

Continuance Intention of Mobile Wallet Usage in the Philippines: A Mediation Analysis

Joe Ana Rose Sanchez
De La Salle University

Manuel Tanpoco*
De La Salle University

— *Review of* —
**Integrative
Business &
Economics**
— *Research* —

ABSTRACT

Mobile wallet usage has increased by leaps and bounds during the pandemic when mobility of people was restrained. Now that the Philippines has transitioned back to almost how it used to be pre-Covid, the continuous use of mobile wallets, which dominates financial transactions in the metropolis, is in peril. This study sought to provide empirical evidence on the effects of perceived ease of use, usefulness, security, and trustworthiness on the continuance intention of mobile wallets as mediated by user satisfaction. The Filipino mobile wallet users were selected as participants using network sampling technique. The research design used is descriptive-casual, while the statistical approach utilized is mediation analysis. Findings revealed that perceived usefulness, perceived security, and trustworthiness are significant factors and are directly affecting continuance use intention. They suggest that the more satisfied people are with mobile wallet's usefulness, security features, and trust in service providers, the more likely they are to continue using mobile wallets. User satisfaction, on the other hand, partially mediates the effects of perceived usefulness and trustworthiness on continuation intention. It is thus recommended that FinTech companies upgrade mobile wallets with effortless navigation technologies and a secure payment method while constantly monitoring user satisfaction.

Keywords: Mobile wallets, continuance intention, perceived usefulness, trustworthiness, user satisfaction

1. INTRODUCTION

The Philippines was ranked 59th out of 79 nations in Huawei Technologies Co., Ltd.'s 2020 Global Connectivity Index (GCI), indicating that the country is still a "starter" in terms of digitization system (Balinbin, 2021). With this finding, it was agreed by Cacas & Olita (2022) that digitization is less prevalent in the Philippines than in other countries. Digitization is the straightforward process of converting physical to digital transaction—much talked as paperless transaction (Gobble, 2018). To digitize knowledge contents, scanners, cameras, and a variety of other devices can be used. These technologies make it possible to digitize almost any type of material, including paper documents and motion pictures (Pearce-Moses, 2005). Thus, mobile payments were the most significant and innovative advancement in the payment space. As a result of the evolution of digital cash, the Philippine payment system has entered a new phase.

Through the years, financial services in the Philippines have slowly transitioned from cash to ATM cards to digital payments. In 2002, Smart Communications launched Smart Padala, an SMS-based fund transfer service. Recently, it rebranded as PayMaya as a Smart digital financial innovation. In addition, Globe Telecom created GCash in 2004

for TM and Globe subscribers to use for cashless purchases (Crisanto, 2017). They were the pioneers of Financial Technology (FinTech) in the Philippines as they promoted mobile wallets in the economy. In the early stages of mobile payment, such as GCash and PayMaya, there were around nine million registered mobile wallet accounts in 2017 (Bangko Sentral ng Pilipinas, 2020). In 2020, Filipinos adopted the usage of mobile wallets in the country had nearly tripled, with one of the compelling factors being the effect of the current COVID-19 pandemic crisis (Reyes, 2022). Today, these mobile wallets provide convenience by innovating payment options available to users while also being projected to continue to play a significant role in ensuring the FinTech industry's sustainability (Cacas & Olita, 2022). In May 2022, it was reported that GCash has more than 60 million registered users, while PayMaya reported estimated 47 million registered users (Lugtu, 2022) nationwide.

However, a global ranking of ASEAN 2021 research revealed that some Filipinos are cash-reliant and reluctant to adopt mobile wallets (Union Overseas Bank, 2021). It is barely unexpected for Filipinos' longstanding preference for cash over digital payments. It was due to the difficult navigation of mobile wallets and the country's poor internet services. As health and safety protocols in the Philippines become lenient, some users are switching to cash as a means of payment since another factor to consider is security. Security issues may be due to Filipinos' fundamental apprehension of new financial technology rather than the applications themselves (transactions with the top apps have proven secure thus far). Countless fraud occurrences, such as online banking skimming and internet fraud, have occurred throughout the country (Amoroso & Roman, 2021). Still, it is more intriguing to explore this study since a Nielsen Company research group discovered that as Filipinos utilize mobile wallets in many parts of their lives, they become more comfortable with and trust digital payment systems (Nielsen Company, 2021).

Various studies have been published and reviewed on a global scale. However, limited research covers the continuance intention of the mobile wallet in the Philippines. This study attempts to fill this gap by examining the influencing factors that affect the satisfaction of Filipino users to continue using mobile wallets like PayMaya and GCash. Thus, the research aims to explore the significant factors affecting the mobile wallet continuation using an integration of Expectation-Confirmation Model (ECM) and Technology Acceptance Model (TAM) frameworks extended by the inclusion of security and trustworthiness factors.

2. LITERATURE REVIEW

2.1. Mobile Wallets and Filipino Users

The introduction of mobile payment demonstrates an increase in the usage of new technologies in people's lives. The mobile wallet is also developing to fulfill customer expectations like convenience and secured transactions. This new payment technique has various advantages over traditional methods (Chokkannan, 2022). Amoroso and Watanabe (2011) defined mobile payment as a digital transaction made using a mobile device or any other device capable of connecting to mobile communication networks to start, approve, and complete a commercial transaction. Alampay and Bala (2010) used the terms "mobile money," "mobile money transfer," and "mobile wallet" to refer to the same. The advancement of the cashless economy has resulted in a surge in the mobile wallet industry in the last two years. This is due to the COVID-19 pandemic, rising Filipino earnings, and the growing popularity of internet shopping among Filipinos (Cacas &

Olita, 2022).

