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RESEARCH ARTICLE

Embracing Mobile Wallets for the Future of Digital Payments in Malaysia

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ARTICLE INFO	ABSTRACT
	This study investigates the factors influencing the intention to adopt digital wallets among consumers in the Klang Valley, Malaysia. As Malaysia transitions toward a cashless society, the relevance and timeliness of this research cannot be overstated. A total of 330 questionnaires were distributed, with 324 deemed valid for analysis. The data were analyzed using Pearson's correlation and multiple linear regression techniques to test the hypotheses and identify key determinants of mobile wallet adoption. Additionally, descriptive statistics and reliability tests were conducted to ensure robustness. The findings reveal that perceived usefulness and perceived risk are the primary factors driving the intention to adopt mobile wallets. Contrary to expectations, variables such as attitude, perceived ease of use, subjective norms, and self-efficacy were found to have no significant influence. This suggests that Malaysian consumers prioritize the practical benefits and security aspects of mobile wallets when considering adoption. The perceived risk highlights that users are more inclined to adopt mobile wallets when assured of security and privacy. It is recommended that the government, financial institutions, and fintech players launch targeted campaigns and programs aimed at educating and raising consumer awareness about mobile wallets. These initiatives should also serve as platforms for gathering consumer feedback on preferences and requirements, facilitating the enhancement of mobile wallet services. Furthermore, retailers should be trained to utilize contactless payment terminals to cater to the growing needs of mobile wallet users. This research provides valuable insights for future studies on consumer behavior regarding mobile wallet adoption in Malaysia.

INTRODUCTION

The innovation of mobile phone technology, smartphone has become an essential part of everyone's life for communication, entertainment, surf internet, social and forthcoming for payment tool (Rajgopal, 2012) whereby financial information, debit or credit card can be easily transmitted digitally on a mobile phone (Alkhowaiter, 2020). The advancement of mobile phone technology, particularly smartphones, has transformed them into indispensable tools in modern life. They serve multiple purposes, including communication, entertainment, internet browsing, social interactions, and emerging as a key payment method (Rajgopal, 2012). With the integration of financial data, such as debit or credit card details, smartphones enable seamless digital transactions, providing a

convenient and secure alternative to traditional payment methods (Alkhowaiter, 2020). In 2023, the smartphone penetration rate in Malaysia reached over 99%, reflecting the widespread adoption of mobile devices across the population. This growth was driven by the increasing need for connectivity, communication, and access to digital services such as social media, banking, and e-commerce. The number of smartphone users is projected to continue rising, expected to surpass 31 million by 2025, as indicated by ongoing trends in population growth and technological adoption (Datarportal, 2023). The shift towards digital payment solutions, such as mobile wallets, has been significant in the financial sector. With the rise in smartphone usage, banking institutions in Malaysia, have adopted mobile-based technologies to enhance their competitive edge. These innovations, such as mobile wallets, enable users to store payment information securely on their devices, reducing the need for physical cash (Chawla & Joshi, 2020).

Mobile wallets are essentially digital counterparts to traditional or physical wallets. They facilitate electronic payment transactions through smartphones, replacing the need for conventional wallets. This enables users to complete payment transactions directly at the merchant's location (Mukhtar & Barre, 2024). Mobile wallets have been available for many years, offering several advantages (Dahlberg et al., 2008). Recent studies show that while digital wallet usage is growing, significant challenges still exist in achieving widespread adoption. For instance, mobile wallet usage at physical points of sale (POS) remains below expectations, especially in markets like North America, where only 15% of in-store payments were made via mobile wallets in 2023 (compared to 42% for credit cards). Global projections suggest that digital wallet use for point-of-sale (POS) payments will account for 46% by 2027, signalling a steady increase though still not reaching full adoption (CapitalOneShopping, 2024; McKinsey, 2023).

