Factors Affecting the E-Wallet Adoption in a Cashless Society

By

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DECLARATION

I hereby declare that the case study is based on my original work except for quotations and citations that have been duly acknowledged. I also declare it has not been previously or concurrently submitted for any other degree at Universiti Tun Abdul Razak (UNIRAZAK) or other institution.

Signature :

Name :

Date :

ACKNOWLEDGEMENT

Firstly, it is my utmost pleasure to dedicate this work to my father Hj. Misbah bin Ali, my beloved wife Maryam Jameelah, and my kids Nur Syakirin, Nur Nabila, Nur Farzana, and Muhamad Hakim Danial, who granted me the gift of their unwavering belief in my ability to accomplish this goal. Their encouragement and understanding have been crucial for my timely completion of this study. Thank you for your support and patience.

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LIST OF ABBREVIATION

ANOVA	Analysis of Variance
ATM	Automated Teller Machine
AVE	Average Variance Extracted
CB-SEM	Covariance based Structural Equation Modeling
CI	Confidence Interval
CMV	Common Method Variance
CSV	Comma-separated values
CV	Convenience
eAD	E-wallet Adoption
HTMT	Heterotrait-Monotrait Ratio
LV	Latent variable
ML	Maximum likelihood
PEOU	Perceived Ease of Use
PLS SEM	Partial Least Square Structural Equation Modeling
QR code	Quick response code
SC	Security
SEM	Structural Equation Modeling
SI	Social Influence
SMARTPLS	Smart Partial Least Square
SP	Speed
TAM	Technology Acceptance Model
TPM	Theory of Planned Behaviour
UTAUT	Unified Theory of Acceptance and Use of Technology
VIF	Variance Inflation Factor

Abstract of the project paper submitted to the Senate of Universiti Tun Abdul Razak in partial fulfilment of the requirements for the Master of Business Administration.

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E-wallets are one of the fastest-growing payment trends in Malaysia. Whilst cash payments continue to be the most popular payment method in Malaysia, a shift in the trend may be noted as the use of cashless payments increases. However, one disadvantage of e-wallets is the loss of client privacy because of online information sharing. This study aimed to ascertain the factors that contribute to the adoption of e-wallets in Malaysia. The theories applied in this study were the TAM Theory and UTAUT theory. The data were gathered by distributing a structured questionnaire to 428 participants which were analysed using the Partial least square structural equation model (PLS-SEM). The convenience sampling approach was utilised to choose the study sample, which included e-wallet users in the Klang Valley, Malaysia. The findings indicate that convenience, security, and speed significantly influence e-wallet adoption in Malaysia. Social influence is indirectly related to e-wallet adoption in terms of comfort and security. Therefore, the decision to adopt the service is influenced by the opinions of family members and friends. The study's implications will be felt by facility providers and entrepreneurs who may profit from the principles offered by this research to develop their services more efficiently. Furthermore, existing firms might concentrate on components that will boost e-wallet services. Entrepreneurs considering starting a business can forecast customer preferences using an e-wallet. It is recommended for future research to compare the usage of e-wallets with the third world countries and to include gender and age variables as moderators which influence the relationships between the predictor and explanatory variables.

CHAPTER 1

INTRODUCTION

1.1 Preamble

This chapter discusses the important elements which start with the background of the study as a preview of this study, problem statements, research objectives, scope, and the significance of the study. In addition, this chapter also explains the definition of the terms used in this research and the final part is a summary of this chapter.

1.2 Background of the Study

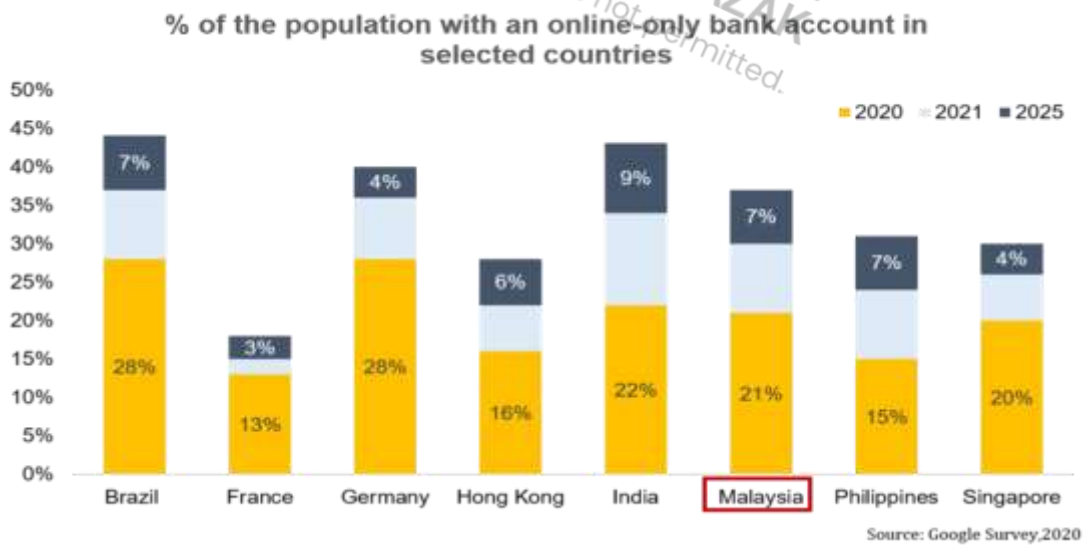
Digital banks do not require a physical bank branch to operate. The services offered are part of a comprehensive digital platform integrated from beginning to end. These companies provide branchless and seamless end-to-end banking services initiated by customers from their mobile phones using a mobile banking application. Customers save a significant amount of time travelling and can handle their finances whenever it is most convenient for them to do so. Currently, conventional banks provide online banking services, which consist of digitising existing programmes and services provided by financial institutions and made available through the internet and mobile channels. Figure 1.1 shows the emergence of Digital banks worldwide.

Figure 1.1
Emergence of Digital Bank worldwide

Source: FT Partners, 2020

The use and adoption of online payments are growing in the local market. According to a report published by Finder.com, an international financial comparison platform, approximately 21% of Malaysian adults have used a digital-only bank. Malaysia will accelerate the Philippines and Singapore digital banking adoption by 16 per cent by 2025. Figure 1.2 below shows the percentage of people in selected countries who have an internet bank account.