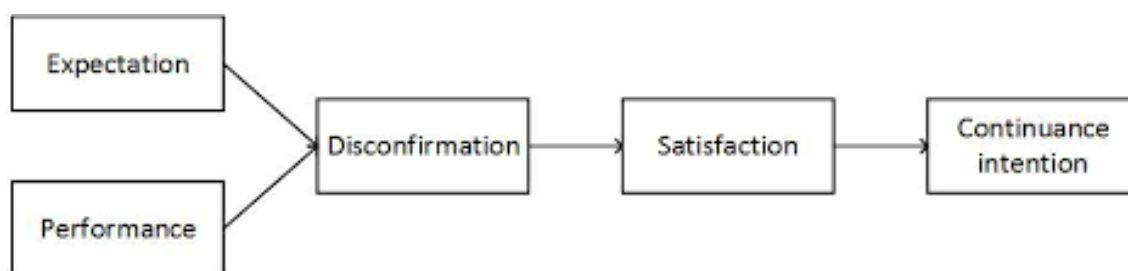
Mobile payment usage increased from 1% in 2013 to 10% in 2018. (Massally et al., 2019). According to the Central Bank of the Philippines (2020), one in every five financial transactions (including bill payments and money transfers) will have been made via mobile wallets by the end of 2020. Furthermore, one of the primary reasons for effective mobile wallet penetration is the government's initiatives to move the country toward a cashless economy (Reyes, 2022). The Promotion of Digital Payments Act, also known as House Bill 8992 and Senate Bill 1764, is now under consideration. This law aims to aggressively promote the use of digital payments in the Philippines while promoting financial participation among the unbanked (YCPS Marketing & Communication Group, 2022). With this, the pursuit of digital financial inclusion addresses sustainability by utilizing more technology, providing digital-first services, and encouraging paperless transactions.

Furthermore, some Filipino users continue to use the conventional cash-on-delivery approach, while more Filipinos are shifting to digital payments for convenience, indicating continuance intention (Mercurio, 2021). With this, the pursuit of digital financial inclusion addresses sustainability by utilizing more technology, providing digital-first services, and encouraging paperless transactions. However, the significant impediment to cashless payments in the Philippines is the lack of a steady and secure payment infrastructure such that the risks of hacking, personal security breaches, and risky access make potential loyal users unsure about mobile payments (Vicente, 2018).

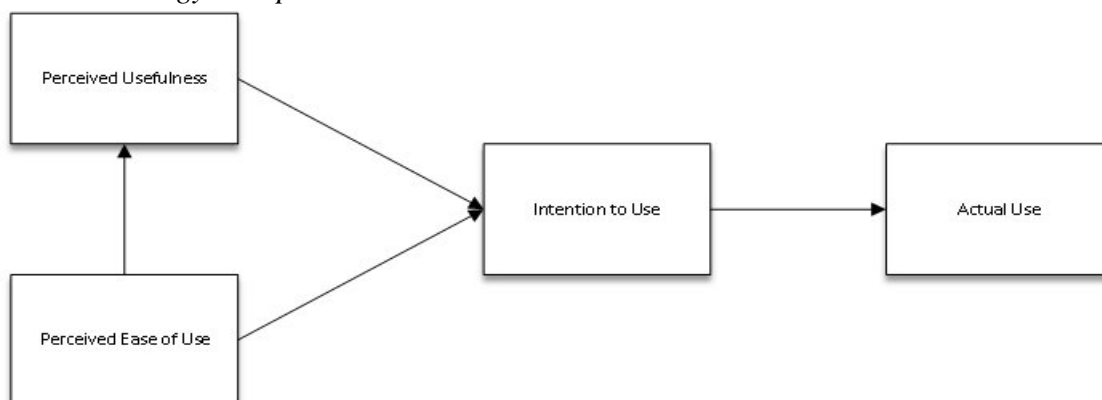
2.2. Expectation-Confirmation Theory and Technology Acceptance Model

The expectation-confirmation theory (Oliver, 1980) situates repurchase or continuance intention as the by-product of a previous positive experience with a product or service that met or exceeded the expectations of consumers. Bhattacharjee (2001) and Susanto et al. (2016) examined a consumer's post-usage behavior using the Expectation-Confirmation Model, wherein post-purchase satisfaction can be influenced by expectations, user experiences, and perceived performance.

Figure 1.: *Expectation-Confirmation Theory Model*



The technology acceptance model (Davis, 1989), one of the most widely used and influential theories on the integration and use of technology (Charness and Boot, 2016), view consumers perception on the usefulness and ease of use as drivers of usage intention leading to actual use. Singh and Sinhaor (2020) discovered that perceived ease of use and usefulness of technology had a substantial influence on merchants' adoption of mobile wallets through the application of the Technology Acceptance Model.

Figure 2: *Technology Acceptance Model*

Bhattacharjee (2001) present a differentiated Post Adoption Model (PAM) to increase continuous usage by integrating the components of TAM (initial adoption behavior) and ECM (post-purchase behavior). Kumar et al. (2020) argue that ECM and TAM are particularly beneficial in marketing high-tech products and services. According to the findings, perceived usefulness and perceived ease of use have a substantial impact on user satisfaction and motivation to continue using M-wallets in India. Moreover, by extending perceived security and trust factors can also affect the continuance of mobile payment services. As mobile-based transactions are expected to grow significantly in the Philippines, it is imperative to examine the factors that affect Filipino users' adoption and long-term mobile wallet usage intentions.

2.3. Perceived Ease of Use

Perceived Ease of Use is defined as "the degree to which a person believes that using a technology will be free of effort" (Davis 1989). It is an individual's belief that using a specific system is simple and manageable (Aslam et al., 2017).

