EXPLAINING E-WALLET CONTINUANCE INTENTION: A MODIFIED EXPECTATION CONFIRMATION MODEL

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ABSTRACT: This research paper aimed to examine the factors influencing user preferences to continue using E-Wallet. This research paper identified the factors by modifying the Expectation Confirmation Model by adding the Perceived Risk and Trust variables. This research paper employed primary data based on a questionnaire with a sample of E-Wallet users. Data were obtained by distributing online questionnaires, and data from 200 respondents were analyzed using Structural Equation Model – Partial Least Square (SEM-PLS). Data analysis indicated that Perceived Usefulness, Satisfaction, and Trust had a significant positive effect on users' intentions to continue using E-Wallet. On the other hand, confirmation had a positive and significant impact on perceived usefulness and trust, while no effect on Satisfaction and Perceived Risk. Explanation and implications of data analysis are discussed.

Keywords: E-Wallets; Expectation confirmation model; Perceived risk; Trust

INTRODUCTION

Indonesia can become a significant powerhouse with active consumers in the digital world market (Ramadhan, 2020). In Indonesia, technological advances have been widely used for economic activities, facilitating transactions acceleration with E-Wallet. In Indonesia, E-Wallet competition is very tight and is controlled by four major service providers, namely Gopay, OVO, Dana, and LinkAja (IPSOS, 2020). Recently, the competition has become more challenging, along with the presence of ShopeePay, which has a market penetration of 68 percent, higher than its market penetration compared to the preceding four service providers (Gopay, OVO, Dana, and LinkAja) (Muhtarom, 2021).

The December 2020 survey found that Gopay was the most used E-Wallet (81%), followed by OVO (71%), ShopeePay (44%), and Dana (41%) (Jamaludin, 2021). However, in early 2021 ShopeePay was ranked first by recording the highest transactions, followed by OVO ranked second, Gopay and Dana ranked third and fourth (Muhtarom, 2021). Users can easily switch from one E-Wallet service to another. To increase the end-users, they must design practical marketing and product approaches to constrained switching behaviors. They must comprehend the factors influencing users' intention to continue using the E-Wallet after the initial adoption.

The success of information technology will undergo two phases, namely the initial acceptance (adoption) phase of information technology and the phase of continuing the use of information technology (Bhattacherjee, 2001). The acceptance phase of information technology is crucial. Nevertheless, the success of information technology will depend on how many users continue to use it (Bhattacherjee, 2001). This phase of usage, the continuance, will guarantee the company to maintain and increase the ability to generate profits (Bhattacherjee, 2001; Thong et al., 2006). In addition, it was found that finding new customers is more expensive than retaining loyal customers (Stone and Baker-Eveleth, 2013).

From the perspective of information technology, several previous studies on E-Wallet in Indonesia have been carried out. For example, some of these studies, the research of Chandra et al. (2018) with the object of Gopay's E-Wallet, found that Perceived Usefulness and perceived easy usage affected E-Wallet acceptance. Wijayanthi (2019) found the effect of Perceived Usefulness and attitudes toward E-Wallet acceptance. The study from Susilo et al. (2019) found the impact of Perceived Usefulness and convenience on Gopay and OVO E-Wallet favor. It is in line with which of Widodo et al. (2019) and Hidayat et al. (2020), by utilizing the unified theory of acceptance and use of technology 2 (UTAUT2), found several essential factors that influence users' intentions to adopt E-Wallet. Although several previous studies on E-Wallet, previous research has focused on the initial acceptance phase. Therefore, this study attempts to close the gap of previous research by focusing on the continuance phase of E-Wallet use.

