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FACTORS INFLUENCING MALAYSIAN ADOPTERS' PERCEIVED USEFULNESS TOWARDS PAYMENTS AND E-WALLET SERVICES

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ABSTRACT

Based on the Technology Acceptance Model, this study examines the influence of several external variables on the perceived usefulness (PU) of payment and e-Wallet services among users in Malaysia, namely perceived ease of use (PEU), perceived enjoyment (PE), perceived information (PI), personal innovativeness (PI), social influence (SI), and security concerns (SC). Data were collected from 204 respondents. The results show that only PEU and PE positively and significantly influence PU. This demonstrates that even though Malaysians are aware of and frequently use digital payment and e-Wallet services, service providers must focus on improvements related to usability, enjoyment, and innovativeness. It will strengthen the service providers' image and give users a more favorable perception of utility, leading to a higher adoption rate of these services.

Keywords: *E-wallet, digital payment, perceived usefulness, Malaysia*

Paper Type: *Research Paper*

INTRODUCTION

During the Covid-19 crisis, there has been a sharp reduction in the use of cash (McCaughey & O'Shea, 2020). As many businesses were feared that the virus could be transmitted through banknotes and coins, this led to many of them only accepting contactless payments, further sparking the start of a cashless society (Cullinane, 2020). When Malaysia's movement control order (MCO) began, the online food delivery service - Foodpanda - announced that they would begin a contactless delivery service as part of the measures to curb the spread of Covid-19 (Yeoh, 2020). Touch 'n Go e-Wallet has also offered cashbacks and free delivery for food orders (Hassan, 2020). These measures are being taken to encourage customers to switch to cashless payment methods to minimise contact (Yeoh, 2020). In just one month of implementing the MCO, some e-Wallet players reported that their number of subscribers has doubled (Hassan, 2020). For instance, GrabPay Malaysia's cashless transactions have increased about 1.7 times; while sign-up rates for the Maybank e-Wallet have more than doubled (Hassan, 2020). This

situation alone demonstrates how crucial digital payment and e-Wallet services are becoming, since cashless transactions became the "new normal" for the entire nation. Furthermore, Malaysia has at least 40 FinTech businesses in the payment subsector (FintechNews Malaysia, 2019) and around 50 e-Wallet providers (Tan, 2020). While payment and e-Wallet technologies have the potential to revolutionise financial services, widespread adoption remains a barrier. Many consumers still prefer traditional banking methods due to concerns related to security, lack of awareness, and unfamiliarity with new technologies. To overcome adoption barriers, it is necessary to understand the underlying factors that influence consumers' perceptions of usefulness towards these services.

This study investigates the adoption of payment and e-Wallet services in Malaysia as an emerging and potential FinTech hub in Asia. It identifies the determinants of perceived usefulness (PU) that would influence the adoption towards these two services among Malaysian adopters. PU refers to the degree to which an individual believes that using a particular system would enhance their job performance or daily life activities (Davis, 1989). In the context of payment and e-Wallet services, PU reflects users' beliefs about how these technologies can improve their financial management, transaction speed, and overall convenience. Moreover, according to Davis, Bagozzi & Warshaw (1989), PU directly affects the attitude to adopt a system and can be affected by various external variables. It was also mentioned that by looking into these external variables, more effective strategies for influencing the adoption of a system could be developed (Davis, Bagozzi & Warshaw, 1989).

To better understand what drives PU in the context of payments and e-Wallet services, this study will examine six key factors: Perceived Ease of Use (PEU), Perceived Enjoyment (PE), Perceived Information (PF), Personal Innovativeness (PI), Social Influence (SI), and Security Concerns (SC). Based on previous research, most of these factors were found to positively influence people’s intention to adopt payment and e-Wallet services. For example, studies by Chua et al. (2019), Krishnan et al. (2016), and Prompattanapakdee (2009) have shown that PEU plays a significant role in shaping adoption behaviour. Similarly, PE has also been linked to higher adoption rates, as seen in findings by Chong et al. (2019) and Lai & Zainal Ariffin Ahmad (2015). PF was found to be influential by Cho and Sagnov (2015) and Wen (2016), while the significance of PI and SI was supported by Hu et al. (2019), Chong et al. (2019), and others. On the other hand, SC—particularly as highlighted in Wen’s (2016) study—was found to have a negative impact, suggesting that concerns about security can discourage users from adopting payment and e-Wallet services.

Several studies show different results for some of these factors. In Wen’s study (2016), PI, SI and PEU were not shown to have a direct positive relationship with consumer acceptance. Moreover, SC has a positive relationship with consumer acceptance (Chong et al., 2019), due to a different definition of SC. In another study, it concluded that SC has no significant relationship with consumer acceptance (Chua et al., 2019). These variations in results may occur due to the different locations where these studies are conducted. Hence, these factors are selected to test if they are still relevant when brought into the context of Malaysia. They would also be evaluated to see if they are external variables of PU instead of having a direct influence on the intention to adopt these Fintech services.

