



Evaluation of E-Wallet Implementation: Proposed New Model

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ABSTRACT

In recent years, the use of electronic wallets has emerged as one of the most rapidly developing alternative payment methods in Indonesia. At the end of 2018, the number of users of one of the electronic wallet applications reached 115 million. Based on this, this study aims to determine what factors affect the user's interest in using electronic wallet technology in Indonesia. The UTAUT method is used as a theoretical basis that examines Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Behavior Intention, Use Behavior and other moderation variables. Data collection was obtained as many as 432 respondents spread across several provinces in Indonesia namely DKI Jakarta, East Java, North Sumatra, South Sulawesi and Bali. Processing of research data obtained using SPSS 24 statistical applications. The results of this study indicate that the Effort Expectancy variable is a major factor influencing public interest in using electronic wallet technology.

Key words: Electronic wallet, UTAUT, Regression Analysis

1. INTRODUCTION

In the era of globalization, the use of information technology has become a very difficult part of human life. The advances in technology created have changed people's behavior and lifestyle globally, causing the world to become borderless and causing social, cultural, and economic changes in society [1]. According to the eMarketer research institute in 2014, Indonesia ranked 6th as the country with the most internet users in the world. Where in 2018, internet users in Indonesia reached 171.17 million people (64.8% of the total population of Indonesia) [15]. This certainly makes a great opportunity for the development of the digital business industry in Indonesia. The presence of the banking sector which also took part in the digital world of business created a major influence in the paradigm of the payment system for goods and services that exist today.

Payment becomes an important component in every trading activity of goods and services. But the rapid development of technology today and the increasing value of transactions and risks encourage people to want a payment system that is safe and smooth. Safe and smooth payment systems are not only required to facilitate the transfer of funds efficiently, safely, quickly, and are also very necessary in the world of capital markets that demand accuracy, security in the settlement of each transaction [2]. Realizing this, many digital and e-commerce business companies innovate with each other to provide the best deals for buyers and partners. One of them is the creation of alternative payment methods without physical money (cashless) using an electronic wallet.

As the main authority in regulating the payment system in Indonesia, Bank Indonesia has launched Toward a Less Cash Society (LCS) in an effort to increase the use of non-cash payments. [7]. As technology develops, the development of non-cash payment transactions is an unavoidable change. Transactions with physical money payments have begun to be replaced by non-cash payment systems. With the benefits derived by the state through savings in transaction costs, it is expected that there will be a trend towards a change in cash transactions to non-cash transactions. Less cash society can be defined as a culture or trend that develops in the community in making payment transactions using non-cash payment media [3].

Electronic wallet is the newest payment method in Indonesia. Electronic Wallet is an electronic service that stores payment data and can also hold funds to make payments whereby monetary value is electronically stored in physical device or a server [14].

If further observed why the trend in the use of electronic wallets is developing is the variety of services for users in the transaction. For example the OVO application is integrated directly with the payment method on the e-commerce site Tokopedia which facilitates payments for transportation, electricity, data packages, health fees to game vouchers. For non-cash payments, users can utilize balance transfer technology and use scans through the QR Code.

The use of information systems in addition to providing many benefits, there are also companies that have failed in its application. Many system development projects have failed to

produce useful systems. There are several factors both internal and external that can cause failure in the application of information systems in the company [4]. The successful application of an information system lies in the acceptance and use of its users, even though the decision to adopt the system comes from the manager's authority [5]. As a new technology, it is necessary to evaluate the use of electronic wallets so that the company can continue to improve the quality it provides. One of the methods used by the company is to improve the quality of applications offered by evaluating the applications used. This evaluation is important to know the level of user acceptance of the application used, as well as to find out what are the factors that encourage users to accept and use the application. Based on the results of the evaluation process, company management can proactively design the interventions needed [6].

2. THEORY

2.1 Electronic Wallet

Electronic Wallet is an electronic service that stores payment data and can also hold funds to make payments whereby monetary value is electronically stored in physical device or a server. Bank Indonesia [7] explains, the difference between electronic wallet in this PBI and electronic money that has been regulated in existing regulations. The non-cash payment method uses a server or chip that is used as an electronic storage medium in which the user first deposits money in accordance with the nominal value. Whereas an electronic wallet is an electronic service to store payment instrument data such as debit cards, credit cards and electronic money to make payments and is not a non-cash payment instrument. An electronic wallet can also hold funds for payment purposes. The maximum limit of funds that can be accommodated in an electronic wallet is up to Rp. 10,000,000 and will be regulated in a Bank Indonesia circular.

