Usage Behavior on Digital Wallet: Perspective of the Theory of Unification of Acceptance and Use of Technology Models

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Abstract. At present the phenomena what is happening is on the use of financial technology in particular with regard to digital payments. In recent years a new technological innovation has emerged called financial technology. Financial technology is a combination of financial services and technology, where this technology has changed the behavior of the community, which was originally made by face to face payment transactions and carry a nominal amount of money, but now can be processed quickly without being limited by distance. This paper aims to examine the behavior of using a digital wallet based application: the perspective of the unified theory of acceptance and use of technology perspective. The current research design is based on survey data collected from 200 respondents from all generations who have used a digital wallet based application. The data analysis procedure uses structural equation modeling with PLS. The research findings show that performance expectancy, social influence, facilitating condition, hedonic motivation and trust influence behavioral intention of digital wallets and effort expectancy does not affect the behavioral intention of a digital wallet. While behavioral intention has a positive effect on the use of behavior of digital wallets. This paper tries to shed new light on the use of application-based digital wallets for all generations. In addition, this model needs to be extended to the external factors of the user and consider the location of each user, in the context of this study the use of an application-based digital wallet is more often used for culinary shopping.

Keywords: Financial Technology, Digital Wallets, Behavioral Intention.

1. Introduction

Currently the development of information and communication technology (ICT) is relatively very fast and has influenced the growth of the world economy, This then changes the way of life of people who previously went from offline activities to online as stated [1] that technological advances through various media platforms including print, electronic, digital media and social media contributes to changes in consumer consumption patterns. In recent years a new technological innovation has emerged called financial technology (Fintech). Fintech is a combination of financial services and technology, where this technology has changed conventional business models into modern businesses.

Based on data obtained from the website katadata.co.id in 2018 transactions fintech in Indonesia are estimated to reach US $ 23.8 billion. The types of fintech that are widely used today are means of payment (payment) such as electronic money (e-Money) digital wallet (e-Wallet), different from electronic money (e-Money), digital wallet is defined as an electronic application used for transactions online via smartphones, which have functions similar to a credit card or debit card.

Although the growth of fintech in Indonesia has experienced a significant increase, but when viewed in terms of utilization, each is fairly low. Based on a survey conducted by www.dailysocial.id,
it shows that 49.0% of digital trading transactions in Indonesia still use bank transfers, then use internet banking to reach 21.4%, followed by COD (Cash on Delivery) 13.49% ([https://databoks.katadata.co.id/](https://databoks.katadata.co.id/)). While payments using e-money and e-wallet are only 0.6%.

Although its utilization is still quite low, it is believed that its growth will continue to increase along with the increase in users smartphone at this time.

In 2018, one of the mobile surveys number 1 in Indonesia. Dailysocial.id conducted a study of the number of users e-wallet in Indonesia, where the results of this survey showed that generation Z with the age range of 19-24 years was the largest user at 54.29%. generation Y (millennial) with age range 25 - 38 years 37.12% and generation X with age range 39 - 58 years 8.59% from 1055 respondents. Generations Y and Z are among the fastest absorbing and adjusting to the times and technology.

One theory that is widely used to see the level of acceptance and use of a technology is the Unified Theory of Acceptance and Use of Technology. Unified Theory of Acceptance and Use of Technology is a theoretical model developed by [2]. There are 4 main constructs that influence the acceptance and behavior of using a technology, including performance expectancy, Effort expectancy, Social influence and Facilitating conditions.

Based on the description above, researchers interested in conducting research titled "analysis of application model unified theory of acceptance and use of technology to use behavior digital wallet (Application Based) with gender moderation and age classification ", where in addition to using the four variables contained in the model unified theory of acceptance and use of technology, researchers also added other variables namely Hedonic Motivation and Trust and variables moderating that will be used in research this is age and gender where it is based on the results of research conducted by [2] which states that gender and age are the main factors that moderate between variables in the model unified theory of acceptance and use of technology. This study aims to test the models that have been designed and analyze the factors associated with use behavior digital wallet in Gresik Regency.