Concerning research on the context of intention to continue using information technology, Bhattacherjee (2001) has developed the expectation Confirmation Model, which was explicitly designed to find the factors that influence users' intention to continue using information technology. The

expectation Confirmation Model has been widely used in various information technology research contexts such as mobile banking (Susanto et al., 2016), transportation applications (Kholid et al., 2018; Salsabilla et al., 2019), internet services (Thong, et al., 2006), health applications (Cho, 2016). There are three main variables in the Expectation Confirmation Model that affect the intention to continue using: Confirmation, Satisfaction, and Perceived Usefulness (Bhattacherjee, 2001). This study tries to modify the Expectation Confirmation Model by adding the Perceived Risk and Trust variables. Previous research has found trust essential in electronic transactions (Chen and Dhillon, 2003). In addition, there is a necessity for service providers in the digital financial industry to overcome risk and security issues in electronic transactions. These essential factors may prevent people from using digital financial services (Pikkarainen et al., 2004). Based on the explanation, this research paper aimed to test the modification of the Expectation Confirmation Model to explain the preferences of E-Wallet users to continue using E-Wallet.

THEORETICAL REVIEW

Modified Expectation Confirmation Model

The Expectation Confirmation Model in information technology was introduced by Bhattacherjee (2001). The Expectation Confirmation Model was developed based on the Technology Acceptance Model and Expectation Confirmation Theory (Bhattacherjee 2001). Expectation Confirmation Theory only tests expectations before product consumption. It does not investigate post-consumption expectations, so the Expectation Confirmation Model in the context of information technology is complemented by post-consumption expectations (Bhattacherjee 2001). The Perceived Usefulness represents Post-consumption expectations in the Expectation Confirmation Model framework. The Expectation Confirmation Model states that three variables influence users' intentions to continue using information technology: Confirmation, Satisfaction, post-adoption expectations, perceived usefulness.

This study tries to modify the Expectation Confirmation Model by adding Perceived Risk and Trust. Perceived risk is the level of uncertainty about the outcome of using information technology or luck about the security of the information technology used (Evon, 2016). Furthermore, trust is defined as one party's expectation that the other party will perform specific essential actions to the innocent party, regardless of the innocent party's ability to monitor or control the other party (Mayer, et al., 1995).

Satisfaction

The factor that affects a consumer to re-purchase a product is the level of satisfaction (Szymanski & Henard 2001). An analogy in the context of marketing, an essential determinant of an information technology user's continuance intention to use information technology is Satisfaction (Thong, et al., 2006; Cho,

2016). Suppose someone is satisfied with the services provided by information technology (such as E-Wallet). In that case, the user will have a greater continuance intention to use the information technology (Bhattacherjee 2001). The results of previous studies have also confirmed the effect of satisfaction on the continuance intention to use information technology (Susanto et al., 2016; Wu, 2017; Kumar et al., 2018; Rahi et al., 2020). The following is the proposed hypothesis, based on the above explanation:

H1. Satisfaction has a positive effect on the intention to usage continuance of E-Wallet

Perceived Usefulness

Perceived usefulness is a subjective consideration of information technology users regarding the possibility that information technology will improve job performance (Hsiao, et al., 2015). In the Technology Acceptance Model (TAM), it is identified that Perceived Usefulness affects the intention to adopt information technology (Davis 1989). In this regard, the Expectation Confirmation Model states that Perceived Usefulness affects the intention to continue using information technology (Bhattacherjee 2001). Previous research found the effect of Perceived Usefulness on continuance intention to use information technology (Susanto et al., 2016; Upadhyay & Jahanyan, 2016; Sunny & George, 2018). TAM found that Perceived Usefulness influenced attitudes (Davis 1989). Satisfaction is a statement of pleasure attitudes and emotions that are not negative so that it is expected that Perceived Usefulness will affect user satisfaction with the information technology used (Cho, 2016). Previous research has found the effect of Perceived Usefulness on Satisfaction (Yuan et al., 2014; Susanto et al., 2016). Based on this explanation, the proposed hypotheses are:

H2. Perceived usefulness has a positive effect on the intention to continue using E-Wallet
H3. Perceived usefulness has a positive effect on satisfaction