In the case of Malaysia, despite the prolonged implementation of mobile wallets in Malaysia, adoption rates remain relatively low. According to a study conducted by the Statista Research Department, only 45% of Malaysians were mobile wallet users by the fourth quarter of 2022. The report shows that the acceptance level in 2022 is lower than in 2019 reflecting that after covid 19 ended (post covid) the consumer back to the traditional payment method. Malaysians are still preferred to use cash payment instead of digital payment, mobile wallet, as they fell uncertainty. High uncertainty level implies low acceptance of mobile wallet (Pal et al., 2019). If traditional cash payment is continuously embedded in Malaysians' mind set, it is difficult for the country in moving forward to cashless society as intended by Malaysian government in this decade. According to Peter Schiesser, the CEO of group Payments Network Malaysia Sdn Bhd (PayNet), Malaysia would take 20 years in time starting in year 2019 to become a cashless society. In Malaysia, Kuala Lumpur and Selangor also known as Klang Valley are the two states actively promote the use of mobile wallet. However, the engagement is still low as users' knowledge towards the use of digital is low and it lead to less confidence in using digital payment through mobile wallet as well as electronic payment (Sidek, 2015). To encourage and boost up the number of mobile wallet users, Malaysia government, Bank Negara Malaysia (BNM) had taken numerous collaboration and implementation with Non-Government Organization (NGO) and financial institution. Meanwhile, Fintech companies like Boost, Touch "N" go and Favepay were giving cashback bonus to mobile wallet users. Further research, it also identified that the main reason Malaysians fear in using mobile devices to conduct financial transaction was mainly due to security concern (Bussler, 2016). Nielsen's findings were similar with Jupiter Research (2008) found users were fear to use mobile wallet as they feel unsecure and fear for an unknown medium, breach of security and theft as mobile wallet provide a variety of functions with user's sensitive information saved in the mobile phone. Mobile users will experience greater risk if their phone is misplaced, damaged, or taken. Given the global trends and local initiatives, such an increase seems plausible but remains contingent on overcoming existing challenges. This raises the question: will the collective efforts of the Malaysian government, financial institutions, and Fintech

players significantly accelerate the growth of mobile wallet adoption in the country? Do Malaysians ready to accept the usage of mobile wallet?

Malaysia's government is in the effort of moving forward to cashless society by encouraging citizens to use mobile wallet, digital payment. Through this research study, it will have a greater grasp of variables that influence users in using mobile wallet as Fintech players are facing challenges in developing mobile wallet that is useful, secure and controllable. Meanwhile, target respondents are from Klang Valley area as citizens from here are more exposed to the latest technology. In the Klang Valley, which includes Kuala Lumpur and its surrounding areas, mobile wallet adoption is particularly higher to other region due to the Kuala Lumpur status as a hub for technology and innovation. However, there are still challenges to be addressed in the adoption of mobile wallets in Malaysia, including issues related to security, interoperability, and user experience. In addition, researchers have identified several barriers that could potentially hinder further penetration of mobile wallet services. Among these challenges are the intense competition among mobile payment providers and the emergence of alternative e-payment methods (Dahlberg et al., 2015; Veterini et al., 2024).

The result of this study is crucial to assist financial institution, Fintech players and other related parties to strategize, formulate and improve the useful mobile wallet which to be deployed by Malaysian. Furthermore, identifying the factors influencing mobile wallet adoption contributes indirectly to enhancing digital financial literacy among Malaysians. A survey by Financial Capability and Inclusion Demand Side Survey 2021-2022 (FCI Survey), revealed that only 38% of Malaysian are digitally literate in 202. Finding of this study can assist the government in forming a strategy to elevate the financial digital literacy among Malaysian and to utilize the digital financial services. For Fintech players, they can increase company's revenue and brand visibility by collaborating with banks to provide mobile wallet service. With the effort from all parties, it will increase the awareness of mobile wallet users and promote to cashless society by 2050 for greater economic efficiency. With this, it can prevent the reoccurrence of unknown mobile wallet in Malaysia as happened back in year 2004.

In addition, it is worth to study the acceptance of mobile wallet among Malaysian in Klang Valley as the quantity of research studies on mobile wallet acceptance is low in Malaysia (Chang Jin et al., 2019). To date, many of the research on mobile wallet was done outside of Malaysia which were in Japan (Magnier-Watanabe, 2014); Indian (Kumar, 2016 and Chawla & Joshi, 2019); Finland (Doan, 2014) and Canada (Shaw, 2014; Farooq et al., 2010). Mobile wallet is worth to be study and it should be probe further in Malaysia context as previous researches were omitted to focus their research on the acceptance of mobile wallet as it is relatively new in the market and they have narrowed their research scope which focused more on the internet banking acceptance (Mohd Thas Thaker et al., 2022; Tiong, 2020) and mobile banking acceptance (Rehman & Shaikh, 2020; Andalib Touchaei & Hazarina Hashim, 2024). In addition Chee et al. (2018) and Kaya & Abdullah (2017) have overlooked their focus of research on the acceptance of mobile wallet.

Research Objective

This research's goal is to investigate the intention of smartphone users in Malaysia's Klang Valley to adopt mobile wallet from the determinants suggested from Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB) and Technology Acceptance Model (TAM). To be specific, the objective of this study is to investigate the relationship between attitude, perceived usefulness, perceived ease of use, subjective norm, perceived risk and self-efficacy with the intention to adopt mobile wallet.