Although previous studies have explored various aspects of payment and e-Wallet services adoption, few have specifically examined how PU is shaped by multiple determinants simultaneously. Moreover, most studies have been conducted in developed economies, leaving a gap in understanding the dynamics in emerging markets like Malaysia. This study holds significant value both in academic and practical contexts. Academically, it extends the applicability of the TAM by integrating additional determinants that are particularly relevant to payment and e-Wallet services adoption, thereby enriching the theoretical framework used to understand user behaviour in digital financial services. It also contributes to regional research by providing empirical evidence specific to the Malaysian market, an emerging economy with growing potential in the payment and e-Wallet services sector. Practically, the findings offer valuable insights for FinTech developers and financial institutions, guiding them in enhancing user experience, improving service design, and building consumer trust through factors such as perceived ease of use and enjoyment. Furthermore, the study supports policymakers in crafting targeted strategies and interventions aimed at promoting financial inclusion, increasing digital literacy, and fostering a more inclusive and technologically advanced financial ecosystem in Malaysia.

The remainder of this paper is structured as follows. Section 2 presents the literature review. Section 3 describes the data and methodology employed in this study, and Section 4 presents and discusses the results. Section 5 concludes the paper and offers some policy implications of the study.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Adoption of FinTech Payments and E-Wallets

The transition from cash to digital payments has increased payment revenues all over the world (Malhotra, 2019). Global non-cash transaction volumes grew at 12% between 2016 and 2017 to reach the highest in the past twenty years - 539 billion (Capgemini, 2019). The growing adoption of mobile payments, contactless technology and digital innovations from technology players contributes to this significant growth (Capgemini, 2019). Digital wallets (e-Wallets) are also a driver behind payments revenue growth (Malhotra, 2019). As advancing technologies make cashless transactions more convenient for buyers and sellers alike, the adoption of these services will grow inevitably (Malhotra, 2019). In fact, this growth would not just be limited to some countries but worldwide.

Both the transaction value of mobile banking and e-money have grown significantly over the past 5 years, indicating that Malaysian adopters of payment and e-Wallet services have been increasing (FintechNews Malaysia, 2019). In 2018, it was observed that Malaysians use e-money more frequently to pay for small transactions, while larger payments, for cars, home or insurance, were done through internet banking (Pikri, 2019). Just in e-money transactions alone, transaction volume amounted to 1.4 million and RM10.6 billion in value as of January to August 2019, according to BNM (Birruntha, 2019). Up to the end of 2019, 48 e-money licenses have been granted by BNM, including five for banks (Tan, 2019). It has also been observed that almost

every major merchant in Klang Valley accepts at least one e-Wallet for payment (Ng, 2019). In fact, most shops now accept multiple e-Wallets (Ng, 2019). Major e-Wallet players like Boost and Touch 'n Go are said to each have more than 5 million subscribers, while it is claimed that two out of three Malaysians use GrabPay (WARC, 2019).

However, this crowded e-Wallet scene in Malaysia is not expected to sustain much longer with a population of only 32.6 million (Tan, 2019). In late 2019, DiGi.com Bhd's vCash - one of the pioneers in Malaysia's e-Wallet scene - was forced out of the game (Wong & Tay, 2020). According to TNG Digital Sdn Bhd's chief executive officer (CEO), Ignatius Ong, some e-Wallets would not be able to survive this competition, and consolidation would be inevitable (Wong & Tay, 2020). Ong also told The Edge Financial Daily in an interview that two e-Wallets in Malaysia are the maximum (Wong & Tay, 2020). This statement is concluded based on the e-Wallet scene in China, where there are only two main e-Wallets while having a population of around 1.4 billion (Tan, 2019). As mentioned by Boost's CEO, Mohd Hairil Abdullah, competition would be expected to get more intense as some banks have expressed interest in launching their own e-Wallets (Wong & Tay, 2020). Currently, Malaysians are inclined to use e-Wallets because of the discounts, promotions and cashbacks (Birruntha, 2019). As this industry matures and stabilises, these rewards will no longer be sustainable (Tan, 2019). As mentioned by Maybank's head of community financial services in Malaysia, Datuk Hamirullah Boorhan, businesses should focus on enhancing user experience instead of just relying on incentives to attract customers, as it would be more sustainable (Wong & Tay, 2020).

This study hence aims to identify these factors that influence adoption towards these services. It would benefit FinTech companies by giving them insights into how to enhance users' experience by making appropriate improvements to their services.