In the context of this study, PEOU refers to the extent to which users believe that their continued mobile wallets require no effort to run. Individuals will be more willing to learn about a system's features if it is relatively simple to use. According to research, PEOU is related to continuance intention of using mobile wallets in daily transactions (Valencia et al., 2019). Also, the concept of perceived ease of use reveals how user-friendly it is and leads to satisfaction (Bhattacharjee, 2001). A user's impressions of service may have evolved with satisfaction towards continuance intention. However, in the study of Bhattacharjee (2001), perceived ease of use was found to have no significant impact on intention to use when one performing transactional tasks. As a result, the following hypotheses must be tested:

- H1:** *Perceived ease of use on mobile wallet directly affects continuance intention.*
- H2:** *User satisfaction mediates the effects of perceived ease of use on continuance intention.*

2.4. Perceived Usefulness

Perceived Usefulness refers to "the extent to which a person believes that using a particular technology will enhance her/his job performance," (Davis 1989). It can be described as the consumers' view of the projected benefit of mobile wallet usage, as retrieved from the TAM model (Bhattacharjee, 2001). Previous studies indicate that PU is positively associated with continuance intention in the context of mobile wallets (Abbas & Hamdy, 2015).

Perceived usefulness, a strong and direct factor of continuance usage intentions in previous studies (Wu & Chen, 2017; Mouakket, 2015), positively influences users' satisfaction (Bhattacharjee, 2001; Lin & Lu, 2011). Based on the M-wallet continuation model, post-consumption expectations are portrayed as ex-post perceived usefulness. Meaning, if users believe that using mobile wallet is very useful to them, they will be more satisfied with it and might choose to continue using the mobile wallet. Thus, the following hypotheses were tested:

H3: *Perceived usefulness on mobile wallet directly affects continuance intention.*

H4: *User satisfaction mediates the effects of perceived usefulness on continuance intention.*

2.5. Perceived Security

Security is always a top consideration for users when about financial transaction services. Perceived security refers to customers' views of the security concerns connected with mobile wallet usage (Mombeuil, 2020; Chawla et al., 2020; Jin et al., 2020; Belanche-Gracia et al., 2015;). Past researches have established the importance of the role of security in mobile wallets as a payment method (Hanafizadeh et al., 2014; Casaló et al., 2007; Cheng et al., 2006;).

In particular, security is strongly influential in the early stage of technology adoption, usage and acceptance (Shih and Fang, 2006; Centeno, 2004). The literature also revealed that perceived security affects users' satisfaction toward mobile wallets (Cheng et al., 2014) such that the lack of security decreases user satisfaction and trust in the context of mobile wallet services (Chen, 2012). Hence, the following hypotheses must be tested:

H5: *Perceived security on mobile wallet directly affects continuance intention.*

H6: *User satisfaction mediates the effects of perceived security on continuance intention.*

2.6. Trustworthiness

Trust is defined as a tendency to remain loyal to a particular service or provider based usually on the confidence with the service provider's future behavior (Zhou, 2013). Trust has been described here as an individual's faith that the mobile wallet is safe and performs as intended, as well as confidence in the mobile wallet service provider to offer a product that functions as expected and accurately processes transactions (Susanto et al., 2016).

Trust is a significant factor in the continuance of a service or product, as it measures integrity and ability. The users expect the various parties to keep their promises and to retain transaction data and other sensitive information safe and secure (Singh & Sinha, 2020; Chawla et al., 2020; Talwar et al., 2020). Therefore, the hypothesis below were tested:

H7: *Trustworthiness with service provider directly affects continuance intention.*

H8: *User satisfaction mediates the mobile wallet's trustworthiness on continuance intention.*

2.7. User Satisfaction

User satisfaction is defined as a favorable feeling about the acceptance and experience of a certain service or product (Bhattacharjee, 2001). Assael (2004) posits that satisfaction is felt only if customer expectation has been met, and this only strengthens the intention to use by forming a positive attitude for the product or service. Moreover, user satisfaction has been described as the "total evaluation of technology that represents an emotion-based response to the target technology" (Lam et al., 2004). Satisfaction is the overall feeling experienced while using a service (Chow and Shi, 2014). Users may discontinue use if they

are dissatisfied with the service or product. According to studies, satisfaction plays an integral role in continuing habits (Franque et al., 2021; Kumar et al., 2020; Humbani et al., 2019; Zhou, 2013). Therefore, the researchers proposed the following hypothesis:

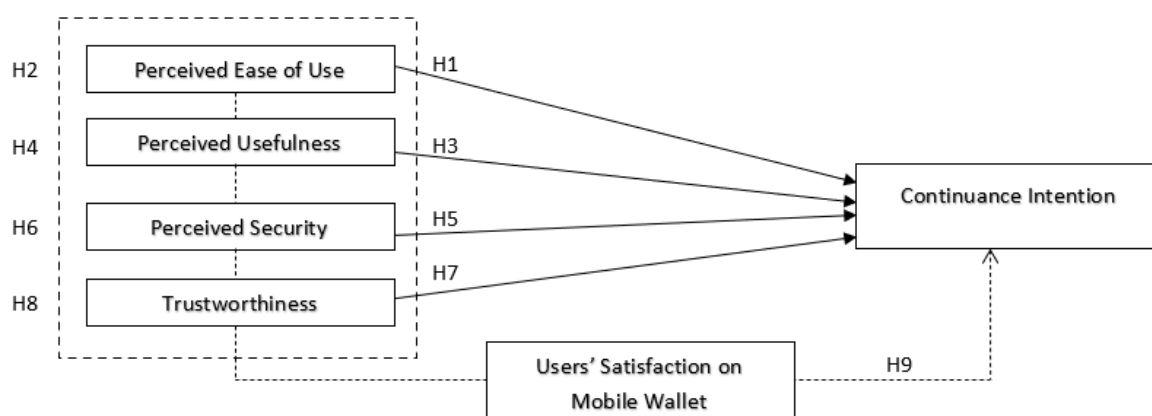
H9: *User satisfaction with mobile wallet usage positively affects continuance intention.*

2.8. Continuance Intention

Continuance intention is influenced by emotional factors such as satisfaction, which determines the actual mobile wallet usage experience (Kumar et al., 2017). Furthermore, continuance intention is defined as an individual's intention to continue using a service in the post-acceptance stage (Schierz et al., 2010). Number of studies investigate continuance intention usage. For example, Kumar et al. (2020) argue that ECM and TAM are particularly beneficial in marketing high-tech products and services. According to the findings, perceived usefulness and perceived ease of use have a substantial impact on user satisfaction and motivation to continue using M-wallets in India. Moreover, by extending perceived security and trust factors can also affect the continuance of mobile payment services.