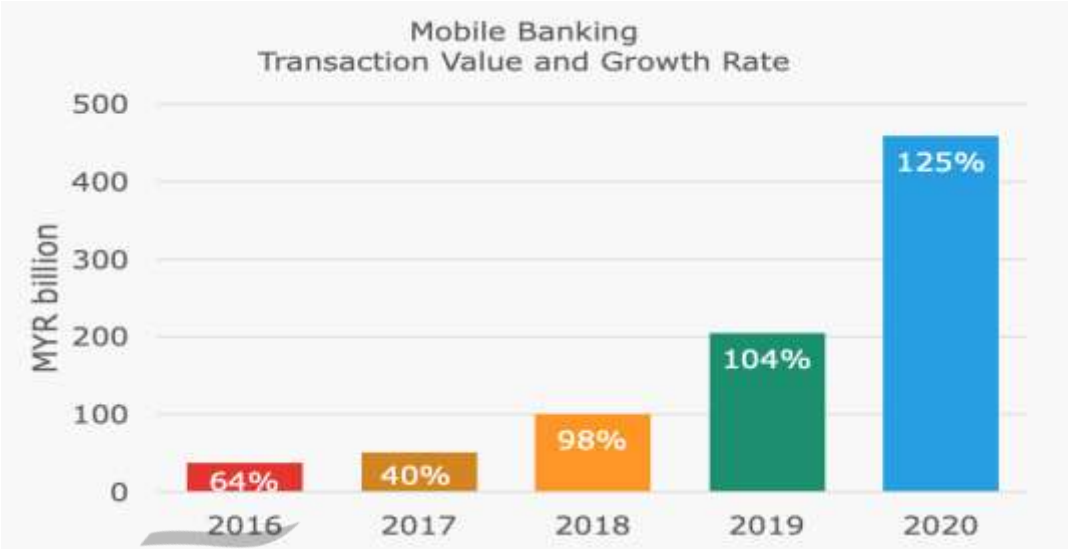
Figure 1.2
Percentage of population with an online-only bank account in selected countries



Source: Google Survey, 2020

Electronic payment (e-payment) is gaining increasing global attention as the number of smartphone users and mobile data networks continues to grow at a breakneck pace, as does the number of mobile internet applications. Globally, an increasing number of people are attempting to use an e-wallet as a form of electronic payment, also known as e-payment, for their daily transactions. An electronic payment system is a way of transacting or paying for goods and services that does not use paper checks or cash but rather an electronic means. The fact that it has become increasingly important to own a cell phone, more accurately a smartphone, in modern lives is undeniable. The proliferation of affordable smartphones has resulted in a significant increase in smartphone users. In today's world, the internet has simplified people's lives. Payments are made via mobile devices. Electronic wallets (E-wallets), which are an integral part of electronic payment systems, are one of the best inventions of the twenty-first century. "E-wallet" refers to a kind of digital wallet that allows a person to connect bank cards to their digital wallet for transactions (Digital Wallet, 2019). In addition to contactless cards, electronic cards enable consumers to store information for payment transactions on their cards and bank account numbers (Ray, 2017). According to the report, Malaysia's digital transformation has been ongoing for the past decade, but the pandemic has accelerated the country's adoption of digital banking. Referring to Figure 1.3, as of 2020, online and mobile banking penetration accounted for 112.5 per cent and 61.8 per cent of the total banking transactions, respectively. RM 460 million in mobile banking transactions were conducted, representing a 125 per cent increase over the previous year.

Figure 1.3
Mobile Banking Transaction Value and Growth Rate



Source: FinTech News Malaysia, 2021

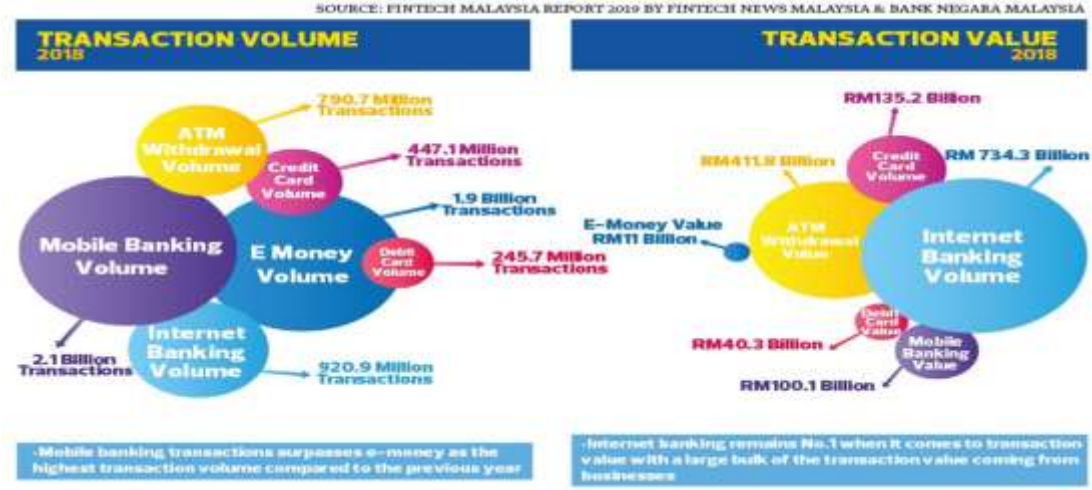
With the help of the Malaysian government's Movement Control Order (MCO), 3 million new mobile banking service subscribers were added last year. According to the World Bank, according to Figure 1.4, e-wallet usage and adoption reached new highs. The Merchants were quick to embrace the trend, with over 400,000 new businesses registering for QR code payment acceptance in the first quarter of this year, representing a 164 per cent increase over the same period the previous year.

Figure 1.4
Comparison of E-payment transactions 2019 and 2020

Source: FinTech News Malaysia, 2021

A digital and mobile wallet is sometimes referred to as an e-wallet. It is a type of electronic card that allows consumers to conduct transactions using their smartphones by storing the credit card, debit card, or bank account numbers that they wish to use to make the purchase. The usefulness of an e-wallet is the same as for a bank card (Ray, 2017). E-wallets may assert that they are a catalyst for conventional banking because they enable consumers to conduct money transfers and payments at a lower cost, more conveniently, and in a timely manner (Blockchains, 2018). However, implementing this e-wallet in daily life is a significant step toward Malaysia becoming a cashless society, as Jayaseelan (2017) pointed out. Making an online purchase has never been easier: customers simply select the items they want from an online retail platform, place them in a virtual shopping cart, and then complete the transaction by paying with an e-wallet, an interbank transfer, or their bank card. Payment gateway platforms enable transactions to be carried out with the utmost ease and confidence. The use of digital payment alternatives such as iPay88 and KipleBiz facilitates interactions between merchants and consumers on a variety of levels, from purchasing and selling goods to paying monthly instalments on car loans, insurance premiums, and college tuition. Figure 1.5 shows the transaction volume and value of financial technology (FINTECH) for 2018.