LITERATURE REVIEW

Intention to Adopt

Intention defines a person commitment to engage the deployment of a specific technology which lead to the adoption behavior and acceptance. Intention was originally developed in Theory of Reason Action (TRA) by Fishbein and Ajzen (1975) and was extended by Ajzen, (1991) under Theory Planned Behavior (TPB). TRA suggested that a person intention was linked by two determinants which were attitude towards behavior and subjective norm. Whilst, TPB added that perceived behavior control has direct influence on the intention and actual behavior. Both theories were formed based on one assumption that individuals are rational decision makers. Intention serves as a reflector of motivational factors that influence users' behavior on their willingness to try that resulted actual usage (Ajzen, 1991). The stronger one's intention to try, the more likelihood he or she will actual use it. This statement was supported by (Lala & Chakraborty, 2015) that intention will affect usage behavior. Several studies were conducted and it proved that behavioral intention and actual behavior are correlates (Venkatesh et al., 2012; Al-Maghrabi & Dennis, 2011; Kautonen et al., 2015; and Aboelmaged & Gebba, 2013). Abadi et al., (2012) had carried out a study on customers' intention in using mobile banking based on TPB and TAM with significant result proved that subject norm, perceived behavioral control and attitude did affected behavioral intention. Hence by measuring intention it will provide a valid and reliable indication on actual behavior.

Attitude

Attitude towards behavior refer to positive or negative feeling perceived by an individual through an evaluation and beliefs on behavior using expectancy-value model which was developed by Dr Martin Fishbein. If an individual has a positive feeling about using information technology, it will lead to the attitude of using the technology or otherwise (Marangunić & Granić, 2015). The adoption of mobile wallet has a favourable significant relationship with attitudes (Ting et al., 2016) and Ramos de Luna et al. (2019), executed research on factors in determining the adoption of mobile wallet and concluded that attitude is a key decisive factor whether or not to adopt mobile wallet. User's attitude serves an important role in determine the adoption of mobile wallet. Hence, below hypothesis is proposed to examine the significant relationship between attitude and intention to adopt mobile wallet.

H1:   There is a significant relationship between attitude and intention to adopt mobile wallet.

Perceived Usefulness

Davis et al (1992) claimed that perceived usefulness is the customers' perceptions of the experience's outcome. It may also refer to individual's perception towards the used of latest technology or particular system that will increase their job performance with significant value created (Rouibah et al., 2011). Mun et al. (2017) found that the perceived usefulness of mobile wallet has a positive significant relationship with the intention to adopt. It is among the most crucial determinants of a consumer's willingness to utilise mobile wallet (Patil et al., 2018). This implies that perceived usefulness played a crucial part in influencing user's behavioral towards intention to use new innovation of technology. Thus, below hypothesis is proposed to examine the significant relationship between perceived usefulness and intention to adopt mobile wallet.

H2:   There is a significant relationship between perceived usefulness and intention to adopt mobile wallet.

Perceived Ease of Use

An individual's perception of how simple it will be to utilise a system, or a piece of technology is known as perceived ease of use. Arvidsson (2014) discovered that ease of use is a key factor that

describes the intention of users to embrace a new technology and concluded that perceived ease of use has a positive significant relationship towards intention to adopt mobile wallet. Similar discovery was obtained by Roy & Sinha (2014) toward its study on acceptance of electronic payment system and further explained that consumers believe it will be effortless when adopting certain system. Therefore, below hypothesis is proposed to examine the significant relationship between perceived ease of use and intention to adopt mobile wallet.

H3:   There is a significant relationship between perceived ease of use and intention to adopt mobile wallet.

Subjective Norms

Subjective norm is also an important determinant of intention. It is basically a second hand experience, which cost less, convenient and effective means of forming behavioural intentions (Bhattacherjee, 2000). The common definition that is used among studies of behavioural intention based model is by Fishbein and Ajzen (1975) where a person's perception is that most people who are important believe that people should perform certain behaviour. It is a norm that people are afraid to try out new technological products, as they feel uncertainty of the products and unknown of the consequences. The uncertainty can be minimized through subjective norm approaches which are external and interpersonal influence (Bhattacharya & Srivastava, 2018). For instances, mass media, expertise review and electronic word-of mouth that can be exerted from family members, relatives and pals (Riquelme & Rios, 2010). Subjective norms had been tested in few studies on acceptance of mobile payment by Phonthanukitithaworn et al. (2016) and Lwoga & Lwoga (2017) and found that subjective norms do have a significant relationship towards intention to adopt mobile wallet. This shows that users will seek advice or opinion from their social circle prior to intention to adopt mobile wallet. Therefore, below hypothesis is proposed to examine the significant relationship between subjective norm and intention to adopt mobile wallet.

H4:   There is a significant relationship between subjective norm and intention to adopt mobile wallet.

Self-Efficacy

The belief in one's own abilities and behavior to accomplish a task is known as self-efficacy (Kwon, 2018). The beliefs are based on individual's responses to four major types of information which are mastery and vicarious experience, verbal persuasion, and physiological states. In the research of N. Singh et al. (2017) on mobile wallet consumer's satisfaction and preference in North India, self-efficacy is one of the effective variables in determining the usage rate. Jusoh & Jing (2019), conducted a similar study by examining the relationship between self-efficacy and mobile wallet usage. The result proved that self-efficacy is significantly related to intention of mobile wallet adoption. Self-efficacy able to influence user's decision whether to use innovation of technology. Therefore, below hypothesis is proposed to examine the significant relationship between self-efficacy and intention to adopt mobile wallet.

