoted by NP. In this group of statements, 2 majority statements were responded to agree and 1 statement disagreed. The disapproval statement is related to the intention to increase the electronic money balance in the near future.

In the statement of performance expectation (EP) group, all of the majority statements were responded to strongly agree with the respondents. This group deals with the use of electronic money to help respondents in their daily lives and transactions. The implication is that the majority of respondents feel helped by the owner of this electronic money.

## Feasibility Test

### Validity Test

A validity test is a test used to measure the validity of a questionnaire used in research. The validity test used in this study is the Pearson correlation test. Table 1 provides an overview which states that all groups of questions used in this study were tested for validity and could be used as research parameters.

**Table 1.** Validity Test

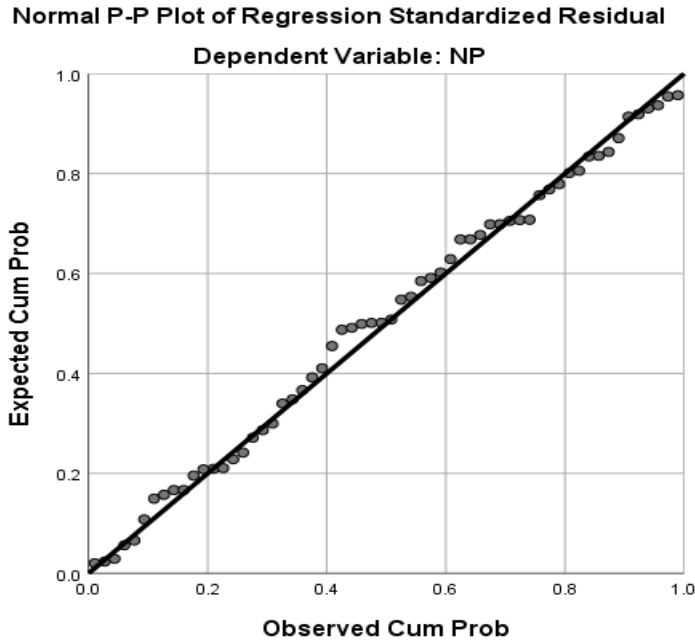
Question Group	r-value	R-table	Description
AM	0.665**	0.25	Valid
PK	0.722**	0.25	Valid
FS	0.745**	0.25	Valid
AN	0.698**	0.25	Valid
PS	0.487**	0.25	Valid
DA	0.704**	0.25	Valid
EU	0.764**	0.25	Valid
NP	0.614**	0.25	Valid
EP	0.691**	0.25	Valid

### Reliability Test

A reliability test is a test used to determine the level of consistency of a questionnaire used by researchers so that the questionnaire can be relied upon to measure research variables. The reliability test used in this study was the Cronbach Alpha test. The basis for decision-making in the Cronbach Alpha reliability test is if the value is  $> 0.6$  then the questionnaire can be declared reliable or consistent. In this study, the Cronbach Alpha value was 0.749. So it can be stated that the questionnaire used to measure the variables is consistent

### Normality Test

A normality test is a test used to determine whether the data used in the study is normally distributed. The data intended to be tested for normality is residual data. The normality test used in this research is to use the graph method, which looks at the spread of data on the diagonal graph source. As a basis for making data normality decisions, if the points spread around the line and follow a diagonal line pattern, then the residual has been tested normal.



**Figure 4.** Normality Test

Figure 4 shows the normality test on the residuals. The dots around the diagonal line indicate that the research data is normally distributed. Thus it can be concluded that the residuals as part of this study have a normal distribution. The data can be used for research.

**Multicollinearity Test**

The multicollinearity test is a test used to detect whether there is a correlation between the independent variables used. To detect whether there are symptoms of multicollinearity in the regression model, this study uses the VIF value method. The basis for making decisions on the multicollinearity test with VIF is: If the VIF value is > 10, it means that there is multicollinearity in the regression model.