Figure 1.5
Payment Gateway of FINTECH in 2018



Source: FINTECT MALAYSIA REPORT 2019

Chan Kok Long, co-founder, and executive director iPay88 Sdn. Bhd., stated that payment gateways play a significant role in the infrastructure of a cashless society. Furthermore, he considers it a financial transaction highway, with various fund transfers, including e-wallets, credit cards, debit cards, and bank transfers, serving as the different types of vehicles that travel on the road (Theedgemarket, 2020). Shoppers can use E-wallets to conduct online transactions once their accounts have been funded. This study aimed to ascertain the factors influencing E-wallet adoption amongst Malaysian consumers in the Klang Valley.

1.3 Problem Statement

In today's business world, electronic payments are increasingly becoming a risky method of payment that must be taken seriously. The expansion of the Internet and the entry of e-commerce has facilitated the digitalisation of payment processes by providing various e-payment options, including payment cards, such as debit and credit cards, and digital and electronic or mobile wallets, electronic currency, and contactless other payment methods. Consumer data-collection organisations may benefit from this financial concept. Businesses that gain a better understanding of their customers' purchasing behaviours can more effectively market their products and tailor the purchasing experience. However, one concern is that the privacy of consumers may be jeopardised (Karim, et al. 2020).

According to Swapnil, et al. (2020), the use of e-wallets increased by 44 per cent during India's lockdown. Cyber-crime attacks increased by up to 86 per cent due to the increased usage of digital transactions. Malaysia's e-wallet industry was already poised for significant growth before the COVID-19 epidemic, partly due to the region's favourable demographics and the government's numerous policies to attain a cashless society.

China is widely regarded as the world's most advanced market for mobile payments, owing to WeChat and Alipay (Rolfe, 2018). Consumers and businesses in hundreds of thousands of villages across China are embracing a new era of convenient, cashless transactions as a result

of the rapid growth of popular mobile payment services. Due to the difficulties inherent in using cash for transactions, such as the time required to travel to and locate an Automated Teller Machine (ATM) and the risk of losing or having one stolen, an increasing number of countries are transitioning to a cashless economy. Money that people say has been stolen is almost always gone for good because it is so hard to find. This was found in a study by de Almeida, et al. (2018). Carrying cash also helps you keep your spending to the amount of money you have. It can also be cumbersome and bulky, especially if you get change in cash. The problem or inconvenience that humans experienced when using cash in the past led to the invention of a cashless payment system, which is now known as an E-wallet, in the modern era of technology. The Internet's development and the advent of e-commerce facilitated the digitalisation of payment processes by providing a variety of e-payment options, including credit and debit cards, electronic and digital or mobile wallets, electronic cash, and contactless payment methods. Smartphones and the internet have achieved a relatively high level of popularity amongst the Chinese population because of the rapid advancement of communication technology (Shihua, 2018). According to the most recent data available, China's Ministry of Industry and Information Technology (MIIT) announced that the country has the world's largest mobile subscriber base, with 1.32 billion subscribers in May 2018.

Consumers, including in rural areas, have successfully bypassed credit cards and checks to transition directly from cash to smartphones with WeChat Pay and Alipay. Alipay, the online payment platform operated by the Alibaba Group Holding subsidiary, Ant Financial Services, accounted for 93 per cent of China's mobile payment market, according to the market research firm Analysis International. Whilst WeChat Pay and Alipay have aided in the spread of the use of tapping, swiping, or checking in with a smartphone via the built-in NFC feature or the machine-readable optical label known as quick response (QR) code, one must wonder if traditional methods such as cash, credit cards, or checks will eventually be supplanted. The timing is optimal as Former Prime Minister Mahathir has publicly expressed his desire to have the country go

cashless (The coverage, 2018). Additionally, Malaysia is amongst the first markets outside of China to feature a Malaysian ringgit-localised wallet. Malaysia recently granted Tencent a license, so the change happened following that event. At the same time, Tencent wants to increase WeChat's reach, so this is a time of high significance for the company. Globally, there are 980 million monthly active WeChat users, of which 20 million are current users from Malaysia (Hollander, 2017).

Furthermore, WeChat Pay merchants will have access to a partnership with Hong Leong Bank, issuing WeChat Pay invoices. Far ahead of the wallet's launch in Malaysia, merchants at Hong Leong Bank were able to accept WeChat Pay payments by November 2017 (Pikri, 2018). Malaysia will undoubtedly see a rise in tourism thanks to WeChat Pay, mainly due to increased Chinese tourism. Passport-less visitors no longer need to exchange money when visiting China. With this convenience, sales could improve, and Malaysia's economy would benefit. Most people use Touch 'n' Go E-wallet these days. The Touch n' Go/Ant Financial partnership launched this application in 2017. QR code technology has made it easy to take payments. Users could reload prepaid mobile accounts early on, pay bills, purchase movie and airline tickets, send and receive money from friends and family, and pay for goods and services at stores and restaurants. In Malaysia, the government launched the E-Tunai Rakyat (or the "People's E-wallet") to encourage cashless and mobile payment adoption (Wong Alexender, 2019). Touch n' Go's DuitNow payment platform has now joined the DuitNow network, a Malaysian ecosystem that offers money transfers and payments to businesses that only accept “Duit Now” QR codes.

1.4 Research Objectives

1.4.1 General Objectives

The main research objective of the study has been to analyse the adoption of E-wallet amongst customers in the Klang Valley.

1.4.2 Specific Objectives

The specific objectives of this study are:

i. To explore the relationship between convenience and E-wallet adoption amongst the Klang Valley customers.

ii. To examine the relationship between security and E-wallet adoption amongst the Klang Valley customers.

iii. To identify the relationship between speed and E-wallet adoption amongst the Klang Valley customers.

iv. To investigate whether social influence mediates the relationships between the predictors (convenience and security) and E-wallet adoption amongst the Klang Valley customers.

1.5 Research Questions

i. Is there any significant relationship between convenience and E-wallet adoption amongst the Klang Valley customers?

ii. Is there any significant relationship between security and E-wallet adoption amongst the Klang Valley customers?

iii. Is there any significant relationship between speed and E-wallet adoption amongst the Klang Valley customers?

iv. Does social influence mediate the relationships between the predictors (convenience and security) and E-wallet adoption amongst the Klang Valley customers?