H5:   There is a significant relationship between self-efficacy and intention to adopt mobile wallet.

Perceived Risk

Consumers are becoming increasingly concerned about privacy and security matters because there are many virtual products and services being offered. Eliminating these concerns are crucial by the respective service providers to increase consumer confidence in using a technology (Thakur & Srivastava, 2014). Perceived security risk is described as the potential of users being exposed to security threats when utilizing a particular technology (Belanche-Gracia et al., 2015). The top three major concerns on mobile wallet security risks are losing phone, cyber thieves, and malware on users' smartphone. Many users are not well-versed on how the banks protects their personal data

and money if their phone been stolen or hacked by hackers remotely (Semerikova, 2019). These can be prevented by relying on technical aspect in ensuring the integrity, confidentiality and authentication are in placed to create a risk free technology (Shin, 2010). Users with high level of perceived security awareness tend to embrace a new technology (Gao et al., 2017; Shah et al., 2014) compared to low awareness users. Different type of products or services of technology will lead to different dimension of perceived risk (Kassim & Ramayah, 2015). Consumers' willingness to use the electronic payment system was influenced by their perceptions of risk (Lai & Zainal, 2015).

Many research studies have been conducted on perceived risk privacy-security concern. Lack of privacy and security were found as a barrier in adopting the used of internet banking (Martins et al., 2014; Mann & Sahni, 2013), online shopping study (Hsu & Luan, 2017), mobile banking study (Li & Bai, 2010). Security and intent to use mobile payments were discovered to be highly connected (Oliveira et al., 2016; Khalilzadeh et al., 2017). Mobile wallet service providers have been observing and enhancing the security and privacy protection continuously (Aydin, 2016) to inspire users to embrace mobile wallet and to boost their confidence. Therefore, perceived risk should be considered while designing a mobile wallet application to improve user's intention. Therefore, below hypothesis is proposed to examine the significant relationship between perceived risk and intention to adopt mobile wallet.

H6:   There is a significant relationship between perceived risk and intention to adopt mobile wallet.

METHODOLOGY

In this study, questionnaire items are developed by adopting or adapting from previous studies. The questionnaire is distributed via internet using Google Forms. The target respondents are from Klang Valley as Kuala Lumpur and Selangor are the two states actively promote the use of mobile wallet and there are more merchant terminals accept mobile wallet compared to other states. The population of Klang Valley is approximately 8 million people (Department of Statistics Malaysia, 2020). A survey conducted by Malaysia Communication and Multimedia Commission (MCMC) on "Hand Phone Users Survey 2017" was found that pre-teens and teens contributed around 10.1% of the hand phone users in Malaysia. Hence, the sampling frame for this study would be at least 9 years old Malaysian who stay in Kuala Lumpur and Selangor area or also known as Klang Valley. Only smartphone users are allowed to participate in the survey and the respondent selection was done using snowball sampling technique. This group of respondents have a basic understanding of how the Internet and e-commerce operations (Dan et al., 2012). The minimum sample size required based on Cochran formula is 324 respondents.

The questionnaire contained four sections. Section A asked about demographic profile of respondents, Section B about usage, and attitude of respondents towards mobile wallet; Section C and D evaluate respondents' acceptance level and intention to utilise mobile wallet. The measurement items in the questionnaire adapted from Chawla & Joshi (2019); Jaradat & Faqih (2014); Koenig-Lewis et al (2015); Jusoh & Jing (2019) and Oliveira et al (2016). All the queries for each variable are in Table 1 below:

Table 1: Questionnaire Items for Measuring the Variables

Variable	Description/Scale Item	Source
Attitude	I do not think that I need help from others to use mobile wallet. I think transfer money via mobile wallet is easy as minimum steps are required. I like the fact that mobile wallet payments require minimal effort. I believe it is easy to understand step-by step mobile wallet navigation apps. I believe it is easy to learn to use mobile wallet.	Chawla & Joshi (2019)