Technological Acceptance Model

The TAM provides a frame of reference for understanding consumer technology acceptance (Davis, 1989). The TAM model proposes that PU and PEU are two leading factors that affect consumers' attitudes toward technology and verify their intention to use or adopt innovative technology. To improve its explanatory power in the e-wallet context, TAM has been extended with other models such as Theory of Reasoned Action (Damayanti et al., 2021), Theory of Planned Behaviour (Aisyah and Sesunan, 2023; Tian et al., 2023; Astari et al., 2022), Health Belief Model (Hiew et al., 2022), and Diffusion of Innovation (Gunawan et al., 2020; Puspitasari et al., 2021). This indicates TAM has a critical role in understanding e-wallet adoption and continued usage intention in different contexts. PU positively impacts satisfaction, and continuance intention on e-wallets (Puspitasari et al., 2021). Furthermore, PU has a strong predictor of intention to continue the use of e-wallets (Tian et al., 2023). Hence, in this study, TAM is extended with two motivation factors (i.e., PEJ and RW) to understand consumer intention to continue the use of e-wallets.

Perceived Usefulness (PU)

PU refers to the extent to which an individual believes that using a particular system will enhance their performance or efficiency (Davis, 1989). In the context of FinTech, PU reflects users' beliefs about whether adopting a digital financial service improves their ability to manage money, conduct transactions, and access financial products conveniently. Studies consistently show that PU is a strong predictor of behavioural intention to adopt FinTech services. For instance, Yeow et al. (2017) found that PU significantly influences the intention to use mobile banking applications among Malaysian users. Similarly, Krishanan et al. (2016) concluded that PU plays a vital role in determining consumers' acceptance of mobile payment systems. Given its centrality in predicting adoption behaviour, this study selects PU as the dependent variable. Understanding what drives PU can provide actionable insights for FinTech providers aiming to improve user engagement and retention.

Perceived Ease of Use (PEU)

PEU refers to the degree to which an individual finds it effortless to use a system (Davis, 1989). According to TAM, PEU positively affects PU because users are more likely to perceive a system as useful if it is easy to use. Several studies support this relationship in the FinTech domain. Chua et al. (2019) found that PEU significantly influences PU in the context of mobile wallet adoption. Prompattanapakdee (2009) also confirmed that ease of use enhances perceived usefulness in online banking systems. Moreover, Balog and Pribeanu (2010) highlighted that PEU not only affects PU but also mediates the relationship between other external factors (e.g., interface design, system features) and PU.

H1: PEU has a positive relationship with PU for payment and e-Wallet services.

Perceived Enjoyment (PE)

PE refers to the pleasure derived from using a system (Davis, 1992). Unlike PEU and PU, which are task-oriented, PE captures the emotional and hedonic aspects of technology use. Research suggests that PE plays a significant role in shaping PU, particularly in contexts where users engage with technology voluntarily rather than out of necessity. Lai and Zainal Ariffin Ahmad (2015) found that PE has a direct positive effect on PU in e-payment systems. Mun and Hwang (2003) further supported this finding, noting that PE can sometimes be a stronger determinant of PU than PEU itself. In the FinTech context, enjoyment could come from intuitive interfaces, gamified experiences, or real-time feedback mechanisms that make managing finances engaging. Chong et al. (2019) observed that users who enjoy interacting with FinTech platforms report higher levels of perceived usefulness.

H2: PE has a positive relationship with PU for payment and e-Wallet services.

Perceived Information (PF)

PF is about how well people feel they understand a product or service before using the service (Pikkarainen et al., 2004). In the world of FinTech, this means users need to be aware of what the service does, its benefits, any risks involved, and how to use it properly. Soutar and Sweeney (2001) pointed out that people do not just judge a product based on how useful it seems; they also rely heavily on the information they receive. Wen (2016) found that when users feel they truly understand a FinTech service, they are more likely to believe it is useful. A study by Cho and Sagynov (2015) supports this, showing that PF has a strong effect on perceived usefulness, especially when users are given clear explanations and helpful educational materials. This makes sense because when information is easy to access and understand, it helps reduce doubts and builds trust in the service.

H3: PF has a positive relationship with PU for payment and e-Wallet services.

Personal Innovativeness (PI)

PI refers to an individual's openness to trying innovative technologies (Agarwal & Prasad, 1998). Innovators are typically early adopters who actively seek out and experiment with novel solutions. Lu et al. (2005) demonstrated that PI significantly influences PU, suggesting that individuals who are technologically curious tend to find new systems more useful and easier to use. Parveen and Sulaiman (2008) reinforced this by showing that personal innovativeness enhances PU in mobile internet usage among Malaysians. Although some studies suggest that PI may only indirectly affect PU through PEU (Lu, 2014), others indicate a direct link. For example, Lewis et al. (2003) found that innovative users derive greater value from technology due to their initiative-taking learning behaviours.