1.6 Significance of the Study

Whilst electronic wallets are gaining popularity, they are not widely used in Malaysia. As a result, this research is critical for entrepreneurs in Malaysia interested in launching an e-wallet service. This study provides them with detailed information about electronic wallets and can assist them

in determining Malaysia's competitive position and future prospects. This study can assist entrepreneurs in determining whether their businesses should operate and provide E-wallet services. Additionally, the study's findings can assist entrepreneurs considering offering E-wallet services in comprehending the critical factors affecting E-wallet adoption, including speed, convenience, security, and social influence. As a result, entrepreneurs can leverage these factors to improve their E-wallets and thus increase customer adoption.

Additionally, financial institutions and software development firms will benefit from this study because it will assist them in identifying potential problems that consumers may encounter when using an e-wallet. The findings of this study will aid financial institutions and software development companies in identifying and comprehending areas where they can improve to successfully introduce electronic wallets in Malaysia in the near future.

Students and future researchers who wish to conduct additional research on the E-wallet will benefit from this study. It will inform them about the use of E-wallets in Malaysia. Through this study, students will understand what an E-wallet is and the factors that influence its adoption in Malaysia. As a result, they will better understand the E-wallet market in Malaysia. Because of the growing public interest in electronic wallets, many future researchers will become interested in the subject and conduct research on it. They will benefit from this study because it will provide them with baseline information on e-wallets and the factors that influence their adoption. As a result, future researchers can use these considerations as a starting point for their investigations.

1.7 The Organisation of the Study

This study is divided into five chapters, including the information below. Chapter 1 has consisted of an introduction, a history of the study, a problem statement, research objectives, research

questions, the study's significance, and an organisation breakdown. Chapter 2 will contain a review of the literature, including an introduction, a theoretical foundation, empirical research, the proposed conceptual framework, hypothesis development, and a chapter summary. In Chapter 3, the researcher will discuss the research design, the study population, and sampling procedures, as well as data collection methods, operationalisation, and measurement, which will include the use of all types of variables, including the independent variables, moderating variables, and dependable variables, as well as descriptive and inferential data analysis techniques. The researcher discusses respondent profiles, factor analysis, and instrument reliability testing in Chapter 4. Following that, the researcher tests hypothesis 10 and concludes with a discussion of the findings. Chapter 5 summarises the significant results or findings and discusses the study's implications and limitations. Following that, the researcher makes recommendations for future research.

1.8 Definition of Terms

This subtopic provides the definitions of several terms used in this study such as convenience, security, speed, social influence, and E-wallet adoption.

1.8.1 Convenience

The freedom from complicatedness and struggles required while dealing with e-payment services (Sunny & George, 2018).

1.8.2 Security

A set of policies and procedures that are being used to verify information sources and guarantee the confidentiality and protection of data to prevent network information problems (Junadi and Sfenrianto, 2015).

1.8.3 Speed

A faster transaction that would result in a higher rate of digital payment adoption amongst users (Chen & Nath, 2008).

1.8.4 Social Influence

The process through which an individual's behaviour changes because of how other people react to that behaviour (Singh & Srivastava, 2020).

1.8.5 E-wallet

E-wallet is an electronic service for storing payment instrument data, including payment instruments using cards and/or which can also hold funds, to make payments (Angelina & Rahadi, 2020).

1.9 Summary

This chapter mainly covers the research's background, problem statements, research objectives, questions, significance, organization of study, and definition of terms. It covers the overall research approach as well as the focus of the study, which is to investigate the factors influencing E-wallet adoption among users in Klang Valley, Malaysia.

CHAPTER 2
LITERATURE REVIEW

2.1 Introduction

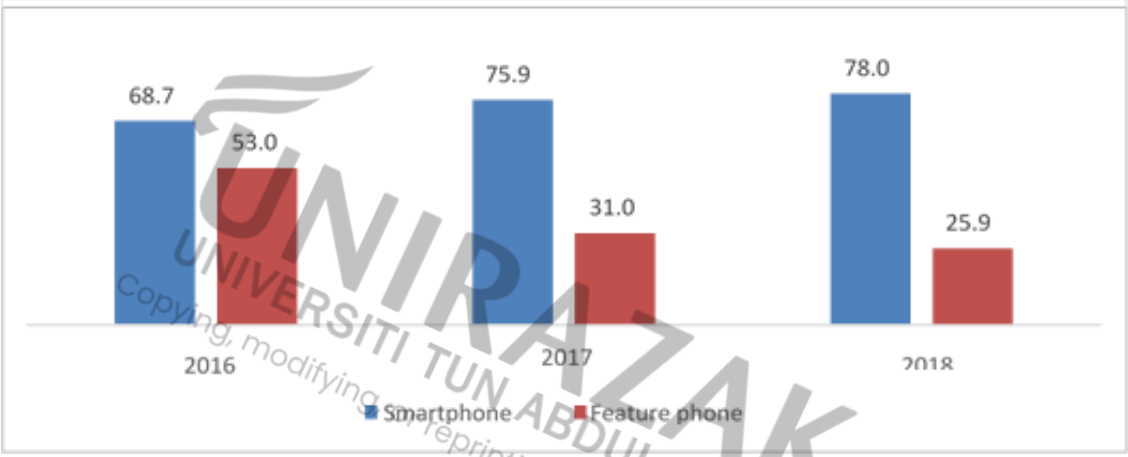
The number of subscribers has increased considerably over the previous year, as per Simon Kemp (Global Digital 2019 report) in Figure 2.1, with over one million people entering the internet for the first time since January 2018. Today's worldwide figures are 5.11 billion mobile users, an increase of 100 million (2%) over last year. In 2019, around 3.48 billion people used social media, with a global annual growth of 288 million (9%). In January 2019, social media were utilised by 3.26 billion individuals on mobile devices. This was an increase of 297 million new users, more than 10% year after year. How individuals are using the Internet is also evolving rapidly, with a growing portion of our internet activities that mobile platforms have carried out. In the mobile section below, the researchers will discuss the intricacies of mobile use and application use. However, it should be noted that mobile phones currently account for over half of the internet usage.