Confirmation

Confirmation is an expectation that has come true from information technology, while disconfirmation is the inability of information technology performance to meet user expectations (Bhattacherjee 2001). Perceived usefulness represents expected benefits for users of information technology, and Perceived Risk represents expected losses from the use of information technology. When users can confirm initial expectations for the primary function of information technology used, users will assume that the information technology used is helpful. The suitability of initial expectations with actual conditions can increase Perceived Usefulness (Cho 2016). Based on a similar analogy, it is expected that confirmation can also harm perceived risk. Previous research has confirmed the effect of Confirmation on Perceived Usefulness and Perceived Risk (Thong et al., 2006; Susanto et al., 2016; Gupta et al., 2020; Shin & Hwang, 2020). Based on the explanation above, the following are the proposed hypotheses:

H4. A confirmation has a positive effect on perceived usefulness
H7. A confirmation hurts perceived risk

The expectation confirmation model states that satisfaction is influenced by Confirmation and Perceived Usefulness (Bhattacherjee 2001). Confirmation of existing initial expectations demonstrates that users have obtained the expected benefits using information technology, affecting user satisfaction (Thong, et al., 2006). Previous research has found the effect of Confirmation on Satisfaction (Thong et al., 2006; Susanto et al., 2016; Foroughi et al., 2019). In addition to influencing satisfaction, affirming expectations by confirming the use of information technology will also affect trust in information technology (Susanto et al., 2016). Based on the explanation above, the following are the proposed hypotheses:

H5. A confirmation has a positive effect on Satisfaction
H6. A confirmation harms trust

Perceived Risk

Since online transactions are popular, perceived risk refers more to finance, product performance, social, psychological, physical, and time risks when conducting online transactions (Loanata & Tileng, 2016). There are several types of perceived risk, including performance risk, privacy risk, social risk, time risk, physical risk, and financial risk. The product's possibility of performing as expected and not providing the expected benefits is known as performance risk (Lee, 2009). Previous research has found a negative effect of Perceived Risk on Trust (J. Park et al., 2018). The following is the proposed hypothesis, based on the above explanation:

H8. Perceived risk harms trust

Trust

Trust refers to the user's subjective belief that the service provider will fulfill its obligations (Giovanis, et al., 2018). Trust is essential to running a business and is a necessary driver for receiving and using services since it reduces the uncertainty inherent in technology and increases the credibility of service providers (Slade et al., 2015; Giovanis et al., 2018). The greater trust, the greater the user's intention to continue using information technology. Previous research has found the effect of trust on preferences to continue using information technology (Kumar et al., 2018; Wong & Mo, 2019). At the beginning of the use of information technology, trust represents an individual's desire to take risks to meet their needs (Cao et al., 2018). Trust gained from experience during the usage of information technology can positively influence user satisfaction (Cao et al., 2018). Previous research has found a positive effect of Trust on Satisfaction (Lu et al., 2011; Cao et al., 2018). Based on the explanation above, the following are the proposed hypotheses:

H9. trust has a positive effect on Satisfaction
H10. trust has a positive effect on the intention to continue using E-Wallet

Based on the explanation that has been given, Figure 1 presents a modified expectation confirmation model in the context of E-Wallet.
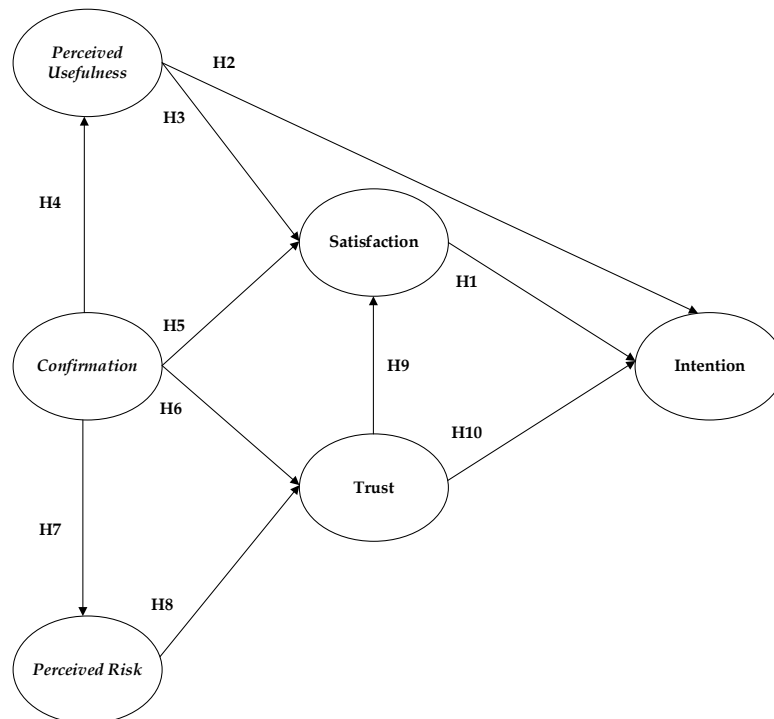