This study sought to address that gap by investigating the link between users' perceptions and extending them by including perceived security and trustworthiness factors on satisfaction leading to continuance intention of mobile wallet usage in the Philippines. The proposed research framework is presented in Figure 3.

Figure 3: *Operational Framework*



3. MATERIALS AND METHODS

3.1. Research Design

This study utilized a descriptive-causal research design. The descriptive design is aimed at describing the current phenomenon (Atmowardoyo, 2018) of using mobile wallets. And, with its aim of providing empirical evidence of cause-and-effect relationships particularly of variables that ultimately lead to mobile wallet continuance intention, the causal approach is deemed appropriate (Oppewal, 2010). Mediation analysis was used as primary method of analysis since the current study is about testing a research model by means of prediction and it involves whether the association between the independent and dependent variable is completely accounted for by the mediator (Bauer et al., 2006).

3.2. Research Instrument

An adapted survey questionnaire was refined and used as an instrument to collect relevant data required from the participants. The instrument composed of two parts. The first part of the survey contains the demographic profile of users of mobile wallets in terms of sex. The second part of the survey contained the six constructs: perceived ease of use scale and perceived usefulness, which were taken from Valencia et al., (2021), perceived security scale, trustworthiness scale, user satisfaction scale, and continuance intention scale, which were taken from Zhou (2013) and Bhattacharjee, A. (2001a) and refined by Kumar and Mukherjee (2018). The second section measured the constructs using a five-point Likert scale, where (1) is strongly disagree and (5) strongly agree.

The adapted version of the instrument was piloted and underwent a reliability test using Cronbach's alpha. Coefficients reported in each of the scales met the minimum requirement of 0.7, deeming the individual scales and the overall questionnaire reliable.

3.3. Participants and Data Collection

The participants of the study were Filipino mobile wallet users. The total number of respondents who participated in the study was 394, selected by using a network sampling technique. The demographic statistics of mobile wallet users in the Philippines in terms of sex and generations were obtained. The possible impact of sex on the continuance intention was controlled with the frequencies of the two group not being too far apart, with men consisting 45.43% of the sample and women 54.57%.

3.4. Ethical Consideration

The participants were oriented about the purpose and importance of their participation through a letter of consent included in the Google survey form. Their participation in the study took approximately less than five minutes. Thus, there was no perceived no risk and monetary compensation for participation. Each participant was given the freedom to withdraw anytime, upon starting to answer the google survey form. The collected data were treated with utmost confidentiality. The results would not hold the administrator or institution where the participants are affiliated with accountable; hence, the results would not affect their relationship with them in any manner. The data were stored in a password-encrypted computer and printed files would be kept in a locked cabinet for (3) years before deletion and shredding. The information from this research is solely for the purpose of this study, its publication, or secondary data analysis.

4. RESULTS

The instrument's reliability was established using Cronbach's alpha coefficient. The R^2 coefficient and variance inflation factors were also reported for the multicollinearity assumption of the multivariate analysis. Summary statistics were reported particularly mean, standard deviation, and 95% confidence interval. In assessing the effect of each variable on continuance intention, mediation analysis was performed using JASP software. The direct and indirect effects were determined and described in terms of the coefficient, significance, and 95% confidence interval of effects.

The study utilized mediation analysis to measure the hypothesized relationships. Moreover, the reliability of the six constructs were tested. The Cronbach's alpha was calculated to measure the reliability of the constructs- perceived ease of use, perceived usefulness, perceived security, trustworthiness, user satisfaction, and continuance intention. The rule of thumb for reliability must have values of at least 0.7 (Kock, 2020). As seen in Table 1, all constructs exhibit coefficient within threshold.

Perceived usefulness of mobile wallets is very high ($\mu = 4.646$, $SD = 0.503$). On the other hand, respondents perceived security ($\mu = 3.750$, $SD = 0.811$), perceived ease of use ($\mu = 4.381$, $SD = 0.838$), trustworthiness ($\mu = 3.833$, $SD = 0.814$) and user satisfaction ($\mu = 4.277$, $SD = 0.613$) are all high. Continuance intention is also high ($\mu = 4.173$, $SD = 0.630$) with 95%CI [3.543, 4.803].

Table 1: *Summary of Descriptive Statistics*

Construct	Cronbach's Alpha	Mean	Std. Dev	Confidence Interval	
				Upper	Lower
Perceived Ease of Use	0.838	4.381	0.588	4.969	3.793
Perceived Usefulness	0.848	4.646	0.503	5.149	4.143
Perceived Security	0.831	3.750	0.811	4.561	2.939
Trustworthiness	0.814	3.833	0.697	4.530	3.136
User Satisfaction	0.810	4.277	0.613	4.890	3.664
Continuance Intention	0.821	4.173	0.630	4.803	3.543

Part of the assessment of mediation analysis is evaluating the coefficient of determination. The acceptable R^2 is dependent on the context of the study but usually greater than 0.25 for key latent variables is acceptable (Lacap & Tungcab, 2020). The full collinearity VIF were also examined as part of the common method bias assessment in mediation analysis. According to Kock (2020), the values of full collinearity VIF must be less than 3.3 to conclude that multicollinearity and common method bias are not found in the research model. As seen in Table 2, all constructs are within the acceptable threshold.