Perceived Usefulness	I think mobile wallet is a useful payment method. I think payment through mobile wallet is more effective than cash. I think using mobile wallet would increase my productivity in conducting financial transaction. I think using mobile wallet would increase my performance in conducting financial transaction. Overall, I think using mobile wallet would enable me to pay more quickly.	Jaradat & Faqih (2014) Koenig-Lewis et al (2015)
Perceived Ease of Use	I think mobile wallet is easy to use. I think less effort is needed to complete a transaction using mobile wallet. I think it is easy to learn and remember on how to use mobile wallet. My interaction with mobile wallet procedure is generally clear and understandable. I generally find mobile wallet services to be complicated to use.	Jaradat & Faqih (2014) Koenig-Lewis et al (2015)
Subjective Norm	People who are important to me think that I should use mobile wallet. People who influence my behavior think that I should use mobile wallet. People who provide valuable opinions to me would prefer that I should use mobile wallet. It is expected that people like me should use mobile wallet. It is important that everyone in the society should use mobile wallet nowadays.	Jusoh & Jing (2019)
Self-Efficacy	I think that I could use mobile wallet well if I wanted to. I think that I have the knowledge and ability to use mobile wallet. I think that I am able to complete financial transaction without guidance from people around me. I think that I am able to use mobile wallet well for any financial transactions. I think using mobile wallet would be completely within my control.	Jusoh & Jing (2019)
Perceived Risk	I feel secured when using mobile wallet. I trust the ability of mobile wallet service provider to protect my privacy. I think mobile wallet provides adequate payment security. Storing my personal information in mobile wallet is safe and not risky. Mobile wallet in general is a secure platform to give out my personal information to complete a transaction.	Jusoh & Jing (2019) Oliveira et al (2016)
Intention to adopt	I would use mobile wallet for any payment transaction in the future. I would foresee myself in using mobile wallet for any payment transaction. I would recommend my family and friends to use mobile wallet in the future. I plan to use mobile wallet frequently in the future. I plan to use different mobile wallet application in the future.	Jusoh & Jing (2019)

A total of 30 respondents who were over 26 years old and had used mobile wallet to make payment were engaged in the pilot survey. All variables have a Cronbach's Alpha value greater than 0.7, indicating that the variables are reliable. Perceived Risk has the highest alpha value of 0.966 followed

with subjective norm, self-efficacy, intention, and perceived usefulness with alpha value of 0.939, 0.935, 0.930 and 0.921. The Cronbach's Alpha value for these five variables is more than 0.9 whereas the remaining two variables, attitude and perceived ease of use have values less than 0.9. The lowest alpha values are perceived ease of use, which is 0.793 and attitude is the second lowest with 0.891 alpha value. Data processing is done using the Statistical Package Social Science (SPSS) version 28.0.
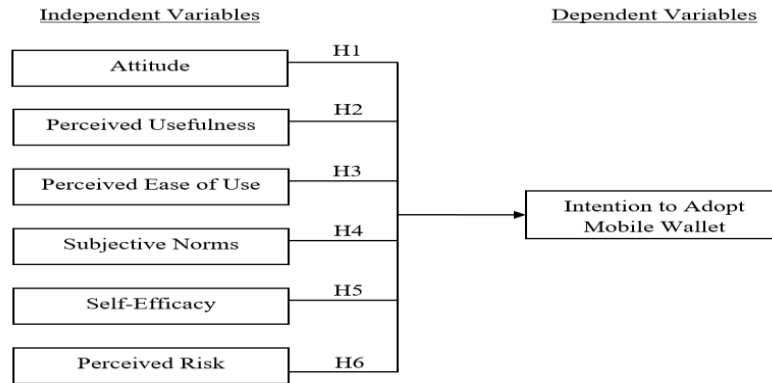

Figure 1: Conceptual Research Model

RESULTS

Demographic Profile

From the demography data, the profile of respondents consists of male respondents that are nearly on par with female respondents. Female respondents accounted for 50.3% and male respondents accounting for 49.7% of the total. The married marital status has the largest percentage of 54.9% among followed by the single marital status around 44.1% and remaining one percent belongs to window marital status. Race has become a part of the demographic data points for this study, and it is divided into Malay, Chinese and Indian groups. According to the preceding data, 45.4% respondents in this study are Chinese. This is mainly because of the adoption of snowball sampling technique used in this study. In terms of age, 1.9% of respondents are in the age between 9 to 17 years old, which is the smallest age group. 6.5% of respondents are between 18-25 years old age group. The 26-35 years old age group is the largest percentage at 60.5% followed by 19.4% from 36-45 years old group age. The percentage of people from 46-55 years old age group and age above 55 years old are more than 5% which are 5.6% and 6.0% respectively.

Table 2: Respondent Profile

Variable		n	Percentage (%)
Gender	Male	161	49.7
	Female	163	50.3
Marital Status	Single	143	44.1
	Married	178	54.9
	Widow	3	1
Race	Malay	112	34.6
	Chinese	147	45.4
	India	65	20.0
Age	9-17 years old	6	1.9
	18-25 years old	21	6.5
	26-35 years old	196	60.5
	36-45 years old	63	19.4
	46-55 years old	18	5.6
	Above 55 years old	20	6.0