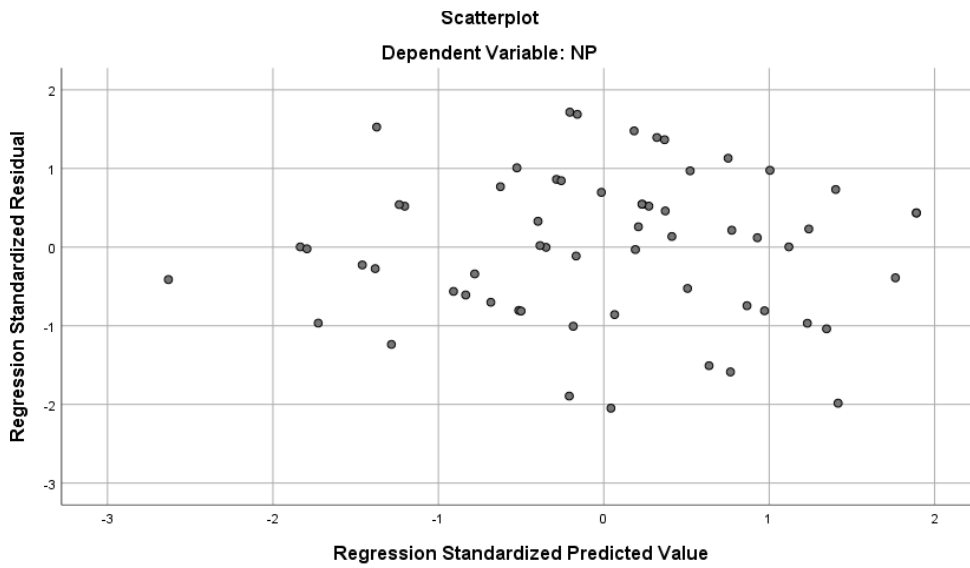
**Table 2.** Multicollinearity Test

Kelompok Pertanyaan	Nilai VIF	Keterangan
AM	1.685	lolos
PK	1.872	lolos
FS	2.788	lolos
AN	3.024	lolos
PS	1.151	lolos
DA	3.857	lolos
EU	4.139	lolos
EP	1.800	lolos

Table 2 presents the results of the multicollinearity test on the variables used in the study. All variables have a VIF value < 10. This means that all variables used in this study do not have symptoms of multicollinearity. Thus the research can be continued by using the selected variables

**Heteroscedasticity Test**

The heteroscedasticity test is a test used to assess whether there is an inequality of variance from the residuals for all observations in the regression model. While heteroscedasticity itself is a condition where there is an inequality of variance from the error for all observations of the independent variables in the regression model. This study uses the scatter plot method to find out whether there is a certain pattern of residuals that can cause heteroscedasticity.



**Figure 5.** Heteroscedasticity Test

If we look at the scatter plot in Figure 5, it can be seen that there is no certain pattern because the points spread irregularly above and below the 0 axes on the Y-axis. So there is no symptom of heteroscedasticity.

**Discussion**

From the results of the partial significance test, on the 13 hypotheses used in this study, it was found that 5 equations had significant regression results, or it could be said that the hypothesis was fulfilled. The fulfilled hypotheses are H3, H7, H10, H11, and H12. While the other 8 equations show insignificant regression results.