Table 2. R^2 and Full Collinearity VIF

Construct	Full collinearity VIF	R^2
Perceived Ease of Use	1.638	
Perceived Usefulness	1.424	
Perceived Security	1.957	
Trustworthiness	1.974	
User Satisfaction		0.488
Continuance Intention		0.552

The data was examined by scrutinizing the direct path coefficients. First, the results revealed that perceived ease of use has no direct and least predictor to continuance intention of mobile wallets, indicating that the result was not satisfied to support the hypothesis ($\beta = 0.044$, $p = 0.221$). Meanwhile, the perceived usefulness ($\beta = 0.338$, $p < .001$), perceived security ($\beta = 0.152$, $p < .001$), trustworthiness ($\beta = 0.262$, $p < .001$), and user satisfaction ($\beta = 0.581$, $p < .001$) have directly affect to continuance intention, indicating that these hypotheses were supported. The results are presented in Table 3.

On the other hand, all indirect effects are significant except perceived ease of use ($\beta = 0.038$, $p = 0.174$) and perceived security with small effect ($\beta = 0.034$, $p = 0.128$) to continuance intention when mediated by user satisfaction. This showed that the results were not sufficient to support the hypotheses. The indirect path coefficients are shown in Table 4.

Table 3. *Direct Path Coefficients*

Hypothesis	β	p	95% Confidence Level		Decision
			Lower	Upper	
<i>Direct effects</i>					
H1. PEOU -> CI	0.044	0.913	-0.094	0.101	Not Supported
H3. PU -> CI	0.338	<.001	0.028	0.291	Supported
H5. PS -> CI	0.152	<.001	0.047	0.201	Supported
H7. TW -> CI	0.262	<.001	-0.073	0.130	Supported
H9. US -> CI	0.581	<.001	0.469	0.702	Supported

PEOU-Perceived Ease of Use; PU-Perceived Usefulness; PS-Perceived Security; TW-Trustworthiness; US-User Satisfaction; CI-Continuance Intention

Table 4. *Indirect Path Coefficients*

Hypothesis	β	p	95% Confidence Level		Decision
			Lower	Upper	
<i>Indirect effects</i>					
H2. PEOU -> US -> CI	0.038	0.174	-0.017	0.094	Not Supported
H4. PU -> US -> CI	0.190	<.001	0.122	0.257	Supported
H6. PS -> US -> CI	0.034	0.128	-0.010	0.078	Not Supported
H8. TW -> US -> CI	0.237	<.001	0.173	0.301	Supported

PEOU-Perceived Ease of Use; PU-Perceived Usefulness; PS-Perceived Security; TW-Trustworthiness; US-User Satisfaction; CI-Continuance Intention

5. DISCUSSION

Retaining users and facilitating their continuance intention is essential for service providers of mobile payment. With the help of ECM and TAM models, this study has verified factors that affect the continuance intention of mobile wallets in the Philippines.

Most mobile wallet users were females. These respondents believe that mobile wallets are easy to learn, perform the steps required to run the app, and improve efficiency in conducting financial transactions. However, they rated mobile wallets as the least in terms of security and trustworthiness. This indicates that these users are addressing security discrepancies that may compromise their transaction privacy and secure payment methods. In general, they feel satisfied and contented in using mobile wallet. As a result, they will almost certainly continue to use mobile wallets.

From the results of the study, it was revealed that perceived usefulness and trustworthiness have positively affect user satisfaction on usage of mobile wallets towards continuance intention. These findings suggest that the mobile wallet services allow users to improve their efficiency in terms of financial transactions and conveniently initiate a payments and transfer funds using a trusted mobile wallets service provider anytime and anywhere. As a result, perceived usefulness and trustworthiness has positive indirect effect to continuance intention, which mediates by user satisfaction. Among the predictors of user satisfaction, trustworthiness is the strongest motivator. This is consistent with the findings of Zhou (2013), Susanto et al. (2016), Singh & Sinha (2020), Chawla et al. (2020), and Talwar et al. (2020). Likewise, perceived usefulness has direct effect to user satisfaction, which is like the results of Bhattacharjee (2001) and Davis (1989). Thus, because users have a plethora of options involving technology, how useful it performs with their lifestyle is a consideration. In terms of trustworthiness, users have also seen how at the start of e-commerce, trust has been an issue towards continuance intention. Likewise, trust is also critical and must be positively built because they are aware of fraud, phishing, and other scheming possible online. This is especially the case now that bank accessibility is

transforming rapidly as we see a decline in branch banking and an increase in online accessibility (Pham, et al., 2022) extending to mobile wallet usage.

On the other hand, perceived ease of use and perceived security have no significant effect on user satisfaction towards continuance intention. However, perceived security has direct effect to continuance intention, without the presence of satisfaction. Given the users frequently usage of mobile wallets, the findings indicate that security is always a top consideration for users when about financial transaction services (Mombeuil, 2020; Chawla et al., 2020; Jin et al., 2020; Belanche-Gracia et al., 2015;). Moreover, perceived security garnered lowest mean score of 3.750, indicating that the service provider must enhance mobile wallet security features that maintain the privacy and secure payment transactions. This has also been the results in the study of Chen and Lai (2023) when they investigated the mobile payment adoption in Taiwan and suggested for service providers to strengthen perceived ease of use and perceived usefulness in order to reverse the negative impact of low trust and perceived risk associated with mobile wallet services.

Due to the nature of mobile payment systems created on wireless networks, deemed of high risk, it is essential for service providers to build trust with users and ensure the security and reliability of the service. Apart from ensuring safety nets of using the technology, we also recommend treating these consumers as advanced users. As such, new features can be piloted to them, and they can be encouraged to use it more as part of their lifestyle. Thus, the effect of satisfaction on continuance intention deserves further attention.

It is also worthy to highlight that in the present study, user satisfaction mediates the relationship between perceived usefulness and continuance intention as well as between trustworthiness and continuance intention. In short, these findings may assist providers of mobile wallet services to encourage users' continuance intention by strengthening performances, ensuring security, and solid trustworthiness towards satisfaction on the usage of mobile wallet services.