2.2 UTAUT Method

The Unified Theory of Acceptance and Use of Technology (UTAUT) was developed by Venkatesh, et al. (2003). UTAUT is a combination to perfect eight other behavioral theories in explaining user acceptance of information systems. The following is an explanation of the variables in UTAUT [8]:

- Performance Expectancy - An individual's belief in the use of the system will help / not achieve their performance.
- Effort Expectancy - Business Expectations is the level of ease of use on a system.
- Social Factors - Defined by the level of acceptance of a person / individual on the importance of using a system that is influenced by others.
- Facility Conditions - Facility Condition is the level of individual trust in the existence of an organization and the infrastructure that is in it is able to support the use / use of the system.

- Behavioral Intention - Defined as the level of user desire in utilizing the existing system continuously assuming they have access to information.
- Use Behavior - Defined as the intensity or frequency of users in using information technology.

3. RESEARCH METHODOLOGY

3.1 Variables

This research was conducted to analyze trends in the use of technology with the UTAUT method. This method is used to test whether the Behavior Intention and Use Behavior of a technology is influenced by Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions. These four factors are moderated by Gender, Age, and Experience. The collected data is measured using statistical analysis tools such as SPSS software with linear regression method. The following definition of each variable used in this study:

1. Independent Variable

The independent variable influences the related variable both positively and negatively [12]. The independent variable is a variable that can be measured, manipulated, or chosen by researchers to determine the relationship with an observed symptom. The independent variable is also called the variable whose role is to predict the value fluctuation of the dependent / dependent variable. The independent variables in this study are Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Facilitating Conditions (FC).

2. Dependent Variable

Dependent Variables are variables that are explained or influenced by independent variables. Dependent Variable in this study is the Use Behavior (UB).

3. Moderation Variables

Moderation Variables are variables that influence (strengthen or weaken) the relationship between independent variables and the dependent variable. The moderating variable can change the value of the relationship from positive to negative, or vice versa [9]. The moderating variables in this study are Gender, Age, and Experience.

4. Intervening Variable

Intervening variables are variables that affect the relationship between the independent variable and the dependent variable so that an indirect relationship occurs. The intervening variable in this study is Behavior Intention. Behavior Intention is a desire (interest) someone to do a certain behavior. This construct measurement item was adapted from Davis et al. (1989) [4]. Behavior Intention is symbolized by (BI).

3.2 Hypothesis

The formulation of the research problem can be stated in the form of a question, where the answer to the question is a temporary answer which is also called the research hypothesis [10]. The hypotheses of this study are as follows:

- H1: Performance Expectancy (PE) factors have a positive effect on Behavior Intention (BI).
- H2: Gender has a moderating effect that affects the Performance Expectancy (PE) factor on Behavior Intention (BI).
- H3: Age has a moderating effect that affects the Performance Expectancy (PE) factor on Behavior Intention (BI).
- H4: Effort Expectancy (EE) Factor has a positive effect on Behavior Intention (BI).
- H5: Gender has a moderating effect that affects the Effort Expectancy (EE) factor on Behavior Intention (BI).
- H6: Age has a moderating effect that affects the Effort Expectancy (EE) factor on Behavior Intention (BI).
- H7: Experience has a moderating effect that affects the Effort Expectancy (EE) factor on Behavior Intention (BI).
- H8: Social Influence (SI) Factors have a positive effect on Behavior Intention (BI).
- H9: Gender has a moderating effect that influences Social Influence (SI) on Behavior Intention (BI).
- H10: Age has a moderating effect that influences Social Influence (SI) on Behavior Intention (BI).
- H11: Experience has a moderating effect that influences Social Influence (SI) factors on Behavior Intention (BI).
- H12: The Facilitating Conditions (FC) Factor has a positive effect on Use Behavior (UB).
- H13: Experience has a moderating effect that affects Facilitating Conditions (FC) on Use Behavior (UB).
- H14: Age has a moderating effect that affects Facilitating Conditions (FC) on Use Behavior (UB).
- H15: Behavior Intention Factor (BI) has a positive effect on Use Behavior (UB).