Monthly Income	Below RM1,000	33	10.2
	RM1,000-RM3,000	41	12.7
	RM3,001-RM5,000	75	23.1
	RM5,001-RM7000	70	21.6
	Above RM7,001	105	32.4
Occupation	General Worker	81	25
	Manager	63	19.4
	Self-Employed	78	24.1
	Student	15	4.6
	Retired	17	5.2
	Housework/Parenting	11	3.4
	Other	59	18.2

In total, 10.2% respondents have monthly earning less than RM1,000. 12.7% of respondents earn between RM1,000-RM3,000, 23.1% earn between RM3,001-RM5,000, 21.6% earn between RM5,001-RM7,000 and 32.4% earn more than RM7,001. The top three occupations in the sample are general worker 25%, self-employed 24.1% and manager 19.4%. The percentage of student, retired, and housework/parenting are below 6% which are 4.6%, 5.2% and 3.4% respectively. Remaining 18.2% is from other type of occupations for instance engineer, lecturer, sales, and banker.

Usage and Attitude towards Mobile Wallet

Table 3: Frequency of respondents have mobile wallet application in smartphone

Description	n	Percentage
Mobile wallet application in smartphone	312	96.3
No mobile wallet application in smartphone	12	3.7

Table 3 exhibits that 96.3% respondents have mobile wallet application in their smartphone. Touch 'n Go e-wallet, Boost and GrabPay are some types of mobile wallet applications that respondents installed in their smartphone. Out of 324 total respondents, only 3.7% respondents do not have mobile wallet application in their smartphone.

Table 4: Frequency of respondents used mobile wallet for payment

Description	n	Percentage
Used mobile wallet application for payment	303	97.1
Did not use mobile wallet application for payment	9	2.9

Referring to Table 3 and Table 4, about 312 respondents have been installed mobile wallet application in smartphone out of 324 of total sample and only 9 out of 312 respondents never used the mobile wallet for payment although they have the application in smartphone. Remaining 303 (97.1%) respondents used mobile wallet for payment.

Table 5: Central tendencies measurement of mobile wallet usage

Description	Mean	Standard Deviation
Respondents habitual in using mobile wallet	3.7037	1.1505
Mobole wallet service rating by respondents	4.0216	0.8952
Respondents' intention in continuing using mobile wallet	4.1821	0.9414

Refer to Table 5, the mean values are ranged between 3.7037 to 4.1821. The standard deviation is under 1.2 which is noteworthy. It shows that most respondents were habitual used mobile wallet as they were satisfied with the mobile wallet service and will continue use the mobile wallet in future.

Reliability Test

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Table 6: Reliability Test

Variables	Cronbach's Alpha	No. of Items
Attitudes	0.916	5
Perceived Usefulness	0.907	5
Percieved Ease of Use	0.737	5
Subjective Norms	0.895	5
Self-Efficacy	0.906	5
Perceived Risk	0.941	5
Intention	0.938	5

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The above Table 6 exhibits the reliability test results of Cronbach's alpha value greater than 0.7 for all variables with 5 measurement items for each. There is no question from the survey needs to be removed because the Cronbach's alpha values for all the variables are higher than 0.7. The test is reliable as the independent variables met the Cronbach's Alpha threshold.

Inferential Analysis

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Table 7: Pearson Correlation Analysis

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Correlations								
		Attitude	Perceived Usefulness	Perceived Ease of Use	Subjective Norm	Self-Efficacy	Perceived Risk	Intention
Attitude	Pearson Correlation	1						
	Sig. (2-tailed)							
	N	324						
Perceived Usefulness	Pearson Correlation	.741**	1					
	Sig. (2-tailed)	<.001						
	N	324	324					
Perceived Ease of Use	Pearson Correlation	.774**	.787**	1				
	Sig. (2-tailed)	<.001	<.001					
	N	324	324	324				
Subjective Norm	Pearson Correlation	.506**	.624**	.508**	1			
	Sig. (2-tailed)	<.001	<.001	<.001				
	N	324	324	324	324			
Self-Efficacy	Pearson Correlation	.692**	.547**	.568**	.494**	1		
	Sig. (2-tailed)	<.001	<.001	<.001	<.001			

	N	324	324	324	324	324		
Perceived Risk	Pearson Correlation	.500**	.421**	.513**	.591**	.537**	1	
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001		
	N	324	324	324	324	324	324	
Intention	Pearson Correlation	.674**	.689**	.682**	.580**	.596**	.669**	1
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001	<.001	
	N	324	324	324	324	324	324	324

Correlation coefficient is applied to choose the most effective independent variables. A high correlation coefficient indicates the more precise and strong association between correlated variables. Above Table 7 exhibits the correlation between dependent variable and independent variables are in positive moderate relationship with coefficient range between 0.40 to 0.69. Correlation coefficient of intention to adopt mobile wallet with attitude is 0.674, perceived usefulness 0.689, perceived ease of use 0.682, subjective norm 0.580, self-efficacy 0.596 and perceived risk 0.669.