6. CONCLUSIONS

This study contributes to a better understanding of users' continuance intention for mobile wallet services in the Philippines. According to the findings, FinTech companies must establish a solid trust image, as well as enhance security and user-friendliness features, to reassure users to continue using mobile wallet services. As digital natives, users do not value ease of use; however, the usefulness of mobile wallets remains a significant factor given how well it fits into their lifestyle.

The technology acceptance model has always been a popular choice for technology adoption. This study outlines the consumer's post-usage behavior using the Expectation-Confirmation Model showing post-purchase satisfaction can be influenced by expectations, user experiences, and perceptions. Hence, it determines the factors of continuance intention by integrating the components of TAM (initial adoption behavior) and ECM (post-purchase behavior).

The present study has its limitations. First, it only includes perceived ease of use, perceived usefulness, perceived security, and trustworthiness as factors that may affect user satisfaction towards continuance intention. Future researchers may find interest in looking at the other antecedents that may influence satisfaction and continuance intention. Additionally, other researchers may also consider in analyzing other logical and meaningful mediators on the relationship between the identified factors and continuance intention of using m-wallets.

REFERENCES

- [1] Abbas, H. A., Hamdy, H. I. 2015. Determinants of continuance intention factor in Kuwait communication market: Case study of Zain-Kuwait. *Computers in Human Behavior*, 49(0), 648-657
- [2] Alampay, E., & Bala, G. (2010). Mobile 2.0: M-money for the BoP in the Philippines. *Information Technologies & International Development*, 6(4), 77–92.
- [3] Alsop R. (2008). *The trophy kids group up: How the Millennial generation is shaping up the workplace*. Jossey-Bass/Wiley.
- [4] Amoroso, D., Lim, R., & Roman, F. L. (2021). The effect of reciprocity on mobile wallet intention: A study of Filipino consumers. *International Journal of Asian Business and Information Management*, 12(2), 57-83.
- [5] Amoroso, D., & Watanabe, R. (2011). Building a research model for mobile wallet consumer adoption: The case of mobile Suica in Japan. *Journal of Theoretical and Applied Electronic Commerce Research*, 7(1), 94–110. <https://doi.org/10.4067/S0718-18762012000100008>
- [6] Assael, H. (2004). "Consumer behavior: A strategic approach", Houghton Mifflin, Boston.
- [7] Aslam, W., Ham, M., & Arif, I. (2017). Consumer behavioral intentions towards mobile payment services: An empirical analysis in Pakistan. *Trziste Market*, 29(2), 161-176. <http://dx.doi.org/10.22598/mt/2017.29.2.161>
- [8] Atmowardoyo, H. (2018). Research methods in TEFL studies: Descriptive research, case study, error analysis, and R & D. *Journal of Language Teaching and Research*, 9(1), 197-204.
- [9] Balinbin, A. (2021). Philippines remains a starter in digital transformation. *Business World*. <https://www.bworldonline.com/editors-picks/2021/02/01/341931/philippines-remains-a-starter-in-digital-transformation>
- [10] Bangko Sentral ng Pilipinas (2020). BSP Digital Payments Transformation Roadmap 2020-2023. https://www.bsp.gov.ph/Media_And_Research/Primers
- [11] Bauer DJ, Preacher KJ, Gil KM. (2006). Conceptualizing and testing random indirect effects and moderated mediation in multilevel models: new procedures and recommendations. *Psychol Methods*. 11:142–63.
- [12] Belanche-Gracia, D., Casalo-Arino, L.V. and Pérez-Rueda, A. (2015), "Determinants of multi-service smartcard success for smart cities development: a study based on citizens' privacy and security perceptions", *Government Information Quarterly*, Vol. 32 No. 2, pp. 154-163. <https://doi.org/10.1016/j.giq.2014.12.004>
- [13] Berraies, S.; Yahia, K. B. & Hannachi, M. (2016). Identifying the effects of perceived values of mobile banking applications on customers: Comparative study between baby boomers, Generation X, and Generation Y. *International Journal of Bank Marketing*, 35(6), 1018- –1038. <https://doi.org/10.1108/IJBM-09-2016-0137>
- [14] Bhattacharjee, A. (2001). Understanding information systems continuance: An expectation-confirmation model. *MIS quarterly*, 351-370. <https://doi.org/10.2307/3250921>
- [15] Cacas, A., Diongson, M. B. A., & Olita, G. M. (2022). Influencing Factors on Mobile Wallet Adoption in the Philippines: Generation X's Behavioral Intention to Use GCash Services. *Journal of Business and Management Studies*, 4(1), 149-156. <https://doi.org/10.32996/jbms.2022.4.1.18>