Method analysis data used in this study was PLS-SEM

2. Literature Review

E-Wallet
The rapid development of digital media has a large impact on media change. Finally, it has led to changes in views, concepts and orientation, including in the field of electronic-based (digitalization) [3]. Based on Bank Indonesia Regulations, e-wallet or wallet electronics defined as an electronic service that is used to store payment instrument data and can store a number of funds for transactions conducted online (bi.go.id, 2019) According to [4] mobile wallet is the replacement of a person’s wallet with a mobile phone equipped with the functions of a bank card, credit card, house key, company access control ID, subway tickets, membership card, and so on. E-wallet is one of the fastest and most cost-effective payment solutions on the market. So it can be concluded that e-wallet or digital wallet is an electronic application that can be used to pay for transactions online, without a card or cash, all can be accessed through smartphone user's [5]

Unified Theory of Acceptance and Use of Technology
One is the unified theory of acceptance and use of technology is a technology acceptance model proposed by [2]. Unified theory of acceptance and use of technology is a model or theory used to measure the level acceptance of a technology. Unified theory of acceptance and use of technology is a combination of eight previous technology acceptance models, including

1. Technology acceptance model (TAM / TAM2)
2. The innovation diffusion theory (IDT)
3. The theory of reasoned action (TRA)
4. The theory of planned behavior (TPB)
5. The motivational model (MM)
6. A model of combining TAM and TPB (c-TAM-TPB)
7. The model of PC utilization (MPCU)
8. The social cognitive theory (SCT)

Parameters in the Unified Theory of Acceptance and Use of Technology
There are several parameters in the unified theory of acceptance and use of technology including:
1. Performance expectancy, as the user's belief that the use of the system will help fulfill the objectives related to their work [2].
2. Effort expectancy, [2] illustrates efforts to expect or perceive ease of use as a level of ease related to the use of systems
3. Social influence, Is a level of user perception about the influence of society on their decision to use the system [2].
4. Facilitating conditions, according to [2] defines facilitating conditions as the extent to which an individual believes that organizational and technical infrastructure is available to support the use of a system.
5. Hedonic motivation, according to [2] argues that users are not only concerned with the performance of a system that is used but also includes how feelings are created from within, hedonic motivation is defined as pleasure or pleasure obtained from using technology, and has proven to play an important role in determining the acceptance and use of technology [6].
6. Trust, an individual's judgment after obtaining, processing, and digesting information and producing various assessments and assumptions. Trust is defined as the willingness of individuals to accept vulnerability by reason of positive expectations about the intentions or behavior of others in situations characterized by interdependence and risk [7].

Previous studies in the last five years related to the Unified Theory of Acceptance and Use of Technology have been carried out such as [8]–[12], this shows the importance of discussion about the use of technology, especially in the business field.

Behavioral Intention
[2] defines behavioral intention as someone's intention to use a technology continuously assuming they have access to the system. So, behavioral intention can be interpreted as behavior carried out by someone as measured by the strength of his intention. In the basic concept of user acceptance, behavioral intention is an intermediary construct between the perception of the use of information technology and the actual use.

Usage Behavior
Behavior is an action carried out subconsciously by an individual or in other terms referred to as an action carried out by someone. In the context of information technology usage behavior, usage behavior is the actual use of technology. So that the behavior will always be associated with the technology used, for example the behavior of using the smartphone [13], the behavior of using mobile banking [14], [15], the behavior of using social media [16], [17] and so on.

Gender
In a number of studies, gender is highly considered to examine whether there are differences in the use of technology between men and women. According [18] explained that gender has a real impact on the use and implementation of technology in a business context. In addition, stated that there are significant differences between men and women in the use of e-government.

Age Classification
The total population of each generation will change each time, the composition of the veterans' group and generation baby boomers began to decrease, therefore in this study the age classification used was generation X with an age range of 39 - 59 years, generation Y with an age range of 24 - 39 years, and generation Z with an age range of 24 - 19 years.

3. Material and Methods
This research is a study quantitative, with 200 respondents determined based on the theory put forward by Roscoe where the criteria for respondents selected are men and women who are included in the generation X classification with an age range of 39 - 59 years, generation Y with an age range of 24 - 39 years, generation Z with an age range of 24 - 19 years. Sampling was done using the method Accidental Sampling.

In this study, data were obtained through a questionnaire given to respondents who used digital wallets online using Google forms. Questionnaires that have been filled out by respondents are then collected and seen for their suitability, and then used to be processed and analyzed. Data analysis in this study was conducted with PLS-SEM (partial least squares structural equation modeling) using computer software WarpPLS 6.0. PLS-SEM is an alternative method for the structural equation model that is to test simultaneously the relationships between latent constructs in linear relationships and nonlinear with many indicators and test hypotheses for relationships between variables.