H4: PI has a positive relationship with PU for payment and e-Wallet services.

Social Influence (SI)

SI pertains to the extent to which an individual perceives that important people in their life (e.g., friends, family, colleagues) believe they should use a particular system (Davis, 1989). Wen (2016) noted that users often rely on social networks to reduce uncertainty about unfamiliar technologies, especially in high-risk domains like finance. Chong et al. (2019) confirmed that SI has a significant positive effect on FinTech adoption intentions, while Chua et al. (2019) found that SI influences behavioural intention to use mobile wallets. In Malaysia, where collectivist values are prevalent, peer recommendations and social validation play a critical role in shaping perceptions of usefulness. Users are more likely to adopt a FinTech service if they observe others benefiting from it.

H5: SI has a positive relationship with PU for payment and e-Wallet services.

Security Concerns (SC)

SC refer to users' worries about the safety of their personal and financial data when using a system (Gupta et al., 2010). In payment and e-Wallet services, SC is a major barrier to adoption due to the sensitive nature of financial transactions. While most studies treat SC as a negative influencer, results vary depending on the definition and measurement approach. Wen (2016) found that SC negatively impacts PU, indicating that users who fear fraud or data breaches are less likely to perceive FinTech services as useful. However, Chong et al. (2019) reported a contradictory result, suggesting that heightened security awareness might increase trust and PU. Chua et al. (2019) found no significant relationship between perceived security and adoption intention, highlighting the need for clearer conceptualisation, given that most evidence points to a negative association.

H6: SC has a negative relationship with PU for payment and e-Wallet services.

Table 1: Study Hypothesis

Hypothesis	Construct	Direction	Source
H1	PEU → PU	Positive	Davis (1989); Chua et al. (2019)
H2	PE → PU	Positive	Davis (1992); Lai & Ahmad (2015)
H3	PF → PU	Positive	Wen (2016); Cho & Sagynov (2015)
H4	PI → PU	Positive	Lu et al. (2005); Parveen & Sulaiman (2008)
H5	SI → PU	Positive	Wen (2016); Chong et al. (2019)
H6	SC → PU	Negative	Wen (2016); Gupta et al. (2010)

Conceptual Framework

Referring to the previous models developed by Chong et al. (2019) and Wen (2016), the present conceptual framework includes factors that will be examined in this study include perceived ease of use, perceived enjoyment, perceived information, personal innovativeness, social influence and security concern. Figure 1 represents the conceptual framework of the study.

STUDY SAMPLE AND METHODOLOGY

Research Design

This study adopts a quantitative research design using an online survey method to collect data from Malaysian users who have prior experience with FinTech services. The primary objective is to examine the factors influencing PU of FinTech services using an extended TAM. The study tests six hypotheses that link PU to PEU, PE, PF, PI, SI, and SC.

Population and Sampling

The target population consists of Malaysian citizens aged 18 years and above who have used or are currently using any form of FinTech service. Given the rapid digitalisation in Malaysia, this

group represents a massive portion of potential FinTech adopters. A convenience sampling technique was employed due to the accessibility of respondents through social media platforms such as Facebook, Instagram, and WhatsApp. These platforms were selected based on their high engagement rates among Malaysian internet users. The sample size was determined using Cohen's formula for medium effect size ($f^2 = 0.15$), $\alpha = 0.05$, power = 0.80, and six predictors. The required minimum sample size was calculated to be approximately 114 respondents. A total of 204 valid responses were collected, exceeding the minimum requirement and ensuring sufficient statistical power. The source of questions used to measure each variable is presented in Table 2.