Figure 1. Proposed Research Model

METHODOLOGY

This research employed a quantitative method by using primary data. The samples in this study were obtained using a purposive sampling technique. The sampling criteria set were people who used E-Wallet and were included in the Gen-Z and Millennial categories. The use of E-Wallet is no longer an inseparable part of every millennial and Gen-Z generation activity (IPSOS, 2020). In addition, the younger generation is a generation that is easy to adapt to technology and uses information technology in every activity (Budi, 2020). Two hundred two respondents participated in this study, but only 200 met the criteria. Table 1 presents the profile of respondents who participated in the study. It is identified that the majority of respondents were female (169 respondents; 84.50%), with the majority aged 20-21 years (130 respondents; 65.00%). Most respondents used E-Wallet from Shoppe Pay (72 respondents; 36%) with a majority of 2-3 years of use (112 respondents; 56.00%), and the total shopping with E-Wallet in one month was mostly Rp. 100,000-Rp.500,000 (95 respondents; 47.50%).

The data in this study were obtained from distributing questionnaires online by utilizing the online Google form service. This study used a questionnaire with a Likert scale of 1-6 ranging from "Strongly Disagree" to "Strongly Agree." The variables in this study were measured by adopting questions for each variable from previous studies. Each of the four items of Confirmation, Satisfaction, and Perceived Usefulness questions and three objects of Trust questions were modified from the research (Susanto et al., 2016). Three question items regarding intention were modified from (Thong et al., 2006), and

four things Perceived Risk questions were altered from research (J. Park et al., 2018).

Tabel 1 Respondents' Profile

Types	Frequency	%	Types	Frequency	%
Gender			**E-Wallet Brand**		
Female	169	84.50%	DANA	36	18.00%
Male	31	15.50%	GoPay	38	19.00%
			LinkAja	4	2.00%
Age (years)			OVO	50	25.00%
18-19	27	13.50%	ShopeePay	72	36.00%
20-21	130	65.00%			
22-23	43	21.50%			
			Total purchase per month (IDR)		
Usage (years)			0 – 100.000	45	22.50%
1	38	19.00%	100.000 – 500.000	95	47.50%
2-3	112	56.00%	500.000 – 1.000.000	43	21.50%
3-4	29	14.50%	1.000.000 – 2.500.000	8	4.00%
4-5	16	8.00%	2.500.000 – 5.000.000	8	4.00%
>5	5	2.50%	>5.000.000	1	0.50%

The data in this study were analyzed using the Partial Least Square-Structural Equation Model (PLS-SEM) with SmartPLS 3.0 software. Data analysis consists of the measurement and structural models (Hair et al., 2017). Evaluation of the measurement model included internal consistency, individual indicator reliability, convergent validity, and discriminant validity. The particular reliability indicator assessment was carried out by examining the outer loading value with a minimum limit of 0.7. At the same time, internal consistency was evaluated using the composite reliability (CR) value with a minimum value of 0.7 (Hair et al., 2017). Meanwhile, convergent validity was assessed by observing the average variance extracted (AVE) value with a minimum value of 0.5 (Hair et al., 2017). On the other hand, discriminant validity was evaluated using cross-loadings (Hair et al., 2017). The structural model's second evaluation includes hypothesis testing with path coefficient and coefficient of determination (R^2) (Hair et al., 2017).