4. Results and Discussion

Based on the questionnaire that was filled out by the respondents obtained data as follows, namely the number of respondents e-wallet male as many as 86 people (43.0%) and user respondents e-wallet female as many as 114 people (57.0%), where that the number of respondents e-wallet 19-24 age years (generation Z) is 100 people (50.0%) which is the highest frequency. Respondents who use e-wallet aged 25-39 years (generation Y) are 73 people (36.5%). Respondents of users e-wallet aged 40 - 59 years (generation X) are 27 people (13.5%).

**Measurement Model**

Measurement outer models, models include testing validity and reliability. Testing is validity done through convergent validity and discriminant validity. While the test is reliability used to measure the consistency of respondents in answering the question items in the questionnaire, which obtained the results of outer loading and AVE with a value ≥ 0.5. These results indicate all variables and indicators are considered valid. Based on the testing of the composite reliability and alpha cronbach test results. It can be seen that the reliability test results obtained the value of composite reliability ≥ 0.7 and Cronbach alpha value ≥ 0.6 AVE with a value of ≥ 0.5. These results indicate that all variables meet the reliable requirements.

**Testing Inner Model (Structural Model)**

This test is done by looking at the percentage of variance explained by looking at the R2 for the dependent latent constructs, Stone-Geisser, Q-square test and also see the coefficient parameters of structural lines. Based on data processing, the resulting value of the coefficient of determination (R-Square) as follows:

| Variable          | R-square | R-square Adjusted |
|-------------------|----------|-------------------|
| Behavioral Intention (BI) | 0.683    | 0.719             |
| Use Behavior (UB)  | 0.673    | 0.715             |

Table 1 shows the value R-square which shows how much the percentage of the response variable can be explained by the predictor variable. The higher the R-square , the better the model, and vice versa.

Based on the results obtained by the R-square value for the variable Behavioral Intention (BI)that is 0.683 which means that the contribution of the variable performance expectancy (PE), effort expectancy (EE), social influence (SI), facilitating conditions (FC), hedonic motivation (HM) and variable trust (T) of 68.3%. While the R-square value for the variable use behavior (UB) is 0.719 which means that the contribution of the variable is behavioral intention (BI) 71.9% and the rest is
influenced by other variables outside this research model and error. R-square value greater than 0 indicates that this research model has predictive relevance.

Hypothesis
Testing This test is done by path analysis of the model that has been made. The results are as follows:

| Hypothesis | Path Coefficient | P-Value | Results | Information |
|------------|------------------|---------|---------|-------------|
| H1         | PE → BI          | 0.222   | <0.001 | Influential | Accepted    |
| H2         | EP → BI          | 0.056   | 0.213   | No effect   | Rejected    |
| H3         | SI → BI          | 0.249   | <0.001 | Influential | Accepted    |
| H4         | FC → BI          | 0.209   | 0.001   | Influential | Accepted    |
| H5         | HM → BI          | 0.191   | 0.003   | Influential | Accepted    |
| H6         | T → BI           | 0.115   | 0.049   | Influential | Accepted    |
| H7         | BI → UB          | 0.821   | <0.001 | Influential | Accepted    |
| H8         | BI → UB(Gender)  | -0.052  | 0.229   | No effect   | Rejected    |
| H9         | BI → UB (Generation) | -0.032 | 0.329   | No effect   | Rejected    |

Based on table 2, it is known that there are 6 hypotheses that have p-values less than 0.05 so that it can be said to have a significant positive effect. While the other 3 hypotheses have no significant effect, because they exceed a p-value of 0.05.

Discussion
The effect of performance expectancy (PE) on behavioral intention (BI), these results are supported by research [11], [19]–[21]. So these results can be interpreted that the performance expectations provided by each e-wallet provider company greatly facilitates the daily activities of consumers, therefore researchers assume it affects individual interest in using e-wallet.

No effect on effort expectancy (EE) on behavioral intention (BI), these results are in accordance with [11], [20], [22]. This result can be interpreted that business expectations do not influence consumers to use e-wallets. This is because e-wallet service providers have designed e-wallet usage systems easily from the start so convenience is not one of the factors that can influence consumers in using e-wallets.

The effect of social influence (SI) on behavioral intention (BI), the results indicate that social influence affects behavioral intention (BI), so the higher the social influence a person receives, the higher behavioral Intention, this result is supported by research(Wang and Lin 2011; Pinem et al. 2019; Sri Hartini et al. 2020)

The effects of facilitation conditions (FC) on behavioral intentions (BI), these results are in accordance with the research of [20] users of the learning system of respondents in the USA, [9]. These results can be interpreted that support and the resources available on e-wallet affect the interest of consumers to use e-wallet. It also proves that consumers have enough knowledge or insight to help them use e-wallets.