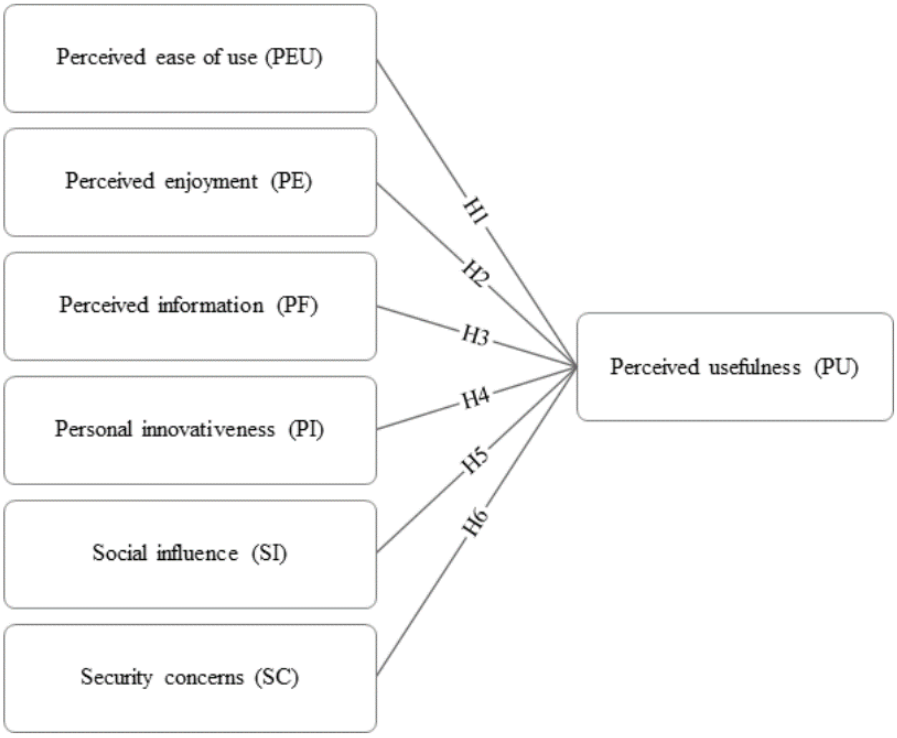

Figure 1: Conceptual Framework

Table 2: Measurement Instruments

Construct	Measurement Source
Perceived Usefulness	Davis (1989)
Perceived Ease of Use	Davis (1989)
Perceived Enjoyment	Davis (1992)
Perceived Information	Pikkarainen et al. (2004)
Personal Innovativeness	Agarwal & Prasad (1998)
Social Influence	Lu et al. (2005)
Security Concerns	Wen (2016); Gupta et al. (2010)

Study Model

The study model is presented by Equation 1.

$$PU = \beta_1 + \beta_2 PEU + \beta_3 PE + \beta_4 PF + \beta_5 PI + \beta_6 SI + \beta_7 SC + \varepsilon \quad (1)$$

Where:

- PU = Perceived Usefulness
- β_1 = Constant (intercept)
- β_2 to β_7 = Regression coefficients (beta weights) for each independent variable
- PEU = Perceived Ease of Use
- PE = Perceived Enjoyment
- PF = Perceived Information
- PI = Personal Innovativeness
- SI = Social Influence
- SC= Security Concerns
- ε = Error term (residual)

RESULTS AND DISCUSSION

The sample consisted of 204 respondents. The demographic distribution is presented in Table 3. Most respondents were young adults aged between 18 and 24 (58.82%), reflecting the high engagement of this age group with digital financial services. The majority reported frequent internet access (93.63%) and regular usage of FinTech services (87.75%).

Table 3: Descriptive Statistics and Demographic Profile

Demographic Variable	Category	Frequency	Percentage (%)
Gender	Male	79	38.73
	Female	125	61.27
Age Group	18–24	120	58.82
	25–39	21	10.29
	40–54	54	26.47
	55+	9	4.41
Internet Access	Often	191	93.63
	Sometimes	13	6.37
FinTech Usage	Often	86	42.16
	Sometimes	93	45.59
	Seldom	25	12.25

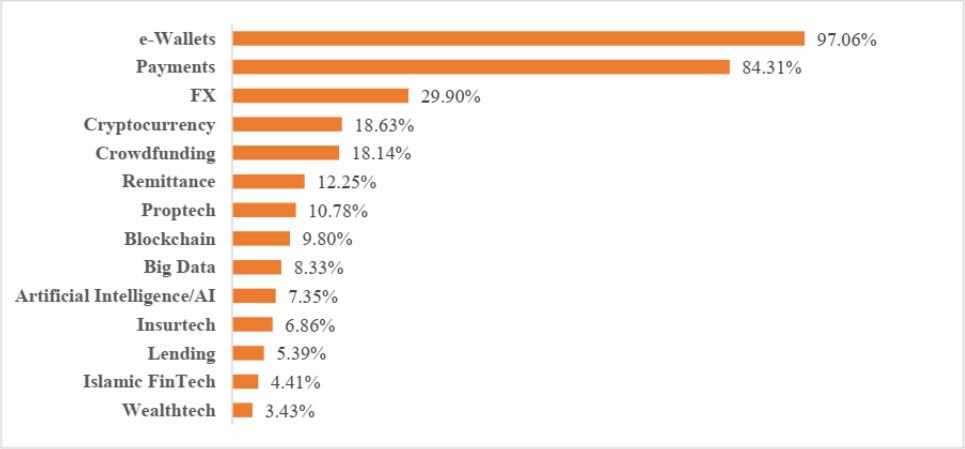

Figure 2: Percentage of Respondents Who Know of the Mentioned FinTech Services

Figure 2 illustrates the awareness level among Malaysian respondents regarding various FinTech services. The data indicates that payment and e-Wallet services are the most recognised FinTech services, with over 80% awareness among respondents. In contrast, other services such as Wealthtech, Islamic FinTech, and Artificial Intelligence (AI) have significantly lower awareness levels, with less than 10% of respondents reporting knowledge of these services.