Figure 2.1
Digital around the World in 2019

Source: Reported by Simon Kemp on 30 January 2019, (Global Digital 2019)

Smartphone adoption continues to grow, rising from 75.9 per cent in 2017 to 78.0 per cent in 2018. (HPUS, 2018). Numerous factors, including low-cost devices, subsidies, aggressive competition and promotion amongst service providers, and affordable packages, have been identified as driving the growth. For example, as illustrated in Figure 2.2, the increasing use and reliance on smartphone-based applications contributed to the increase. Features phone users, on the other hand, decreased by 5.1 per cent in 2018 from 31.0 per cent in 2017.

Figure 2.2
Percentage distribution of smartphone and features phone 2016 to 2018.
Source: Malaysian Communication and Multimedia Commission 13 Dec 2019 (Handphone Users Survey 2018).



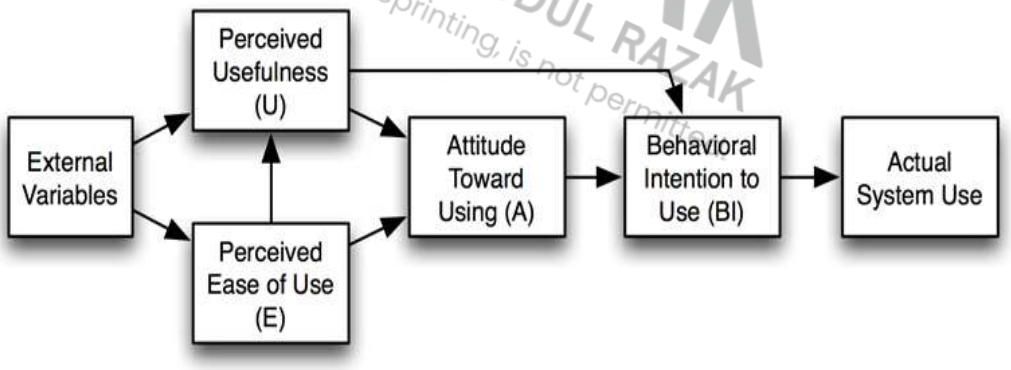
2.2 **Theoretical Foundation**

2.2.1 Technology Acceptance Model (TAM)

To better understand the factors that influence bank customers' adoption of E-wallets, the TAM theory has been applied in this study to provide a more realistic depiction of mobile wallet usage in Malaysia (Davis, 1989). The TAM takes psychological aspects into account when determining computer adoption. The development of the Technology Acceptance Model (TAM), an information system theory that describes the process by which users decide whether to accept technology and as a consideration for implementing new technology, can also be used to quantify

the community's successful acceptance of technology in terms of non-cash transactions (Subawa, et al., 2021). The TAM is a promising model with strong explanatory power for the variance in users' acceptance across a few scenarios (Ha & Stoel, 2009). It is one of the most frequently recommended models for modelling individual acceptance of technology and information systems (Lai, 2017). The TAM is the most extensively used technology adoption model (Lymperopoulos & Chaniotakis, 2005) and has been shown to accurately predict the intention to embrace new technologies (Davis, 1989). The TAM has grown in popularity to the point where it has been mentioned in most research on user adoption of technology (Lee, et al., 2003). By providing explanations and predictions, the TAM strives to aid academics and practitioners in establishing why a particular technology or system may be acceptable or inappropriate, as well as in taking necessary action. As a result, this study has used the TAM as a theoretical framework. Fred Davis introduced the Technology Acceptance Model (TAM) in 1986 for his doctoral dissertation, as seen in Figure 2.3.

Figure 2.3
First Modified TAM



Source: (Davis, Bagozzi and Warshaw, 1989)

The TAM was developed expressly to simulate user acceptance of information systems or technologies. The technology acceptance model (TAM) is the most frequently utilised paradigm examining how individuals absorb technology. The TAM is informed by the theory of

reasoned action, which was established and expanded upon (Ajzen & Fishbein, 1975). Davis, Bagozzi, and Warshaw (1989) used the TAM to explain the behaviour of computer users, as illustrated in Figure 2.3. During that era, the Technology Acceptance Model (TAM) tried to quantify people's readiness to accept and use new information technology breakthroughs, such as electronic mail systems. Davis (1989) reported that the TAM aims to explain the broad drivers of computer acceptance that contribute to understanding users' behaviours across a wide range of end-user computing technologies and user groups. The fundamental TAM model comprised and tested two distinct beliefs: Perceived Utility (PU) and Perceived Ease of Use (PEOU). Perceived usefulness relates to the extent to which the user believes that new technology will boost their efficiency. In contrast, perceived ease of use refers to the degree to which the potential user expects the target system to be effortless (Davis, 1989). According to prior research, this adaptation of the TAM dissected perceived usefulness by integrating convenience, security, speed, and social impact as mediating variables. Although each researcher uses a unique set of variable constructs, the conceptual model used to measure acceptance, intention, and adoption is nearly the same. The survey discovered that the TAM is the most often employed idea model. Thus, Table 2.1 summarises some past TAM experiments.

Table 2.1
Previous Studies Adapted Technology Acceptance Model (TAM)

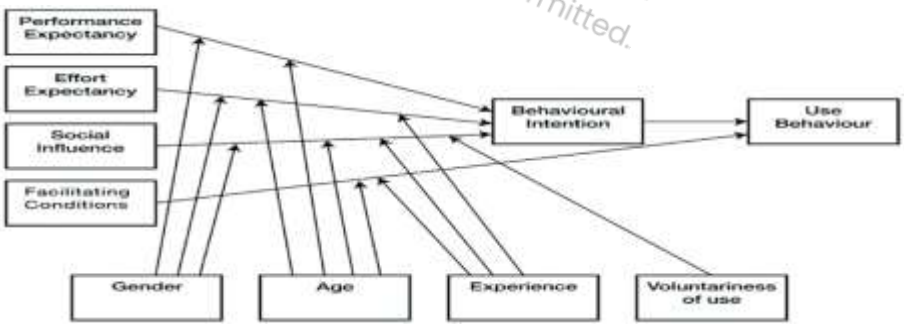
Authors (Year	Domain	Proposed Constructs	Complete TAM Model (Davis, 1986)
Lisana (2021)	mobile payment	PEOU, PU, SI, TR & Adoption	No
Wamba et al. (2021)	m-wallet	PEOU, PU, SI & Intention	No
Alshurideh et al. (2021)	electronic payment	SC, TR- PEOU, PU & Adoption	No
Hariguna et al. (2020)	mobile money	TR & Intention	No
AlKubaisi & Naser (2020)	e-wallet	PEOU, PU, SC & Adoption	No
Li et al. (2019)	mobile payment	PEOU, PU, ATT & Adoption	Yes