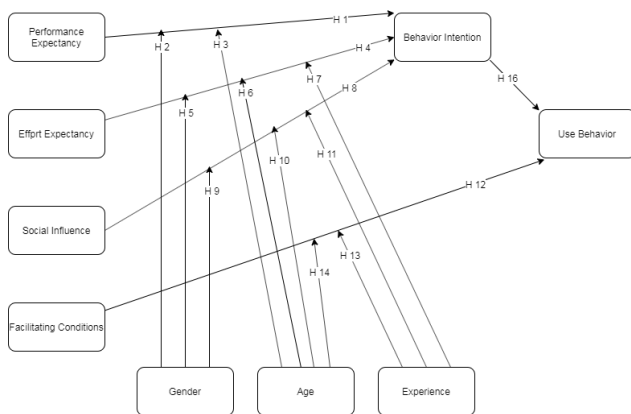


Figure 1: Hypothesis Research

4. RESULT AND DISCUSSION

4.1 Sampling and Data Collection

Based on sources, the number of OVO application users reached 115 million devices which were installed until the end of 2018. From the user population, samples were taken

using probability sampling techniques. Calculation of the number of samples using the Slovin formula and the results of the calculation, the minimum sample size must be taken as many as 400 respondents. This research is a quantitative study that uses interval measurement scales with a Likert scale type. The data source for the study was obtained by distributing random questionnaires to all users of electronic wallet applications in Indonesia and then 432 respondents were collected.

4.2 Respondent Characteristics

The characteristics of the respondents examined in this research were based on gender, age, experience, and region.

Table 1: Responden Characteristics by Gender, Exp, and Age

Gender	Total	Experience	Total	Age	Total
Male	235 (54.4%)	< 1 month	64 (15 %)	15-25 years	170 (39%)
		2 - 6 months	101 (23%)	26-35 years	183 (43%)
Female	197 (45,6%)	7 - 12 months	97 (23%)	36-45 years	69 (16%)
		> 1 year	170 (39%)	> 45 years	10 (2%)

Table 2: Responden Characteristics by Region

Region	Total
North Sumatra	66
South Sumatra	8
West Sumatra	3
South Sulawesi	33
Riau Kep	2
East Kalimantan	2
East Java	107
Central Java	6
West Java	34
DKI Jakarta	146
DI Yogyakarta	2
Banten	8
Bali	15

4.3 Validity Test

A questionnaire item is needed to test its validity which aims to find out whether the questionnaire items are able to express something that will be measured [13]. This test uses the statistical data processing application SPSS 24 by comparing the value of r Calculate with r Table. Questionnaire items are said to be valid if r Calculate is greater than r Table 0.3494 with respondents numbering 30. In this research all indicator

items in each variable provide valid results because the value of *r* Calculate is greater than *r* Table 0.3494.

Table 3: Validity test

Variable	Indicator	r Cal	r Table	Summary
Performance Expectancy	PE1	0,87	0,3494	Valid
	PE2	0,81	0,3494	Valid
	PE3	0,778	0,3494	Valid
	PE4	0,841	0,3494	Valid
	PE5	0,928	0,3494	Valid
Effort Expectancy	EE1	0,783	0,3494	Valid
	EE2	0,745	0,3494	Valid
	EE3	0,74	0,3494	Valid
Social Influence	SI1	0,754	0,3494	Valid
	SI2	0,423	0,3494	Valid
	SI3	0,648	0,3494	Valid
	SI4	0,614	0,3494	Valid
Facilitating Condition	FC1	0,798	0,3494	Valid
	FC2	0,552	0,3494	Valid
	FC3	0,84	0,3494	Valid
	FC4	0,901	0,3494	Valid
	FC5	0,531	0,3494	Valid
Behavioral Intention	BI1	0,905	0,3494	Valid
	BI2	0,853	0,3494	Valid
	BI3	0,861	0,3494	Valid
Use Behavior	UB1	0,833	0,3494	Valid
	UB2	0,849	0,3494	Valid
	UB3	0,879	0,3494	Valid

4.4 Reliability Test

Reliability tests are carried out to find out whether the questionnaire items can provide consistent results for the same measurements over and over again. An item can be said to be reliable if the Cronbach Alpha value is greater than 0.70. Based on table 4 it can be seen that the Cronbach Alpha value of all variables is greater than 0.70. Therefore it can be concluded that each variable is reliable and meets the requirements to enter the next measurement phase.

Table 4: Reliability test

Variable	Cronbach Alpha	Summary
Performance Expectancy	0,932	Reliable
Effort Expectancy	0,917	Reliable
Social Influence	0,791	Reliable
Facilitating Condition	0,850	Reliable
Behavioral Intention	0,938	Reliable
Use Behavior	0,890	Reliable

4.5 Regression Analysis

To find out the relationship of two or more variables with other variables, a regression analysis was performed. The output of SPSS provides the results of the regression coefficient, *t* Calculate, and the significance value of each variable tested. In this research four independent variables are used, namely Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Facilitating Condition (FC) and two dependent variables namely Behavior Intention (BI), Use Behavior (UB) and three

moderating variables namely Gender (GEN), Age (AGE), and Experience (EXP). The relationship between variables is called significant if the value of *t* Calculate > *t* Table (1.965) or the probability value (*p*) ≤ 0.05 at the significance level *a* = 5%. Therefore it can be concluded that the hypothesis is accepted if the value of *t* Calculate > 1.965 or *p* value ≤ 0.05.