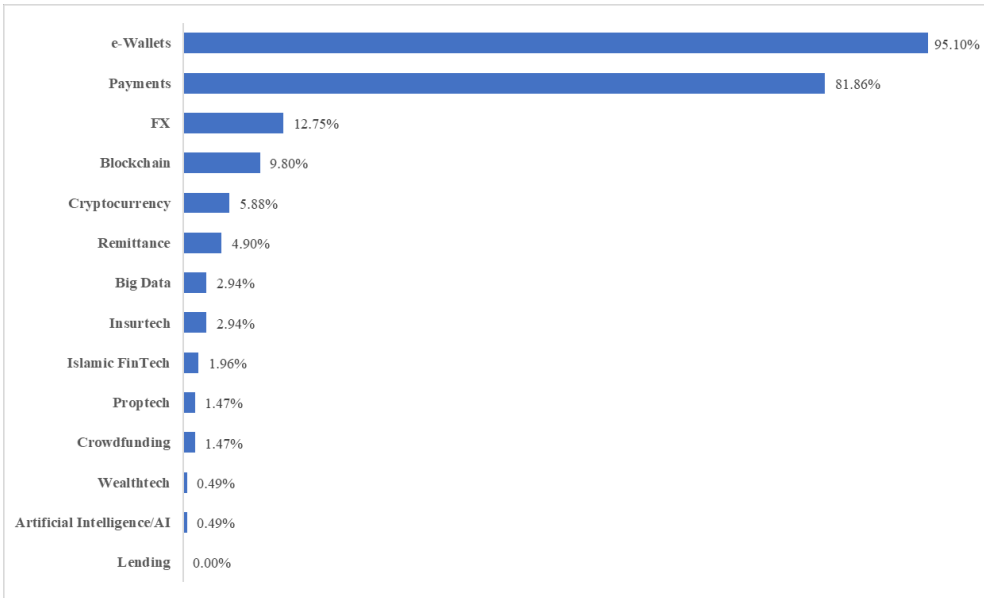

Figure 3. Percentage of Respondents Who Have Used the Mentioned FinTech Services

Figure 3 shows that e-Wallets (95.10%) and Payments (81.86%) are used by most respondents as compared to the other FinTech services. As for the remaining 12 FinTech services, a range of 0 to 13% of the total respondents use them. From the two figures (2 and 3) above, it can be observed that e-Wallets and Payments are more well known and used than the remaining 12 FinTech services. This phenomenon may arise as the players that provide these 12 FinTech services only take up less than 10% of all the players respectively (FintechNews Malaysia, 2019). Fewer players would mean fewer of these types of services in the market. Unlike the "e-

Wallets" and "Payments" players who account for 19% each, these two FinTech services are likely to be more abundant. Hence, e-Wallets and Payments are naturally more well-known and used in the FinTech scene of Malaysia.

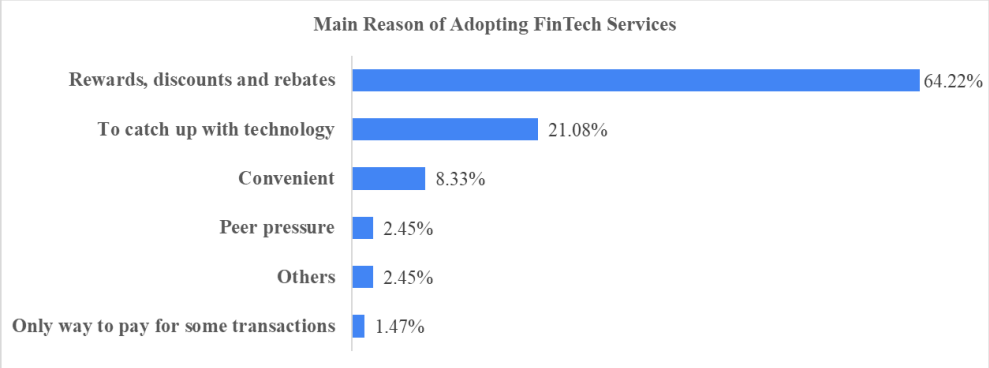

Figure 4: Main Reason of Adopting FinTech Services

Respondents were also asked what their main reason was for adopting any of the 14 FinTech services mentioned in the questionnaire. This question was designed to explore the possibilities of other significant factors that could contribute to the adoption of the payment and e-Wallet services. As shown in Figure 4, 64.22% of the respondents mentioned that their main reason for adoption is due to "Rewards, discounts and rebates". Other reasons that the respondents had given include "To catch up with technology" (21.08%), "Convenient" (21.08%), "Peer pressure" (2.45%), "Others" (2.45%) and "Only way to pay for some transactions" (1.47%).