RESULTS

Measurement Model Results

Internal consistency testing illustrates that all variable indicators had outer loading values above 0.7. The highest outer loading value is TRS3 of 0.939, while the lowest is SAT2 of 0.863. Evaluation of individual reliability indicators also

displays that the CR value for each construct is above 0.7, and the AVE value for each construct for the assessment of convergent validity is also above 0.5. For example, the AVE and CR values of the Confirmation construct are 0.836 and 0.953, which are above 0.5 and 0.7. Table 2 presents the complete internal testing and convergent reliability results in this study. Moreover, the results of the cross-loading test for evaluating discriminant validity can be observed in table 3. The test results show that each indicator's outer loading related to the related construct has a higher value than cross-loading with other constructs.

Tabel 2. Internal Test Results and Convergent Reliabilities

Variables	Outer Loadings	AVE	CR
Confirmation (CON)		0.836	0.953
CON1	0.891		
CON2	0.934		
CON3	0.927		
CON4	0.905		
Perceived Usefulness (PUS)		0.777	0.933
PUS1	0.884		
PUS2	0.883		
PUS3	0.897		
PUS4	0.862		
Intention (IN)		0.827	0.935
IN1	0.881		
IN2	0.909		
IN3	0.937		
Satisfaction (SAT)		0.780	0.934
SAT1	0.891		
SAT2	0.863		
SAT3	0.885		
SAT4	0.894		
Trust (TRS)		0.800	0.923
TRS1	0.851		
TRS2	0.891		
TRS3	0.939		
Perceived Risk (PR)		0.788	0.937
PR1	0.912		
PR2	0.914		
PR3	0.894		
PR4	0.827		

Source: Adapted Smartpls3 output

Table 3. Discriminant Validity Test Results

	CON	IN	PR	PUS	SAT	TRS
CON1	**0.891**	0.492	0.018	0.616	0.526	0.507
CON2	**0.934**	0.509	-0.067	0.603	0.526	0.516
CON3	**0.927**	0.499	-0.113	0.638	0.515	0.547
CON4	**0.905**	0.494	-0.087	0.624	0.543	0.549
IN1	0.476	**0.881**	-0.116	0.560	0.571	0.514
IN2	0.481	**0.909**	-0.011	0.463	0.596	0.530
IN3	0.529	**0.937**	-0.091	0.504	0.668	0.528
PR1	-0.083	-0.032	**0.912**	0.052	-0.090	-0.262
PR2	-0.057	-0.105	**0.914**	0.028	-0.143	-0.285
PR3	-0.026	-0.077	**0.894**	0.073	-0.137	-0.267
PR4	-0.077	-0.072	**0.827**	-0.003	-0.153	-0.278
PUS1	0.614	0.459	0.066	**0.884**	0.534	0.417
PUS2	0.583	0.479	0.021	**0.883**	0.540	0.478
PUS3	0.572	0.552	0.021	**0.897**	0.546	0.511
PUS4	0.626	0.483	0.040	**0.862**	0.484	0.462
SAT1	0.497	0.618	-0.101	0.489	**0.891**	0.588
SAT2	0.507	0.499	-0.088	0.538	**0.863**	0.578
SAT3	0.521	0.649	-0.177	0.499	**0.885**	0.682
SAT4	0.514	0.603	-0.150	0.585	**0.894**	0.644
TRS1	0.562	0.508	-0.194	0.494	0.643	**0.851**
TRS2	0.441	0.472	-0.342	0.408	0.566	**0.891**
TRS3	0.545	0.560	-0.297	0.514	0.681	**0.939**

Source: Adapted Smartpls3 output

Structural Model Results

This study analyzes the statistical evidence of the model and reveals the R^2 of E-wallet of 50.4%, followed by satisfaction, trust, and perceived usefulness by 57.5%, 40.9%, and 46.1%, respectively, as in Figure 2. The results of hypothesis testing indicate that Satisfaction and Trust have a significant effect on the intention to continue using E-Wallet. These findings suggest that data can support H1 and H10. These results reinforce the findings of previous studies that found a positive effect of Satisfaction and Trust on the intention to continue using information technology (Susanto et al., 2016; Wu, 2017; Kumar et al., 2018; Rahi et al., 2020; and Wong & Mo, 2019). In addition to affecting intention, trust also has a significant positive effect on satisfaction. It can be concluded that data can also support H9.