- [16] Casalo, L.V., Flavián, C. and Guinalú, M. (2007), "The role of security, privacy, usability and reputation in the development of online banking", *Online Information Review*, Vol. 31 No. 5, pp. 583-603.
- [17] Charness, N., & Boot, W. R. (2016). Technology, gaming, and social networking. In *Handbook of the Psychology of Aging* (pp. 389-407). Academic Press.
- [18] Chawla, D., & Joshi, H. (2020). The moderating role of gender and age in the adoption of mobile wallet. *Foresight*. <https://doi.org/10.1108/FS-11-2019-0094>
- [19] Centeno, C. (2004), "Adoption of internet services in the acceding and candidate countries, lessons from the interbanking case", *Telematics and Informatics*, Vol. 21 No. 4, pp. 293-315.
- [20] Chen, S.-C. (2012), "To use or not to use: understanding the factors affecting continuance intention of mobile banking", *International Journal of Mobile Communications*, Vol. 10 No. 5, pp. 490-507.
- [21] Chen, C. L., & Lai, W. H. (2023). Exploring the Impact of Perceived Risk on User's Mobile Payment Adoption.
- [22] Cheng, Y.-M. (2014), "Extending the expectation-confirmation model with quality and flow to explore nurses' continued blended e-learning intention", *Information Technology & People*, Vol. 27 No. 3, pp. 230-258.
- [23] Chokkannan, P. (2020). Role of its mindfulness on continuance intention of mobile payment system. *SSRG International Journal of Economics and Management Studies*, 7(7), 32-43.
<https://doi.org/10.14445/23939125/IJEMS-V7I7P106>
- [24] Chow, W.S. and Shi, S. (2014), "Investigating students' satisfaction and continuance intention toward E-learning: an extension of the expectation – confirmation model", *Procedia—Social and Behavioral Sciences*, Vol. 141, pp. 1145-1149. <https://doi.org/10.1016/j.sbspro.2014.05.193>
- [25] Crisanto, Crisanto, J. M. (2017). PayMaya serves the unbanked in the Philippines through the mobile app. *The Asian Banker*.
<http://www.theasianbanker.com/updates-and-articles/paymaya-serves-the-unbanked-in-e-philippines-through-the-mobile-app>.
- [26] Davis, F.D. (1989), "Perceived usefulness, perceived ease of use, and user acceptance of information technology", *MIS Quarterly*, pp. 319-340.
<https://doi.org/10.2307/249008>
- [27] Franque, F. B., Oliveira, T., & Tam, C. (2021). Understanding the factors of mobile payment continuance intention: empirical test in an African context. *Heliyon*, 7(8), e07807. <https://doi.org/10.1016/j.heliyon.2021.e07807>
- [28] Gobble, M. (2018). Digitalization, Digitization, and Innovation. *Research-Technology Management*.
<https://www.tandfonline.com/action/showCitFormats?doi=10.1080%2F08956308.2018.1471280>
- [29] Halim, E., Destiano, R., Salim, J., Margarita, V., Hartono, H., & Hebrard, M. (2021). Understanding Mobile Payment Continuation Intention on Mobile Food Ordering Apps (MFOAs) during COVID-19 Pandemic. In *2021 International Conference on Information Management and Technology (ICIMTech)*. Vol. 1, pp. 667-672.
- [30] Hanafizadeh, P., Keating, B.W. and Khedmatgozar, H.R. (2014a), "A systematic review of internet banking adoption", *Telematics and Informatics*, Vol. 31 No. 3, pp. 492-510.
- [31] Howe, N., & Nadler, R. (2012). Why Generations Matter: Ten Findings from LifeCourse Research on the Workforce.

- [32] Humbani, M., & Wiese, M. (2019). An integrated framework for the adoption and continuance intention to use mobile payment apps. *International Journal of Bank Marketing*. <https://doi.org/10.1108/IJBM-03-2018-0072>
- [33] Jiang, J. (2018, May 2). Millennials stand out for their technology use, but older generations also embrace digital life. (2017, September 13). How Each Generation Has Adapted to and Utilizes Technology. <http://www.pewresearch.org/fact-tank/2018/05/02/millennials-stand-out-for-their-technology-use-but-older-generations-also-embrace-digital-life/>
- [34] Jin, C. C., Seong, L. C., & Khin, A. A. (2020). Consumers' behavioural intention to accept of the mobile wallet in Malaysia. *Journal of Southwest Jiaotong University*, 55(1). <https://doi.org/10.35741/issn.0258-2724.55.1.3>
- [35] Kock, N. (2020). *WarpPLS user manual: Version 7.0*. ScriptWarp Systems.
- [36] Kock, N., & Hadaya, P. (2018). Minimum sample size estimation in PLS-SEM: The inverse square root and gamma-exponential methods. *Information Systems Journal*, 28(1), 227-261. <https://doi.org/10.1111/isj.12131>
- [37] Kumar, A., Adlakaha, A., & Mukherjee, K. (2018). The effect of perceived security and grievance redressal on continuance intention to use M-wallets in a developing country. *International Journal of Bank Marketing*. <https://doi.org/10.1108/IJBM-04-2017-0077>
- [38] Kumar, K. A., & Natarajan, S. (2020). An extension of the Expectation Confirmation Model (ECM) to study continuance behavior in using e-Health services. *Innovative Marketing*, 16(2), 15. [http://dx.doi.org/10.21511/im.16\(2\).2020.02](http://dx.doi.org/10.21511/im.16(2).2020.02)
- [39] Lacap, J. P. G., & Tungcab, A. P. (2020). The Influence of Brand Experience on Brand Loyalty Among Mobile Phone Users in Pampanga, Philippines: A Mediation Analysis. *Asia-Pacific Social Science Review*, 20(3), 17-31.
- [40] Lam, S. Y., Shankar, V., Erramilli, M. K., & Murthy, B. (2004). Customer value, satisfaction, loyalty, and switching costs: an illustration from a business-to-business service context. *Journal of the academy of marketing science*, 32(3), 293-311. <https://doi.org/10.1177/0092070304263330>
- [41] Lin, K. Y., & Lu, H. P. (2011). Why people use social networking sites: An empirical study integrating network externalities and motivation theory. *Computers in Human Behavior*, 27(3), 1152–1161.
- [42] Lugtu, R. (2022). The E-wallet revolution. *The Manila Times*. <https://www.manilatimes.net/2022/10/03/supplements/the-ewallet-revolution/1860646>
- [43] Massally, K., Ricart, R., Bambawale, M., Totapally, S., & Bhandari, V. (2019). The state of digital payments in the Philippines. *Manila: Better Than Cash Alliance*. https://btca-prod.s3.amazonaws.com/documents/435/english_attachments/The_State_of_Digital_Payments_in_the_Philippines_ExecSummary.pdf, 1577119411.
- [44] Mearian, L. (2022). For Gen Z, bank accounts and cash are out, mobile wallets are in. *Computer World*. <https://www.computerworld.com/article/3656701/for-gen-z-bank-accounts-can-cash-are-out-mobile-wallets-are-in.html>
- [45] Mercurio, R. (2021). Year Ender: E-wallets here to stay, fuel e-commerce boom. *Philippine Star*. <https://www.philstar.com/business/2021/12/28/2150394/yearender-e-wallets-her-e-stay-fuel-e-commerce-boom>
- [46] Mouakket, S. (2015). Factors influencing continuance intention to use social network sites: The Facebook case. *Computers in Human Behavior*, 53, 102–110.