**Table 3.** Model Regression Result

Hypothesis	Variable	Direct Effect Coefficient	Unstdz. Coefficient	Std. Error	Sig
H1	EP → NP	0.261	0.387	0.2330	0.103
H2	EU → NP	0.270	0.522	0.4600	0.262
H3	EU → EP	0.624	0.811	0.1130	0.000**
H4	PS → NP	0.190	0.165	0.1090	0.137
H5	FS → NP	-0.170	-0.345	.0397	0.389
H6	AM → NP	0.138	0.304	0.3350	0.369
H7	AN → NP	-0.368	-1.020	0.5640	0.076*
H8	PK → EU	0.110	0.101	0.0840	0.235
H9	PK → EP	0.067	0.080	0.1620	0.624
H10	PK → NP	0.356	0.632	0.2840	0.031**
H11	DA → EP	0.484	0.651	0.1830	0.001**
H12	DA → EU	0.754	0.780	0.0950	0.000**
H13	DA → NP	-0.026	-0.053	0.4590	0.909
Mediating Variable					
	PK → EU → NP			0.409	
	PK → EP → NP			0.635	
	DA → EP → NP			0.132	
	DA → EU → NP			0.260	

**H3 - Business Expectations have a positive influence on Performance Expectations**

The Business Expectation Variable has a significant positive effect on Performance Expectations. Business expectations are related to the ease of using electronic money. Performance expectations are related to the view that electronic money will support the respondent's work performance. The significant relationship between these two variables can indicate that people's perceptions of the ease of using electronic money will improve their work performance. When technology is easy to use, more and more people will use it. With so many users, there will be a greater opportunity for someone to get an increase in work performance due to one of them the help of using this technology.

### **H7 - Reliability has a positive influence on the Intention to Use Electronic Money**

The reliability variable has a positive and significant effect on the use intention variable. Reliability relates to the possibility of users changing the transaction process at any time without or remaining informed about the transaction process. This means that this is related to the accuracy of the electronic money itself. With this significant and positive regression result, it can be concluded that the more reliable electronic money is, the more it will increase the intention to use it. This is very reasonable because people prioritize the accuracy of the transactions they carry out through electronic money. If the transaction is not accurate, then people will be reluctant to use electronic money.

### **H10 - Consumer Service has a positive influence on the Intention to Use Electronic Money**

An application/website needs to be oriented to customer service to make every user carry out transactions again, which is related to loyalty. In this study, it is proven that consumer service will have a positive and significant effect on usage intentions. It is hoped that good customer service, such as handling complaints, asking questions, and interactive discussions between producers and consumers, will increase the "closeness" between the two parties. This closeness will be related to consumer loyalty to use electronic money products from the organizers.

### **H11 - Application design has a positive influence on Performance Expectations**

Especially for application-based electronic money, the appearance of the application that provides convenience will increase consumers' intention to use electronic money. This is of course closely related to performance expectations, where the more existing application designs simplify the performance of the application itself, which will have an impact on improving the respondent's performance. Thus, this research proves that a good application design has a positive and significant effect on improving the respondent's performance.

### **H12 - Application design has a positive influence on Business Expectations**

Application design related to business expectations means that the better the application design used for electronic money, the easier it is for consumers to use the application. This is common knowledge, and in this study, it has been shown that application design has a positive and significant relationship with business expectations.

### ***Mediating Variable***

Four equations with mediating variables used in this study did not show significant results. Thus it can be concluded that each mediating variable does not "bridge" the relationship between the dependent variable and the independent variable.

## **CONCLUSIONS AND RECOMMENDATIONS**

This study tries to validate the use of UTAUT theory and E-SQ which is applied to the millennial generation in Indonesia. UTAUT theory uses these variables, namely Performance Expectations, Effort Expectations, Social Influence, Facility Conditions, Use Intentions, User Behavior, Gender, Age, Experience, and Willingness to use. In this study, 5 of the 9 variables that were triggered by the

UTAUT theory were used. Furthermore, in this study, it was also found that two of the five variables used, namely the Effort Expectation variable had a positive and significant influence on Performance Expectations. Meanwhile, none of the variables taken from the UTAUT theory affect the variable in the use of electronic money.

While the E-SQ theory uses the variables of Web Design, Reliability, Security, and Customer Service. In this study, all variables in the E-SQ theory were used. Of the four variables, the reliability variables, and application interface design have a positive and significant influence on the variable of intention to use electronic money. The specific variables for an application have a positive and significant influence on the variables derived from the UTAUT theory, namely performance expectations and effort expectations. Thus, it can be said from the research sample, that Indonesian consumers have a good (visual) application design of electronic money to increase the use of the application.