Description of table header:

- ✓ H = Hypothesis
- ✓ R = Relation
- ✓ CR = Regression Coefficient
- ✓ t C = t Calculate
- ✓ p = Significancy
- ✓ Sum = Summary
- ✓ Gen = Gender
- ✓ Exp = Experience
- ✓ Age = Age

Table 5: Results of regression analysis of variables

H	R	CR	t C	p	Sum
H1	BI <-- PE	0,261	7,602	0,00	Accepted
H4	BI <-- EE	0,321	5,574	0,00	Accepted
H8	BI <-- SI	0,217	8,702	0,00	Accepted
H13	UB <-- FC	0,165	6,61	0,00	Accepted
H16	UB <-- BI	0,744	21,416	0,00	Accepted

In table 5 the results of the regression analysis show that all the variables tested have a positive relationship in the relation. Then the whole variable has a *t* Calculate that is greater than *t* Table 1.965 and a significance value smaller than 0.05. Therefore, the entire hypothesis is accepted.

Table 6: Result of regression analysis with moderate variable Gender

H	R	Gen	CR	t C	p	Sum
H2	BI <-- PE	Male	0,526	13,626	0,000	Significant
		Female	0,564	18,824	0,000	Significant
H5	BI <-- EE	Male	0,817	12,700	0,000	Significant
		Female	0,991	16,606	0,000	Significant
H9	BI <-- SI	Male	0,416	12,905	0,000	Significant
		Female	0,517	14,250	0,000	Significant

In table 6 the results of the regression analysis using the Gender moderation variable show that all the variables tested have a positive relationship. Then the whole variable has a *t* Calculate that is greater than *t* Table 1.965 and a significance value smaller than 0.05. This shows that Gender differences do not affect relations between related variables. Therefore, the entire hypothesis with the moderating variable Gender is rejected.

Table 7: Result of regression analysis with moderate variable Age

H	R	Age	CR	t Cal	P	Sum
H3	BI <-- PE	15-25 years	0,560	11,594	0,000	Significant
		26-35 years	0,557	16,387	0,000	Significant
		36-45 years	0,472	9,849	0,000	Significant
		> 46 years	0,951	4,001	0,004	Significant
		H6	BI <-- EE	15-25 years	0,929	11,973
26-35 years	0,860	13,050		0,000	Significant	
36-45 years	0,926	9,859		0,000	Significant	
> 46 years	1,585	1,710		0,126	Not Significant	
H10	BI <-- SI	15-25 years	0,465	12,096	0,000	Significant
		26-35 years	0,454	12,096	0,000	Significant
		36-45 years	0,396	6,313	0,000	Significant
		> 46 years	0,655	6,131	0,000	Significant
H14	UB <-- FC	15-25 years	0,488	10,602	0,000	Significant
		26-35 years	0,613	20,945	0,000	Significant
		36-45 years	0,648	12,926	0,000	Significant
		> 46 years	0,714	6,307	0,000	Significant

In table 7 the results of the regression analysis using the moderating variable Age show that there are not significant results, that is relationship between Effort Expectancy (EE) and Behavior Intention (BI) in the age group > 46 years because it has a t Calculate < t Table 1,965 and the value of significance > 0.05. This shows that the age difference has a moderating effect that affects the relationship of Effort Expectancy (EE) to Behavior Intention (BI), then the hypothesis H6 is accepted. But for other variable relations the hypothesis is rejected because the moderating variable Age has no influence on the relations between the related variables.