Table 4 shows the correlation analysis between the study variables. The correlation coefficients ranged from 0.3102 to 0.7545. In fact, they are all significantly positive correlations between PU and the independent variables (PEU, PE, PF, PI, SI and SC) at the confidence level of 0.01(2-tailed). To avoid multicollinearity, it has been suggested in previous studies that the correlation coefficients should not be more than 0.80 (Yeow et al., 2017). Since the correlation coefficients observed in this study are all less than 0.80, it can be concluded from the correlation analysis that there is no multicollinearity. This can also be confirmed by the Variance Inflation Factor (VIF) results represented in Table 5, where none of the VIF values exceeded 5, which is a good indication of no multicollinearity.

Table 4: Correlation Analysis

Variable	PU	PEU	PE	PF	PI	SI	SC
PU	1	0.7545*	0.6517*	0.5726*	0.4061*	0.3792*	0.3535*
PEU		1	0.6437*	0.6002*	0.3312*	0.3339*	0.3798*
PE			1	0.5991*	0.4692*	0.4555*	0.3690*
PF				1	0.4918*	0.4207*	0.4293*
PI					1	0.3496*	0.3703*
SI						1	0.3102*
SC							1

Table 5: Cronbach's Alpha

Construct	Items	Cronbach's Alpha
Perceived Usefulness	3	0.93
Perceived Ease of Use	3	0.93
Perceived Enjoyment	2	0.93
Perceived Information	3	0.87
Personal Innovativeness	3	0.88
Social Influence	3	0.72
Security Concerns	2	0.70

Table 6 shows the results of the OLS multiple regression analysis to assess the relationship between the independent variables and PU.

Table 5: OLS results

Variable	Hypothesis	Construct Relationship	β Coefficient	t-value	p-value	Significance	VIF
PEU	H1	PEU → PU	0.551	5.68	0	Significant	2.19
PE	H2	PE → PU	0.215	2.04	0.043	Significant	2.05
PF	H3	PF → PU	0.069	0.89	0.372	Not Significant	1.99
PI	H4	PI → PU	0.069	1.23	0.218	Not Significant	1.48
SI	H5	SI → PU	0.051	0.76	0.446	Not Significant	1.35
SC	H6	SC → PU	-0.001	-0.02	0.987	Not Significant	1.33

Model Fit Indicators	Value
R	0.791
R Square	0.625
Adjusted R Square	0.62
Standard Error	0.583
F-statistic	88.2
Significance of F	0.001

From the results of the stepwise regression analysis, it is evident that PEU demonstrates a statistically significant and positive relationship with PU, with a beta coefficient of $\beta = 0.578$ ($p = 0.000$). This finding aligns with the outcomes of several prior studies (Wen, 2016; Hu et al., 2019; Cho & Sagnov, 2015; Lee, Park & Ahn, 2001; Venkatesh & Davis, 2000), reinforcing the theoretical foundation that ease of use significantly enhances users' belief in the utility of a system.

If people find a new technology useful, they will continue to utilize it. Therefore, PEU is crucial in the current study to persuade a person to adopt new technology. According to Liao et al. (2009), PEU is the extent to which a potential user anticipates the targeted product to be simple. The traits, features, and style of the product make it simple for a user to utilize. Users are more likely to stick with a product if the levels of satisfaction meet their needs. However, if the user

finds the product difficult to use, they either quit using it altogether or limit their use. The insights of users contribute positive or negative feelings about the product, which in turn affect users' intention to continue use (Daragmeh et al., 2021; Malik and Annuar, 2021). Intention to continue use refers to "an individual's intention to use or reuse a particular system continuously" (Bhattacherjee, 2001). Further, PEU has been claimed to be a decisive factor of perceived usefulness in online businesses, which plays a significant part in user willingness to continuous usage of e-wallets (Abdul-Halim et al., 2022). PU is a measure of an individual's belief that a specific system would improve their ability to complete a task (Davis, 1989, p. 320). Users' opinions about the product influence their intention to keep using it, whether those opinions are favourable or unfavourable (Daragmeh et al., 2021; Malik and Annuar, 2021). According to Bhattacherjee (2001), "an individual's intention to use or reuse a given system continually" is referred to as intention to continue use. Furthermore, it has been asserted that PEU is a key component of perceived utility in online businesses, which influences users' propensity to use e-wallets continuously (Abdul-Halim et al., 2022). A person's opinion that a particular system would enhance their capacity to finish a task is measured by their PU (Davis, 1989, p. 320). The association between perceived usefulness and intention to use (KoenigLewis et al., 2015) and perceived ease of use and perceived usefulness (Abdul-Halim et al., 2022) is found to be significant when analysing the adoption of mobile payments.