2.2.2 Unified Theory of Acceptance and Use of Technology (UTAUT)

The UTAUT was intended to improve the TAM by explaining the usage behaviour induced by system adoption and user intentions to use it (Duy Phuong, et al., 2020). In other words, UTAUT

gives quantifiable knowledge about individual technological behaviour based on the user's viewpoint (Napitupulu, et al., 2021). According to the UTAUT, enabling factors, effort expectations, performance expectations, and social influence variables influence behaviour and intention to use technology, as seen in Figure 2.4 below. Additionally, gender, age, experience, and voluntariness of usage operate as moderators and influence the theory's key blocks. Whilst facilitation conditions are a determinant of user behaviour, the remaining determinants are related to behavioural intention (Venkatesh, et al., 2003). The theory was developed through a review and integration of eight prevalent theories and models, including the Theory of Reasoned Action (TRA), the Technology Acceptance Model (TAM), the Motivational Model, the Theory of Planned Behaviour (TPB), a combined TBP/TAM, the Model of PC Utilisation, Innovation Diffusion Theory (IDT), and the Social Cognitive Theory (SCT) (Napitupulu, et al., 2021; Williams, et al., 2015). Additionally, the UTAUT is widely considered the industry standard for assessing customer acceptance, emphasising individuals rather than organisations. As a result, research predominantly influenced by human variables is easier to interpret (Abdullah, et al., 2020).

Figure 2.4
Unified Theory of Acceptance and Use of Technology (UTAUT)



Source: Venkatesh et al., 2003

The UTAUT has been validated in a variety of previous studies and is suitable for determining retailer acceptance of mobile payments (Ariffin, et al., 2020), behavioural intention

to use an e-wallet (Phan, et al., 2020), fintech adoption (Tun-Pin, et al., 2019), technology acceptance (Venkatesh, et al., 2003), and mobile money usage (Odoom & Kosiba, 2020). Odoom and Kosiba's (2020) study established the UTAUT's applicability in explaining the antecedents, motivations, and intentions to continue using mobile money amongst micro-enterprises in Africa. Yang, et al. (2021) employed the UTAUT model in Indonesia to identify the critical elements influencing the choice and adoption of e-wallets, whilst Abdullah, et al. (2020) adapted it to explain the factors influencing the acceptance of e-Wallets toward achieving a cashless society in Malaysia. Along with the above explanation, the UTAUT research is still in its infancy, with no discernible areas of maturity, but appears to be advancing rapidly. The UTAUT still has a flaw in that it does not consider the psychological variables that influence users' adoption decisions (Venkatesh, et al., 2003). Additionally, researchers have numerous and obvious opportunities to connect with, shape, and advance the discipline (Williams, et al., 2015).

Acceptance of new technologies has remained a top priority for corporations, organisations, and governments. Given the difficulty of gaining acceptability for any technical innovation, it is vital first to identify the characteristics that influence e-wallet adoption. As stated above, numerous theories have been utilised in technology adoption studies, including the TAM to forecast and explain consumers' desire to use information technology and the UTAUT to ascertain technology adoption behaviour. As a result, the study implies that these beliefs have shaped customers' perceptions and increased their desire to use the technology. This study has proposed the application of the UTAUT by adding social impact as a moderating element in the adoption of e-wallets, disintegrated convenience, security, and speed requirements. Thus, Table 2.2 summarises some of the recent research conducted on the UTAUT.

Table 2.2
Previous Studies adapted Unified Theory of Acceptance and Use of Technology (UTAUT)

Authors (Year)	Domain	Proposed Constructs	Complete UTAUT Model (Venkatesh et al., 2003)
Odoom & Kosiba (2020)	mobile money	PE, EE, FC, SI & Intention	Yes
Yang et al. (2021	e-wallet	PU, PEOU, SI, FC, TR & Intention	No
Abdullah et al. (2020)	e-wallet	PE, SI, FC, TR, BI & Intention	No
Al-Saedi et al. (2020)	m-payment	PE, EE, SI, TR & Intention	No
Ariffin et al. (2020)	mobile payment	SI, SC & Intention	No
Phan et al. (2020)	e-wallet	PE, EE, SI, SC & Intention	No
Soodan & Rana (2020)	e-wallet	SI, SC & Intention	No

2.3 **Empirical Research**

In this quantitative research, all the information has been gained through the data obtained from the survey form given to the respondents to fill in. It quantifies opinions, behaviours, or other defined variables that the researchers set in the questionnaires in a structural format.

2.3.1 E-wallet Adoption

Beginning with credit cards and internet banking, payment methods have evolved to include e-wallets, which have grown in popularity as a result of promotional offers designed to attract new users to the platform. Additionally, as a result of technological advancements, new and innovative digital payment methods such as buy-now-pay-later and pay-for-me are becoming available, according to Chan Kok Long, co-founder of iPay88. E-wallets are the fourth most popular payment method for e-commerce transactions, according to Gopi Ganesalingam, vice president of the Malaysian Digital Economy Corporation (MDEC). Despite the fact that only 7% of e-commerce transactions are completed via mobile device, it was expected to be the fastest-growing method between 2019 and 2021, with uptake increasing at a compound annual growth rate of 53% between 2019 and 2021. It was expected to control 16% of Malaysia's payment market. Additionally, Gopi stated that 40% of Malaysian consumers indicated an increase in their use of mobile/digital wallets, followed by contactless debit cards at 26% and contactless credit cards at

22%. Malaysia has also been leading the region in terms of e-wallet adoption, surpassing the Philippines, Thailand, and Singapore. Additionally, Tan Kay Yen, the CEO of KiplePay Sdn. Bhd., agreed that E-wallets increase accessibility and provide the convenience of digital payments when shopping online or in-store. As e-wallets gain popularity, the volume and value of transactions processed by payment gateways will increase (The Edge Market, 2020). Due to the convenience, flexibility, and security that electronic transactions provide, e-wallets are one of the most popular payment methods (Uddin, et al., 2014). E-wallets have grown in popularity because of their broad range of services in the transportation industry, food delivery, and bill payment (Rosnidah, et al., 2019).

2.3.2 Convenience

The ease with which something can be used and the comfort with which it can be used can be defined as the convenience of something. Using mobility and immediate accessibility to achieve a distinct advantage requires realising a distinct advantage (Sharman & Gutierrez, 2010). The willingness of consumers to use electronic payment was reviewed, as per the findings of the Junadi and Sfenrianto (2015) study. As well, an investigation into the factors that influence customers' adoption of electronic payment methods was carried out by Bezhovski, et al. (2016).