The analysis results confirm that Perceived Usefulness has a significant positive effect on intention and satisfaction concerning Perceived Usefulness. These results indicate that the data can support H2 and H3. The higher the Perceived Usefulness is, the greater the user's satisfaction and intention to continue using the E-Wallet. These results are consistent with previous research

on the effect of Perceived Usefulness on Satisfaction and intention (Susanto et al., 2016; Upadhyay & Jahanyan, 2016; Sunny & George, 2018; and Yuan et al., 2014).

Further data analysis shows that H4 and H6 can be supported by the data, whereas the data do not support H5 and H7. A confirmation has a significant positive effect on Perceived Usefulness and Trust. These results validate the findings of previous studies regarding the impact of Confirmation on Perceived Usefulness and Trust (Susanto et al., 2016; Shin & Hwang, 2020; Thong et al., 2006; Gupta et al., 2020). On the other hand, it is acknowledged that confirmation does not affect Satisfaction and Perceived Risk. This result is in line with previous research that did not find confirmation's effect on Satisfaction and Perceived Risk (Li & Fang, 2019; E. Park, 2020). Finally, it is figured out that Perceived Risk has a significant adverse effect on trust and has been supported by a previous study (Park et al., 2018).
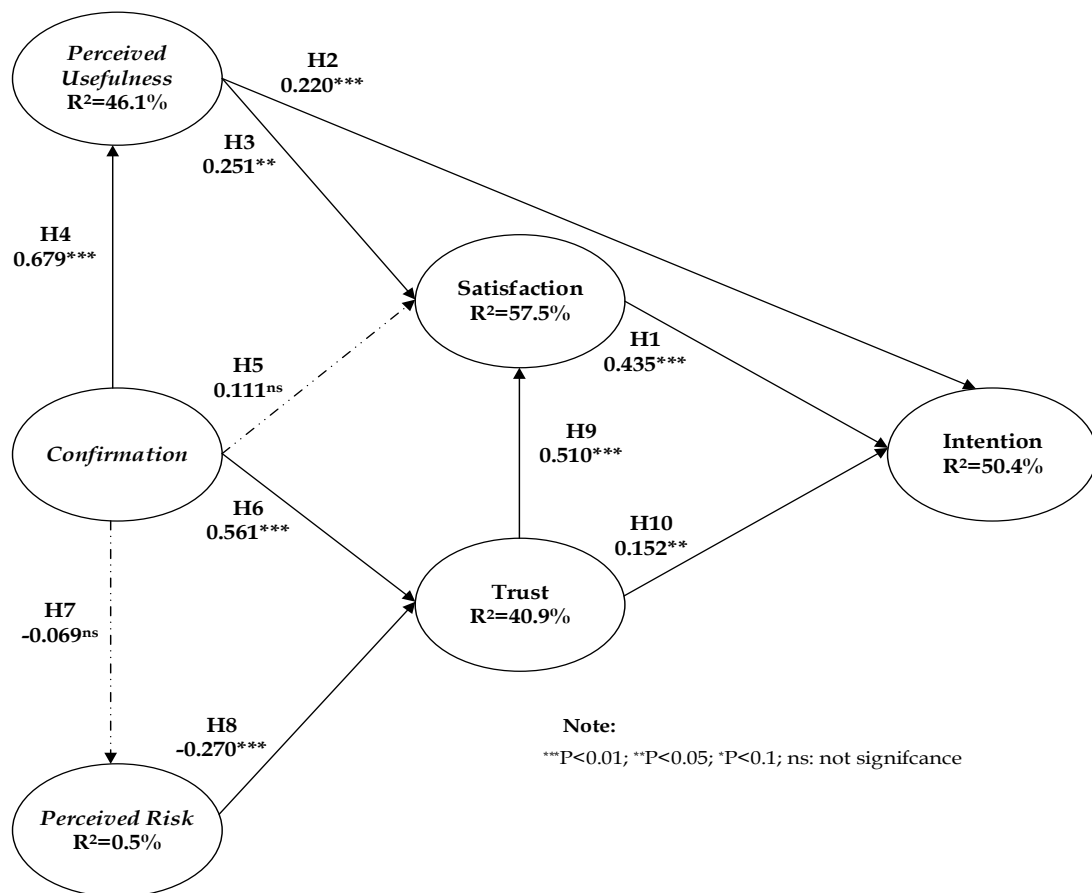