In addition, PE also exhibited a statistically significant positive relationship with PU, with a beta coefficient of $\beta = 0.250$ ($p = 0.000$). This result corroborates findings from multiple existing studies (Lai & Zainal Ariffin Ahmad, 2015; Mun & Hwang, 2003). Interestingly, Mun and Hwang (2003) discovered that PE can be a more powerful predictor of PU, especially when the user experience is naturally pleasurable. In the expanded TAM model, PE influences both intentions to use (Alfany et al., 2019) and PU (To and Trinh, 2021). Because e-wallets take less time to complete money transfers, people considered using them to be fun (Chen et al., 2018). Furthermore, the extended UTAUT model indicates that PE is a substantial contributor (Fagan, 2019). Thus, in the present study, perceived enjoyment focuses on individuals' hedonic motivation; one will continue to use e-wallets if he/she finds it exciting or likeable. Based on prior research, this study has adopted PEJ as an inhibitor affecting PU and ICU e-wallet respectively.

CONCLUSION

The study explored the antecedents associated with Malaysian adopters' perception of the usefulness (PU) of payment and e-Wallets by building on the Technology Acceptance Model (TAM). This study consists of six main constructs: Perceived Ease of Use (PEU), Perceived Enjoyment (PE), Perceived Information (PF), Personal Innovativeness (PI), Social Influence (SI), and Security Concerns (SC). The analyses revealed that PEU and PE positively influence PU. The findings demonstrate that the adoption of FinTech in Malaysia is multifaceted as users' perceptions of value are captured through utilitarian dimensions (ease of use and information) and hedonic elements (enjoyment), each shaped by personal and social factors. Notably, SC

appears to serve as a major impediment—even if a service performs well, perceived risks associated with adoption can deter usage.

For FinTech providers in Malaysia, the implications of the study present actionable insights for enhancing PU through user-centered design, maximizing user engagement and experience, communicating product benefits, leveraging social networks, and prioritizing security. The findings emphasize a need for FinTech providers to create user preferences in positional value that rely on actual user value, rather than short-term incentives like rebates and discounts.

This study has limitations, and these limitations should be considered. First, while mathematical modeling and consumer research studies have emerged in growing dismissing towards behavioral intention as the dependent outcome, this study was the reverse and treated PU as the dependent outcome, therefore limiting the scope of the study and insights regarding the direct drivers of actual adoption behavior. Second, although the theoretical model included six external variables, it is possible that other influential variables such as trust, brand image, price value, and regulatory influence may also be relevant. Third, it must be noted that the study relied on convenience sampling which may limit the generalizability of the findings since the convenience sample was likely not sufficiently phenomenologically representative of all FinTech users in Malaysia. Fourth, there is a unique restriction around cross-sectional data - and in this example, it limits understanding of how users' perceptions evolve with other potential changes in technology and growth within the market. Lastly, while studying FinTech payment and e-Wallets services is feasible - alternative FinTech subsectors, and contexts in other parts of the world may not be appropriately represented with service delivery considerations perhaps saliently diverging due to (potential) cultural, economic, or regulatory issues.

Building on these findings, several avenues for future research are recommended. The conceptual model in this study could be extended to include other variables - for example, trust, perceived risk, government policy, and cultural dimensions. This could develop a more comprehensive picture of FinTech adoption. Longitudinal studies could provide research efforts to measure how users' perceptions and behaviors change over time, and thus, to develop insights into the sustainability of FinTech adoption. In addition, comparative studies between different FinTech sectors within Malaysia, or between similar FinTech sectors in Malaysia and other ASEAN countries, could identify regional patterns or contextual differences. While quantitative methods are provided, using qualitative approaches such as interviews or focus groups could facilitate a deeper understanding of what users' motivations are and what their concerns are (e.g., security, social influence). In addition, studies of companies that are regulated by Bank Negara Malaysia and other government bodies, and how those regulate policies provided by universities or other outlets could lead to policy documents to grow the Fintech ecosystem. Finally, research examining specific user segments (e.g., rural segments, older users, SMEs), could uncover specific challenges and opportunities to expand inclusive access to digital financial services targeting those populations. These research opportunities, together, would build a more collective, nuanced understanding of FinTech developments in Malaysia and beyond.

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