Effect of hedonic motivation (HM) on behavioral intention (BI), This is in accordance with the expected hypothesis results where hedonic motivation influences consumer behavioral intentions. These results support previous studies such as [11], [20] users of learning systems in the USA, these results illustrate that consumers feel happy, happy, and also happy in using e-wallets, especially for
generation Y with age range 24-39 years, and generation Z with age range 24-19 years who really enjoy the use of e-wallet.

The effect of trust (T) on behavioral intention (BI), this result can be interpreted that consumers consider e-wallet as a technology that is trusted both in terms of comfort and security, one example is the use of OTP where every transaction made must use a password which will automatically be accepted by the number mobile that has been registered by the user, this allows others to not be able to use the e-wallet user's service. The results of this study support research conducted by [26], [27] that trust has a positive impact on the intention to use a digital wallet,

Effect of behavioral intention (BI) on use behavior (UB). The results of the study are in accordance with previous studies conducted by[21]. This result shows that respondents highly respect the use of e-wallet in addition to its ease of use, the many promos, discounts, and cashback provided make this service the most sought after by consumers.

The Effect of behavioral intention (BI) on use behavior (UB) moderated by gender, Based on findings in the field between male and female respondents on average provide the same opinion and assessment in the use of digital wallet, it can be concluded that gender does not affect the use of wallet digital.

Effect of behavioral intention (BI) on use behavior (UB) moderated by age classification, Based on the findings in the field between respondents who fall into categories X (40 - 59 years), Y (25 - 39 years) and Z (19-24 years) ) the average of giving the same opinion and assessment in using digital wallet, it can be concluded that the age classification does not affect the use of digital wallet.

5. Conclusions

The results of the study found that social influence has the most significant influence on behavioral intention e-wallet followed by facilitating conditions, performance expectancy hedonic motivation, and trust. While effort expectancy, and behavior intention intention moderated by gender and age classification do not affect e-wallet use behavior. Future research recommendations are to be able to use variables moderating other in accordance with the model Unified Theory of Acceptance and Use of Technology itself so that they can better know what moderating variables affect the use of e-wallet, besides this research is expected to be developed into qualitative research so that it can know some more in-depth reasons for using a digital wallet.

References

[1] S. Sukaris, S. Hartini, and D. Mardhiyah, “Increasing Electronic Word-of-Mouth Activities through Self-Congruity and Tourist Values,” Int. J. Innov. Creat. Chang., vol. 9, no. 10, pp. 162–183, 2019.
[2] V. Venkatesh, M. G. Morris, G. B. Davis, and F. D. Davis, “User Acceptance of Information Technology: Toward a Unified View,” MIS Q., vol. 27, no. 3, pp. 425–478, 2003.
[3] S. Hartini, D. Mardhiyah, and Sukaris, “A conceptual framework for relationship between symbolic risk consumption with electronic word of mouth,” Opcion, vol. 36, no. Special Edition 26, pp. 1282–1295, 2020.
[4] D. H. Shin, “Towards an understanding of the consumer acceptance of mobile wallet,” Comput. Human Behav., vol. 25, no. 6, pp. 1343–1354, 2009.
[5] D. L. Amoroso and R. Magnier-Watanabe, “Building a research model for mobile wallet consumer adoption: The case of mobile Suica in Japan,” J. Theor. Appl. Electron. Commer. Res., vol. 7, no. 1, pp. 94–110, 2012.
[6] S. A. Brown and V. Venkatesh, “Model of Adoption of Technology in Households: A Baseline Model Test and Extension Incorporating Household Life Cycle,” MIS Q., vol. 29, no. 3, pp. 399–426, 2005.
[7] C. Ennew and H. Sekhon, “Measuring trust in financial services: The Trust Index,” Consum. Policy Rev., vol. 17, no. 2, p. 62, 2007.
[8] O. Isaac, Z. Abdullah, A. H. Aldholay, and A. Abdulbaqi Ameen, “Antecedents and outcomes of internet usage within organisations in Yemen: An extension of the Unified Theory of Acceptance and Use of Technology (UTAUT) model,” Asia Pacific Manag. Rev., vol. 24,
no. 4, pp. 335–354, 2019.

[9] W. Boonsiritomachai and K. Pitchayadejanant, “Determinants affecting mobile banking adoption by generation Y based on the unified theory of acceptance and use of technology model modified by the technology acceptance concept,” Kasetsart J. Soc. Sci., vol. 40, no. 2, pp. 349–358, 2019.