- [47] Mombeuil, C. (2020). An exploratory investigation of factors affecting and best predicting the renewed adoption of mobile wallets. *Journal of Retailing and Consumer Services*, 55, 102127. <https://doi.org/10.1016/j.jretconser.2020.102127>
- [48] Nair, V. (2016). Eschewing cash: The challenges of cashless transactions in the Philippines. *Journal of Southeast Asian Economies*, 33(3), 428-430. <https://doi.org/10.1355/ae33-3f>
- [49] Nielsen Company (2021). Financial markets by quarter. https://nielseniq.com/wp-content/uploads/sites/4/2021/05/NielsenIQ-Financial-Markets-by-Quarters_Q1-2021.pdf
- [50] Nielsen. (2016). Mobile money: From shopping to banking to payments, How mobile is transforming commerce around the world. <https://www.nielsen.com/wp-content/uploads/sites/3/2019/04/nielsen-global-mobile-moneyreport-oct-2016-1.pdf>
- [51] Oliver, R. L. (1980). A cognitive model of the antecedents and consequences of satisfaction decisions. *Journal of marketing research*, 17(4), 460-469.
- [52] Oppewal, H. (2010). Causal research. *Wiley International Encyclopedia of Marketing*.
- [53] Pham, D. J., Wentz, B., Nguyen, T., & Pham, T. (2022). The decline of branch banking and the transformation of bank accessibility. *Review of Integrative Business and Economics Research*, 11(3), 1-19.
- [54] Pew Research Center (2019). Defining generations: Where Millennials end and Generation Z begins. <https://www.pewresearch.org/fact-tank/2019/01/17/where-millennials-end-and-generation-z-begins/>
- [55] Ramayah, T., Cheah, J., Chuah, F., Ting, H., & Memon, M. A. (2018). Partial least squares structural equation modeling (PLS-SEM) using SmartPLS 3.0: An updated guide and practical guide to statistical analysis (2nd ed.). Pearson
- [56] Reyes, R. (2022). Cashless economy drives high e-wallet penetration. *Business Mirror*. <https://businessmirror.com.ph/2022/04/14/cashless-economy-drives-high-e-wallet-penetration/>
- [57] Rungtusanatham, M., Miller, J. W., & Boyer, K. K. (2014). Theorizing, testing, and concluding for mediation in SCM research: Tutorial and procedural recommendations. *Journal of Operations Management*, 32(3), 99–113
- [58] Schierz, P. G., Schilke, O., & Wirtz, B. W., "Understanding consumer acceptance of mobile payment services: An empirical analysis", *Electronic commerce research and applications*, Vol. 9, No.3, pp.209-216, 2010. <https://doi.org/10.1016/j.elerap.2009.07.005>
- [59] Shih, Y.-Y. and Fang, K. (2006), "Effects of network quality attributes on customer adoption intentions of internet banking", *Total Quality Management & Business Excellence*, Vol. 17 No. 1, pp. 61-77.
- [60] Singh, N., & Sinha, N. (2020). How perceived trust mediates merchant's intention to use a mobile wallet technology. *Journal of Retailing and Consumer Services*, 52(June 2019), 101894-101894. doi: 10.1016/j.jretconser.2019.101894
- [61] Statista Research Department (2021). Number of mobile wallet users in the Philippines in 2020, with a forecast for 2025. <https://www.statista.com/statistics/1258089/philippines-mobile-wallet-users>.
- [62] Susanto, A., Chang, Y., & Ha, Y. (2016). Determinants of continuance intention to use the smartphone banking services: An extension to the expectation-confirmation model. *Industrial Management & Data Systems*, 116(3), 508-525. <https://doi.org/10.1108/IMDS-05-2015-0195>

- [63] Talwar, S., Dhir, A., Khalil, A., Mohan, G., & Islam, A. N. (2020). Point of adoption and beyond. Initial trust and mobile-payment continuation intention. *Journal of Retailing and Consumer Services*, 55, 102086. <https://doi.org/10.1016/j.jretconser.2020.102086>
- [64] United Overseas Bank (2021). For cash-reliant Filipinos, trust in FinTech is growing. <https://www.uobgroup.com/techecosystem/news-insights-consumer-research-philippines.html>
- [65] Vicente, R. (2018). Special report: The state of digital payments in the Philippines. <http://www.upgrademag.com/web/2018/07/16/the-state-of-digitalpayments-in-the-philippines/> Visa. Catching up with the youngsters: Generation X is the real champion of cashless payment – Visa survey. (2016, January 28). <https://www.visa.com.ph/about-visa/newsroom/pressreleases/catching-up-with-the-youngsters-generation-x-is-the-real-champion-of-cashless-payment-visa-survey.html>
- [66] Wu, B., & Chen, X. (2017). Continuance intention to use MOOCs: Integrating the technology acceptance model (TAM) and task technology fit (TTF) model. *Computers in Human Behavior*, 67, 221–232
- [67] YCPS Marketing & Communication Group (2022). Accelerating Digital Payments in the Philippines for 2022. <https://ycpsolidiance.com/article/accelerating-digital-payments-in-the-philippines-for-2022>
- [68] Zhou, T. (2013). An empirical examination of continuance intention of mobile payment services. *Decision support systems*, 54(2), 1085-1091. <https://doi.org/10.1016/j.dss.2012.10.034>