Multiple Linear Regressions

Table 8: Multiple Linear Regressions

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model	β	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	0.024	0.683		0.036	0.972		
Attitude	0.123	0.069	0.109	1.789	0.075	0.281	3.553
Perceived usefulness	0.340	0.066	0.319	5.136	<0.001	0.271	3.684
Perceived Ease of Use	0.129	0.077	0.101	1.663	0.097	0.282	3.552
Subjective Norm	0.013	0.055	0.011	0.236	0.814	0.465	2.148
Self-Efficacy	0.093	0.055	0.080	1.693	0.091	0.467	2.141
Perceived Risk	0.354	0.042	0.378	8.457	<0.001	0.522	1.916
Dependent Variables: Intention to adopt Mobile Wallet in Klang Valley							

R	R Square	Adjusted R Square	Std Error of the Estimate	
0.818[a]	0.669	0.663	2.33128	
a. Predictors: (Constant), A,PU,PEOU,SN,SE,PR				

The multiple linear regression analysis is applied to examine the relationship between the intention to adopt mobile wallet (dependent variable) and the independent variables that exhibited in Table 8 above. The β value, which is classified as an unstandardized coefficient, indicates the independent and dependent variables relationship as either a positive or negative term. The results clearly show

that all independent variables have positive β value which indicate a positive relationship with the dependent variable. The study's significant threshold will be set 5% to examine whether the six independent variables and the dependent variable are significantly correlated.

Table 9: Interpretation of p-value

p-value	Interpretation
$p \geq 0.10$	No evidence against the null hypothesis
$0.05 \leq p < 0.10$	Weak evidence against the null hypothesis
$0.01 \leq p < 0.05$	Moderate evidence against the null hypothesis
$0.001 \leq p < 0.01$	Strong evidence against the null hypothesis
$p < 0.001$	Very strong evidence against the null hypothesis

Sources: Raiola & Di Tore (2012)

According to the p-value interpretation exhibited in Table 9, p-value less than 0.05 is deemed as moderate evidence against the null hypothesis which means the hypothesis is supported. Whereas p-value more than 0.05 is deemed as low evidence against the null hypothesis and the hypothesis is not supported. The p-value result shows that attitude (p>0.075), perceived ease of use (p>0.097), subjective norm (p>0.814) and self-efficacy (p>0.091) are more than 0.05 of significant value and these independent variables do not have or may have very little evidence against null hypothesis which implies that there is no significant relationship toward the intention to adopt mobile wallet. Contrarily, perceived usefulness (p<0.001) and perceived risk (p<0.001) have very strong evidence against null hypothesis which means these independent variables have significant relationship toward the intention to adopt mobile wallet.

Table 10 shows the hypothesis results of six independent variables:

Table 10: Hypothesis Result

Hypothesis	p-value	Result	
H1: There is a significant relationship between attitude and intention to adopt mobile wallet	p>0.075	Not significant	Decline hypothesis
H2: There is a significant relationship between perceived usefulness and intention to adopt mobile wallet.	p<0.001	Significant	Accept hypothesis
H3: There is a significant relationship between perceived ease of use and intention to adopt mobile wallet.	p>0.097	Not significant	Decline hypothesis
H4: There is a significant relationship between subjective norms and intention to adopt mobile wallet	p>0.814	Not significant	Decline hypothesis
H5: There is a significant relationship between self-efficacy and intention to adopt mobile wallet	p>0.091	Not significant	Decline hypothesis
H6: There is a significant relationship between perceived risk and intention to adopt mobile wallet.	p<0.001	Significant	Accept hypothesis

Insignificant independent variables which are attitude, perceived ease of use, subjective norm and self-efficacy were taken out from this study. New multiple linear regressions as below:

Table 11: Multiple Linear Regressions excluded insignificant independent variables

Model	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
	β	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	1.700	0.541		3.141	0.002		
PU	0.529	0.039	0.495	13.583	<0.001	0.822	1.216
PR	0.431	0.034	0.460	12.605	<0.001	0.822	1.216
Dependent Variables: Intention to Adopt Mobile Wallet in Klang Valley							
PU = Perceived Usefulness							
PR = Perceived Risk							

R	R Square	Adjusted R Square	Std Error of the Estimate
0.805[a]	0.649	0.647	2.38636
a. Predictors: (Constant), PU, PR			

Perceived usefulness and perceived risk as presented in Table 11 above are the independent variables that have a significant relationship toward intention to adopt mobile wallet. Further, the coefficient of correlation (R) is 0.805, denoting the degree of the correlation between the dependent and independent variables. The coefficient of determination (R^2) is 0.649 which indicates that 64.9% of intention to adopt mobile wallet are well construed by perceived usefulness and perceived risk and the remaining 35.1% is explained by other factors.