Figure 2. Results of Structural Model

DISCUSSION AND IMPLICATION

This study aims to examine the factors that influence the intention of E-Wallet users to continue using E-Wallet. Despite the success in testing the factors that influence the intention to continue using E-Wallet, if viewed from the coefficient of determination (R^2) value of 50.4%, it indicates that the modification of the expectation confirmation model analyzed in this study is still a moderate model. This R^2 value is in the range of 50% to 75% (Hair et al., 2017). This finding

indicates that this study's modification of the expectation confirmation model explains the user's intention to continue using the E-Wallet.

The results of data analysis demonstrated that data could support eight hypotheses, while two hypotheses are not supported. The results of data analysis explain that satisfaction has the most dominant influence on the intention to continue using E-Wallet than the influence of Trust and Perceived Usefulness. These results reinforce the findings of previous studies conducted by Rahi et al. (2020). The users who are satisfied with the services provided by the E-Wallet will have a greater intention to continue using the E-Wallet. Although trust does not influence the intention to continue using E-Wallet, Trust is the most potent variable that affects satisfaction. E-Wallet users will be satisfied when the E-Wallet service provider can be trusted. When users are happy with the E-Wallet service, it will affect the intention to continue using it. In this regard, the E-Wallet service provider must increase the User's Trust and Satisfaction so that it is expected that users will be more loyal to the E-Wallet used. Service providers need to monitor user experience and continuously improve E-wallet performance so that it is expected to increase E-wallet users' satisfaction (Chiu et al., 2020). For instance, Service providers should continue to repair bugs and update apps to provide new experiences to users.

Perceived usefulness has a significant positive effect on the intention to continuance usage and satisfaction. E-Wallet service providers continuously improve the Perceived Usefulness of their users. Service providers should be more active and respond rapidly to changes in the application ecosystem (Oghuma et al., 2016). E-Wallet service providers can provide diverse and valuable services for E-Wallet users. The provision of more various services from the E-Wallet and the delivery of such information to the user will increase the user's Perceived Usefulness of the E-Wallet. It is expected that this will increase user satisfaction and intention to continue using the E-Wallet. Perceived usefulness is significantly positively influenced by confirmation, whereas confirmation also positively affects trust. This analysis indicates that confirmation is the starting point in the psychological process of triggering E-wallet users' continuance intention. Therefore, E-Wallet service providers should describe the application's characteristics, functionalities, and instructions in-depth on the google play store & apple app store (Chiu et al., 2020). E-Wallet users better understand what they can expect from an E-Wallet app before downloading and using it.

As a final point, Perceived Risk has a significant negative effect on trust. E-Wallet users are deterred from utilizing E-Wallets due to trust and security concerns. Users are more likely to use an E-Wallet if they know adequately protected. Perceived risk plays a vital role in today's information technology-based financial transactions (Natarajan et al., 2017). In this regard, service providers need to eliminate or minimize users' Perceived Risk by creating and communicating a secure E-Wallet platform by implementing a reliable security system to reduce risks for users. Various strategies need to be well displayed to

potential users and current users to increase their trust that E-Wallet is safe and protected.

FURTHER STUDY

Although the modification of the expectation confirmation model in this study has explained the user's intention to continue using E-Wallet, this study has several limitations that can be refined in subsequent studies. Firstly, this study was dominated by female samples, so that the results of this study allow for a gender bias. Second, this study has not considered the relevant moderating variables affecting the correlation between research variables. Several moderating variables are standard in information technology research, such as gender, geographic area, etc. Future research may consider these variables or other relevant variables to understand user preferences to use E-Wallet.

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