[10] R. de S. Abrahão, S. N. Moriguchi, and D. F. Andrade, “Intention of adoption of mobile payment: An analysis in the light of the Unified Theory of Acceptance and Use of Technology (UTAUT),” RAI Rev. Adm. e Inovação, vol. 13, no. 3, pp. 221–230, 2016.

[11] G. Baptista and T. Oliveira, “Understanding mobile banking: The unified theory of acceptance and use of technology combined with cultural moderators,” Comput. Human Behav., vol. 50, pp. 418–430, 2015.

[12] Y. K. Dwivedi, N. P. Rana, K. Tamilmani, and R. Raman, “A meta-analysis based modified unified theory of acceptance and use of technology (meta-UTAUT): a review of emerging literature,”Curr. Opin. Psychol., vol. 36, pp. 13–18, 2020.

[13] N. Liu and R. Yu, “Identifying design feature factors critical to acceptance and usage behavior of smartphones,” Comput. Human Behav., vol. 70, pp. 131–142, 2017.

[14] S. K. Sharma, “Integrating cognitive antecedents into TAM to explain mobile banking behavioral intention: A SEM-neural network modeling,” Inf. Syst. Front., vol. 21, no. 4, pp. 815–827, 2019.

[15] Y. Hwang, D. Lee, and K. Jung, “Mobile app recommendation with sequential app usage behavior tracking,” J. Internet Technol., vol. 20, no. 3, pp. 827–837, 2019.

[16] S. Singh and P. Srivastava, “Social media for outbound leisure travel: a framework based on technology acceptance model (TAM),” J. Tour. Futur., vol. 5, no. 1, pp. 43–61, 2019.

[17] M. Turan and A. Kara, “Online social media usage behavior of entrepreneurs in an emerging market: Reasons, expected benefits and intentions,” J. Res. Mark. Entrep., vol. 20, no. 2, pp. 273–291, 2018.

[18] L. A. Jackson, K. S. Ervin, P. D. Gardner, and N. Schmitt, “The racial digital divide: Motivational, affective, and cognitive correlates of internet use,” J. Appl. Soc. Psychol., vol. 31, no. 10, pp. 2019–2046, 2001.

[19] X. Cao, A. N. Khan, A. Ali, and N. A. Khan, “Consequences of Cyberbullying and Social Overload while Using SNSs: A Study of Users’ Discontinuous Usage Behavior in SNSs,” Inf. Syst. Front., no. 2014, 2019.

[20] M. El-Masri and A. Tarhini, “Factors affecting the adoption of e-learning systems in Qatar and USA: Extending the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2),” Educ. Technol. Res. Dev., pp. 1–21, 2017.

[21] T. Escobar-Rodriguez and E. Carvajal-Trujillo, “Online purchasing tickets for low cost carriers: An application of the unified theory of acceptance and use of technology (UTAUT) model,” Tour. Manag., vol. 43, pp. 70–88, 2014.

[22] C. Martins, T. Oliveira, and A. Popović, “Understanding the internet banking adoption: A unified theory of acceptance and use of technology and perceived risk application,” Int. J. Inf. Manage., vol. 34, no. 1, pp. 1–13, 2014.

[23] S. M. Wang and J. C. C. Lin, “The effect of social influence on bloggers’ usage intention,” Online Inf. Rev., vol. 35, no. 1, pp. 50–65, 2011.

[24] Sri Hartini, G. C. Premananto, M. Ilwanudin, J. Sulistyawan, and S. Sukaris, “The role of religiosity and social influence on perceived business ethics and its impact on the purchase of creative industrial products,” Espacios, vol. 41, no. 19, pp. 370–379, 2020.

[25] R. J. Pinem, D. Purbawati, A. Srifiriani, S. Wahyoedi, and Sukaris, “Green companies and the millennial generation as the spearhead of the environment,” Int. J. Innov. Creat. Chang., vol. 8, no. 2, pp. 106–115, 2019.

[26] A. A. Alalwan, A. M. Baabdullah, N. P. Rana, K. Tamilmani, and Y. K. Dwivedi, “Examining adoption of mobile internet in Saudi Arabia: Extending TAM with perceived enjoyment, innovativeness and trust,” Technol. Soc., vol. 55, pp. 100–110, 2018.

[27] D. Ofori and C. Appiah-Nimo, “Determinants of online shopping among tertiary students in
Ghana: An extended technology acceptance model,” *Cogent Bus. Manag.*, vol. 6, no. 1, pp. 1–20, 2019.