FINDINGS AND DISCUSSION

This study found that out of the six hypotheses tested, only two were significant. The result revealed that attitude, perceived ease of use, subjective norms, and self-efficacy were not the important factors in using mobile wallets among the Malaysian customers represented in the sample. However, the study did find a substantial correlation between perceived usefulness and the intention to adopt mobile wallet. This suggests that the Malaysian customers represented in the sample were more likely to adopt mobile wallet if they believed that using them would be beneficial to them. Therefore, H2 is not rejected with correlation coefficient of 0.689 at a significant level of < 0.001. The result is in accordant with a study conducted by Leong et al. (2013) that consumers' intentions to adopt mobile wallet is influenced by perceived usefulness. Perceived usefulness is one of the important factors influencing a consumer's willingness to embrace a new technologies, such as mobile wallet (Pankaj, 2017). Users are more likely to adopt mobile wallets if they perceive that the technology will bring them significant benefits. For example, if users believes that mobile wallets will enable them to make payments more quickly and easily, without the need to carry cash or physical payment cards, they may be more likely to adopt the technology. There is a decent possibility that the perceived usefulness of a new technology will boost and improve individual performance. Users who perceive that mobile wallets will be useful and valuable are more likely to adopt the technology and incorporate it into their daily lives, Therefore, to increase the perceived usefulness of mobile wallets, the service providers should highlight the various benefits of using their technology, such as enabling users to make payments without the need for cash or physical cards, providing real-time transaction notifications, and offering rewards and loyalty programs. Additionally mobile wallet providers can have a collaboration with merchants to expands the number locations where mobile wallets are accepted, making them more convenient for users to use.

Further, this study found that intention to adopt mobile wallets is also influenced by perceived risk. The result confirms that there is a substantial correlation between perceived risk and intention to adopt mobile wallet. Therefore, H6 is not rejected with correlation coefficient of 0.669 at a significant level of < 0.001. The outcomes are supported by the research that was done by Liébana-Cabanillas et al.(2017) and Al-Amria et al. (2016) that consumers tendency to accept mobile wallet will be higher once they feel secured towards the security and privacy of the mobile wallet. Mobile wallet service providers must create an assurance to the consumers that mobile wallet is secured and safe to be used to build a long-term relationship and trustable mobile wallet service providers to the consumers. If the consumers believe that mobile wallets will provide a more secure platform for storing their payment information, protecting them from fraud and identity theft, they may also be more likely to adopt the technology. The result reflects that if the consumers feel secured and trust that the service provider protect their privacy data, it is highly probable that they will demonstrate a propensity to adopt the technology.

CONCLUSION

This study noted that perceived usefulness and perceived risk are the significant influence on the adoption of mobile wallets. Perceived usefulness can play significant role in boosting the adoption of mobile wallets. If people believe that using a mobile wallet will be useful to them in managing their financing, they are more likely to adopt the technology. By emphasizing the usefulness of mobile wallets and making them more widely available, mobile wallet providers can increase the adoption of the technology, as users are more likely to see the benefits and value in using them. While perceived risk can be a significant barrier to adoption, it can also motivate consumers to adopt new technologies. Consumers who have insecurity towards mobile wallet may be reluctant to use the mobile wallet for payment activities. To boost the acceptance level, mobile wallet providers can address users' concerns about perceived risk by implementing strong security measures and communicating these measures effectively. For example, mobile wallet providers can used advanced encryption technology to protect users' financial information and personal data, provide clear information on how to use the technology safely, and offer customer support to address any concerns or issues that may arise.

The outcome of this study provides an insight to government, financial institution, and Fintech companies. However, this study focused on resident in Klang Valley only. Hence, the findings are specific to this sample. Thus, this research can only be generalized with care, as the results might vary for different settings and cultures. Researcher suggested some viewpoints and solutions for overcoming the limitation. Firstly, future researchers should expand geographical coverage or wider the range of age groups to collect variety of perspectives. This can increase the total sample size and improve the accuracy and specificity with which the hypotheses are examined without difficulty in future study. In addition, it is recommended to use longitudinal study in future study to obtain precise and most updated results as the intention to adopt mobile wallet may change in period of time due to advancement of technology. Besides, researcher able to compare the result with the current research model to identify the changes on consumer's intention in adopting mobile wallet over certain period of time. In-depth understanding of intention to adopt mobile wallet is needed and should be established sensibly so that further study in this subject can be done in other countries to produce better data and findings. Therefore, there are possibilities that other models and factors can provide better examination on disparities between consumer's expectations and adoption of mobile wallet in actual market, so that gap analysis can be explored and undertaken in future. This study could serve as a valuable reference for future researchers seeking to understand consumer behaviour regarding mobile wallet adoption in Malaysia.

AUTHORS' CONTRIBUTION

Juhaida Abu Bakar and Ng Sook Yeum jointly contributed to the conceptualization, data analysis, and preparation of the manuscript. Both authors reviewed and approved the final version of the paper.

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