Studies adopting the TAM or UTAUT reported that convenience also significantly impacted the adoption of mobile wallets in Indonesia (Lisana, 2021; Yang, et al., 2021) and intention to use e-wallets in Malaysia (Malik & Annuar, 2021). Similar observations using the TAM were noted in Bahrain (AlKubaisi & Naser, 2020), China (Li, et al., 2019; Pal, et al., 2020), Jordan (Al-Dmour, Al-Dmour, Rewan, et al., 2021), and Cameroon (Wamba, et al., 2021). It was proven that users who perceive that technology will simplify making payment will be more motivated to use it as it offers benefits in saving time and effort. Similarly, Liébana-Cabanillas, et al. (2020) assessed various studies on mobile payment systems. They found that perceived ease of use and perceived usefulness were the most influential factors to determine the behavioural

intentions of consumers. A survey by Nidhi Singh, et al. (2020) also confirmed that perceived ease of use had a direct and positive relationship with the intent to use m-wallet in India. In short, content, design, and speed are critical aspects that contribute to perceived ease-of-use and, as a result, impact consumer adoption of e-payment (Al-Dmour, Al-Dmour, Al-Barghuthi, et al., 2021). In line with the above study, Balakrishnan and Shuib (2021a) found perceived ease of use as a significant factor in intention to use technologies. They hypothesised that this factor could also positively determine users' readiness to go cashless. The findings of perceived ease of use have been found to be statistically significant towards the cashless payment. Individuals can use e-payment only if they find it easier to use compared to other traditional payment methods for a financial transaction (Al-Dmour, Al-Dmour, Al-Barghuthi, et al., 2021). To some extent, the ease-of-use factor gives credence to the notion that they are in control of the transaction.

The findings indicated that consumer preference and reluctance to use cutting-edge technology to conduct transactions, as well as the consumer's desire to accept cutting-edge technology for payment acceptance, are critical factors in the adoption of electronic payment methods. Convenience was a critical factor in the proposed model, according to the findings. Numerous factors have been identified and proposed that will influence the outcome, either positively or negatively. It is concerned with the alignment of technological advancement with customer perceptions, beliefs, and expectations. In this study, another term for perceived ease of use is convenience. Flexible payment systems are critical for consumer convenience because they enable consumers to quickly become accustomed to and integrate the payment system into their daily lives.

Even though convenience has been identified as one of the determinants towards the usage of e-wallets in other countries, such as China, Indonesia, and Thailand (Hariguna, et al., 2020; Li, et al., 2019), if consumers had ever used the e-wallet facility as a payment medium before or in the post-acceptance period, the result of convenience is insignificant (Tran Le Na & Hien, 2021). Besides that, a study by Garrouch (2021) proved the negligible effect of convenience

towards the continuance intention of mobile wallet applications as they claimed convenience is a determining variable only for users in their early adoption stages and with a low education level.

However, based on the above discussion, most previous studies on convenience have focused more on behavioural intentions than technology acceptance. However, this study believes that adoption is the paramount weight for users to use e-wallets compared to the choice to use as approval consists of positive decisions to use innovation (Taherdoost, 2019). Consumers need to have a record of ever using e-wallets to give the best response in adopting e-wallet.

2.3.3 Security

The term "security", according to Junadi and Sfenrianto (2015), represents a set of policies and procedures that are being used to verify information sources and guarantee the confidentiality and protection of data to prevent network information problems. Users' concerns about the safety and security of electronic payment transactions are directly related to challenges with authentication and secrecy and concerns about secondary use and unauthorised access to payments and consumer data (Al-Dmour, Al-Dmour, Rewan, et al., 2021). Since the introduction of the e-wallet has provided users with significant convenience, security has played a critical role in developing the e-wallet. Security is grouped into three categories in electronic payments: system security, transaction security, and official protection. Credit card fraud, network fraud, and other operational risks continue to be prevalent. Amongst the technical risks associated with electronic wallets are data transmission security and user information security, which is the most concerning for electronic payment users (Li, et al., 2019). A person can regard e-payment as efficient and confidential only if there is no security breach throughout the transaction process and his/her needs are met (Alshurideh, et al., 2021). It explains how e-wallets can protect consumers whilst conducting a transaction online. Compared to cash transactions with rigorous security controls, digital transactions can help minimise crime and cyber fraud. Users of newly launched electronic payment systems can assuage their security concerns by adding the most advanced security

methods, which will secure customer transactions and increase consumer trust, resulting in a positive perception of e-payment systems. The security assertion must be precise and straightforward enough for an average customer to comprehend. The guidelines must also inform clients about the transaction procedure when they make an electronic payment (Chellapalli & Srinivas Kumar, 2020). Additionally, e-wallets have limits due to security concerns, the infancy of e-wallet-related technologies, challenges with initial investment and implementation, compatibility and cost concerns, and an increase in hacking and fraud instances (Wamba, et al., 2021).

When it comes to digital payment applications, security is always a source of contention. As demonstrated, security is the primary concern of customers who rely on a range of electronic payment modes. With advancements in information technology and telecommunications, several novel payment modes are being supplied in several nations. As Chellapalli and Srinivas Kumar (2020) indicated, several drivers affect the security of e-payment transactions, including system factors (technical infrastructure and implementation) and transaction factors (securing payment via specific rules). Numerous prior research has demonstrated that security has a beneficial effect on how people use technology. For instance, AlKubaisi and Naser (2020) examined the Kingdom of Bahrain, demonstrating that SC has a significant impact on the continuation of e-wallet usage. Additionally, a study conducted in Shah Alam Selangor by Ariffin, et al. (2020) established that SC has a substantial positive link with the intention of retailers in Malaysia to utilise mobile payment systems. Insecurity, privacy, and perceived risks are significant factors in the adoption of technology, including digital payments (Balakrishnan & Shuib, 2021a), as people continue to believe that the online payment system is riddled with financial risks that may arise during the transaction process (Kee, et al., 2021).

However, Phan, et al. (2020) discovered a non-significant association between security and privacy and the intention to use an e-wallet, demonstrating that young people are apathetic about security and privacy and how easy or complex the system is to use. This is simply because

young people are adaptable to new technology and quick learners. Additionally, a study conducted on the security aspect is still inadequate to promote the acceptability of e-wallet technology in Indonesia (Latupeirissa, et al., 2020). Aside from that, Sardar (2016) investigated people's preferences for the use of electronic wallets in Jalgaon, and the impact of demographic variables on people's choices for using electronic wallets. As part of this research, the researchers investigated the factors affecting the adoption of E-wallets, with security being one of the factors they investigated. According to the study's findings, most of the respondents honestly thought that security was essential when making any type of online purchase. Participants expressed concern about the security of electronic wallets, and it was suggested that security systems be deepened so that customers could feel safe and secure when using the service.