## REFERENCES

- Aboobucker, Ilmudeen, and Yukun Bao. 2018. "What Obstruct Customer Acceptance of Internet Banking? Security and Privacy, Risk, Trust and Website Usability and the Role of Moderators." *The Journal of High Technology Management Research* 29(1):109–23. doi: 10.1016/j.hitech.2018.04.010.
- Afshan, Sahar, and Arshian Sharif. 2016. "Acceptance of Mobile Banking Framework in Pakistan." *Telematics and Informatics* 33(2):370–87. doi: 10.1016/j.tele.2015.09.005.
- Ayaz, Ahmet, and Mustafa Yanartaş. 2020. "An Analysis on the Unified Theory of Acceptance and Use of Technology Theory (UTAUT): Acceptance of Electronic Document Management System (EDMS)." *Computers in Human Behavior Reports* 2:100–132. doi: 10.1016/j.chbr.2020.100032.
- Blut, Markus. 2016. "E-Service Quality: Development of a Hierarchical Model." *Journal of Retailing* 92(4):500–517. doi: 10.1016/j.jretai.2016.09.002.
- Indonesia. n.d.-a. *Peraturan Bank Indonesia Nomor 11/12/PBI/2009 Tahun 2009 Tentang Uang Elektronik (Electronic Money)*. Jakarta: Sekertariat Negara.
- Indonesia. n.d.-b. *Undang-Undang Nomor 10 Tahun 1998 Tentang Perbankan Tambahan Lembaran Negara Republik Indonesia Nomor 3790*. Jakarta: Sekertariat Negara.
- Jadil, Yassine, Nripendra P. Rana, and Yogesh K. Dwivedi. 2021. "A Meta-Analysis of the UTAUT Model in the Mobile Banking Literature: The Moderating Role of Sample Size and Culture." *Journal of Business Research* 132:354–72. doi: 10.1016/j.jbusres.2021.04.052.
- Kamus Besar Bahasa Indonesia [KBBI]. 2021. "Bank." Retrieved March 26, 2022 (<http://kbbi.web.id/bank>).
- Momani, Alaa M. 2020. "The Unified Theory of Acceptance and Use of Technology: A New Approach in Technology Acceptance." *International Journal of Sociotechnology and Knowledge Development* 12(3):79–98. doi: 10.4018/IJSKD.2020070105.
- Naeem, Muhammad, and Wilson Ozuem. 2021. "The Role of Social Media in Internet Banking Transition During COVID-19 Pandemic: Using Multiple Methods and Sources in Qualitative Research." *Journal of Retailing and Consumer Services* 60:102483. doi: 10.1016/j.jretconser.2021.102483.
- Parasuraman, A., Valarie A. Zeithaml, and Arvind Malhotra. 2005. "E-S-QUAL: A Multiple-Item Scale for Assessing Electronic Service Quality." *Journal of Service Research* 7(3):213–33. doi: 10.1177/1094670504271156.
- Rahi, Samar, Mazuri Abd.Ghani, and Abdul Hafaz Ngah. 2019. "Integration of Unified Theory of Acceptance and Use of Technology in Internet Banking Adoption Setting: Evidence from Pakistan." *Technology in Society* 58:101–20. doi: 10.1016/j.techsoc.2019.03.003.
- Sharma, Rashmini, Gurmeet Singh, and Shavneet Sharma. 2020. "Modelling Internet Banking Adoption in Fiji: A Developing Country Perspective." *International Journal of Information Management* 53:102–16. doi: 10.1016/j.ijinfomgt.2020.102116.
- Venkatesh, V., M. G. Morris, G. B. Davis, and F. D. Davis. 2003. "User Acceptance of Information Technology: Toward a Unified View." 27(3):425–78.