Table 8: Result of regression analysis with moderate variable Experience

H	R	Exp	CR	t Cal	P	Sum
H7	BI <-- EE	< 1 month	0,913	6,867	0,000	Significant
		2 - 6 months	0,844	12,181	0,000	Significant
		7 - 12 months	0,728	6,596	0,000	Significant
		> 1 months	0,902	13,950	0,000	Significant
H11	BI <-- SI	< 1 month	0,595	8,403	0,000	Significant
		2 - 6 months	0,466	10,403	0,000	Significant
		7 - 12 months	0,276	5,300	0,000	Significant

		> 1 months	0,429	13,683	0,000	Significant
H13	UB <-- FC	< 1 month	0,600	8,763	0,000	Significant
		2 - 6 months	0,447	10,433	0,000	Significant
		7 - 12 months	0,589	12,050	0,000	Significant
		> 1 months	0,512	16,408	0,000	Significant

In table 8 the results of the regression analysis using the Experience moderation variable show that all the variables tested have a positive relationship. Then the whole variable has a t Calculate that is greater than t Table 1.965 and a significance value smaller than 0.05. This shows that the difference of Experiences do not affect relations between related variables. Therefore, the entire hypothesis with the moderating variable Experience is rejected.

Table 9: Hypothesis Summary

Hypothesis	Relation	Summary
H1	BI <-- PE	Accepted
H2	BI <-- PE + GEN	Rejected
H3	BI <-- PE + AGE	Rejected
H4	BI <-- EE	Accepted
H5	BI <-- EE + GEN	Rejected
H6	BI <-- EE + AGE	Accepted
H7	BI <-- EE + EXP	Rejected
H8	BI <-- SI	Accepted
H9	BI <-- SI + GEN	Rejected
H10	BI <-- SI + AGE	Rejected
H11	BI <-- SI + EXP	Rejected
H12	UB <-- FC	Accepted
H13	UB <-- FC + EXP	Rejected
H14	UB <-- FC + AGE	Rejected
H15	UB <-- BI	Accepted

4.6 Discussion

1. Performance Expectancy has a significant positive effect of 26.1% on Behavior Intention in the use of OVO electronic wallet technology. This shows that, users are

willing to use OVO electronic wallet technology services because there are more values and benefits in making transactions when compared to conventional payments such as cash and banks. In the context of electronic payments, this technology provides practical benefits, is efficient and can be used to transact at all registered merchants, using only one smartphone. In addition, the safety factor is also something that should be taken into account for application developers to maintain the confidentiality of users from both the front end and back end that is connected to all kinds of information and user balances.

2. Effort Expectancy has a significant positive effect of 32.1% on Behavior Intention in the use of OVO electronic wallet technology. This shows that the easier it is to use the OVO electronic wallet application, the greater the user's intention to use the application. In the context of electronic payments, this technology is able to facilitate users in terms of both experience and interface. But the results of the study using the variable moderating age, showed that there were not significant results in the age group of 46 years and over. In this case the application developer needs to pay attention in detail about the needs of users for these age groups by making further observations and socialization.
3. Social Influence has a significant positive effect of 21.7% on Behavior Intention in the use of OVO electronic wallet technology. This shows that the stronger social influence of the user environment can lead to the intention to use OVO electronic wallet technology. Previous research has concluded that social influence has the meaning of individual behavior is influenced by the way they trust with others for the intention to use a technology. According to Diana [11], the use of marketing strategies using word of mouth in the community can open up opportunities for governments and companies providing mobile payment services to encourage their distribution and use in Indonesia. Companies can socialize OVO applications and provide free balances for certain customers in the hope that when customers feel satisfaction using the technology, it will affect others around them to use the OVO application.
4. Facilitating Condition has a significant positive effect of 16.5% on Use Behavior in the use of OVO electronic wallet technology. This shows that the supporting conditions and user resources have an influence on the intention to use OVO electronic wallet technology. According to Diana [11], these supporting conditions shape the perception that users need not worry if they have difficulties when using the application because users already have confidence that people around them can help to use the application. Support from responsive customer service is also very necessary if at any time there is a mistake made by the user. In other respects, the government has also contributed to encouraging and expanding business processes from OVO applications by providing Electricity (PLN) and health insurance

(BPJS) payment facilities. In this case the application developer is expected to continue to expand cooperation with government institutions so that consumers increasingly believe that the implementation of electronic wallets in Indonesia really aims to build a cashless society and not for certain interests.

5. CONCLUSION

Effort Expectancy has the most influence that is 32.1% of Behavior Intention in the use of OVO electronic wallet technology. This shows that the easier it is to use the OVO electronic wallet application, the greater the user's intention to use the application. The government must immediately evaluate the developers of the company related to the rise of cashless methods that are present in the community to ensure the protection of consumers. The government can work together through Bank Indonesia and the Otoritas Jasa Keuangan (OJK) to tighten legislation to both banking and non-banking institutions. This is certainly in line with the vision and mission of the government, namely, by creating a Grand Design Efforts to Increase the Use of Non-Cash Payments or called Toward a Less Cash Society (LCS).

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