2.3.4 Speed

One of several factors that could influence a consumer's decision to use an E-wallet was the transaction's speed, which was discussed as a factor to consider. Davis, Balaji, and Gurusamy (2017) examined the availability of E-wallets in the immediate aftermath of the Indian rupee's financial crisis. According to Davis, Balaji, and Gurusamy (2017), people had a negative perception of e-wallet usage. Seven variables have been decomposed into independent variables. These variables were, namely privacy, security, convenience, speed, accessibility, content, and design. The factors of thought and consideration, as well as the design invention, were discussed. Following the completion of this study, it was discovered that financial inclusion had resulted in statistically significant changes in the behaviour of E-wallet users, particularly in the different factors of convenience and confidentiality, which demonstrated differences in outcomes between pre-and post-financial crises. Apart from that, there were no significant differences in other factors, such as speed, between pre-and post-financial concerns. Chen and Nath (2008) proposed a multi-stage approach to analyse the factors affecting mobile payment adoption from the perspective of US customers in order to conduct their study on the elements affecting consumers'

primary intent to adopt card wallets. The research examined demographic characteristics, as well as digital technology and lifestyle characteristics, in order to ascertain users' adoption behavioural responses. The following factors were considered during the evaluation process: transactional convenience, transaction speed, compatibility, privacy concerns, and security concerns.

Additionally, it was discovered that compatibility was the most critical factor in determining the rate of adoption of mobile payments. On the other hand, the findings indicate that transaction speed and convenience are both strongly associated with the adoption of mobile services. Tella and Olasina (2014) used a survey approach to ascertain users' intentions to continue using an E-payment system after acquiring the Technology Acceptance Model (TAM). They used a purely quantitative method to administer a questionnaire with a variety of scales to ascertain users' intentions to continue using the system. The researchers used the length of time it took for salaries to be credited to employees' accounts and the speed with which customers were notified when the payment process was complete to answer the study's primary objective. The study discovered a relationship between perceived usefulness and attitude toward use; perceived enjoyment and intention to continue operating; and perceived ease of use and perceived service and attitude; the rate at which it is used; and actual usage.

2.3.5 Social Influence as a Mediator

The phrase "social influence" refers to the process through which an individual's behaviour changes because of how other people react to that behaviour (Singh & Srivastava, 2020). According to Azjen and Fishbein's (1975) subjective norm, consumers are more likely to engage in a behaviour if they believe that other people (usually of interest to them) are engaging in the same behaviour. Social impact (SI) is the term used to describe the effect of subjective norms and social situations on behaviour and intention to use an e-wallet (Yang, et al., 2021). Odoom & Kosiba (2020) and Yang, et al. (2021) provided evidence for this, asserting that users' friends,

relatives, family members, colleagues, neighbours, and superiors influenced their adoption and use of mobile money, and that proven social influence has a significant positive and direct effect on their intention to continue using mobile money. Social influence is analogous to subjective norms in the TAM2 and social norms in the theory of reasoned action (TRA), and it is anticipated that social influence will be the most significant and influential variable in anticipating new technology acceptance (Al-Saedi, et al., 2020). In numerous previous studies, social influence was used as an independent variable to determine the impact on intention to adopt e-wallets. It was established by Singh and Srivastava (2020) as a primary predictor of behavioural intention to use mobile banking applications, mobile money (Koomson, et al., 2021; Odoom & Kosiba, 2020), mobile payment systems (Al-Saedi, et al., 2020; Ariffin, et al., 2020), and electronic money payment (Yang, et al., 2021; Widayat, et al., 2020). Whilst social influence can influence customers' emotional and rational perspectives in developing countries, it is crucial in increasing customers' intent to use e-wallets (Yang, et al., 2021). The perspectives of those who are important to us are critical when determining why the mobile wallet is good and what benefits it provides. As a result, folks may be motivated, if not compensated, to spread the word about this application. Individual end-users are more dependable sources of information than commercial sources, and hence their impact is likely to be greater. Do and Do (2020) demonstrated an indirect influence of SI on the intention to adopt an e-wallet, or that both of those factors were mediated in Vietnam by perceived convenience, perceived utility, and reputation.

Although some previous research has discovered that social influence has a significant effect on the intention to adopt e-wallets, other research has discovered that there is no direct impact on adopting e-wallets. A study conducted by Yang, et al. (2012) found that social influence has a strong indirect influence on adoption during the initial stages of a project. It is believed by the researchers that social influence has an emphatically indirect effect on adoption during the early stages by positively affecting interrelationships' advantage and adversely affecting

perceived risk during the early stages. A direct influence of customer influence on existing and potential users was discovered because of this research. Furthermore, according to their findings, Aydin and Burnaz (2016) found out that social influence has no substantial impact on the adoption of mobile payment systems during their research. Participants in the study included both users and non-users of mobile payment systems, to determine the variables that impacted their attitudes and perceptions to use mobile payment systems. According to the study's findings, social influence illustrated that there were no empirically significant differences between the groups because of declining penetration and awareness of mobile payment systems amongst the public. According to the findings of the previous study, the compatibility, social influence, and information of mobile wallets were reviewed, whereas the perceived usefulness and predicted ease of use in E-payment services were forecast (Lwoga & Lwoga, 2017).

2.4 Research Gaps

This section discusses the theoretical gaps.

2.4.1 Gaps in the Theoretical Aspects

Previous research (Aditia, et al., 2018; Qi, et al., 2021; and Setiawan, et al., 2018) has demonstrated that perceived utility (PU) has a negligible effect on technology adoption and that PEOU may have a bigger effect on system acceptance than perceived utility (PU). Following a review of the literature, this study focused on convenience (perceived ease of use) as a variable from the TAM and social influence as a variable from the UTAUT, whilst excluding perceived usefulness (PU) as an independent variable. This study is expected to offer theoretical contributions and fill a gap in the existing literature by extending the TAM and UTAUT models to incorporate security and speed to make them more realistic. Three independent variables have

been explored based on the foregoing: convenience, security, and speed, with social influence being examined as a mediating factor in e-wallet adoption.

2.5 Theoretical Framework

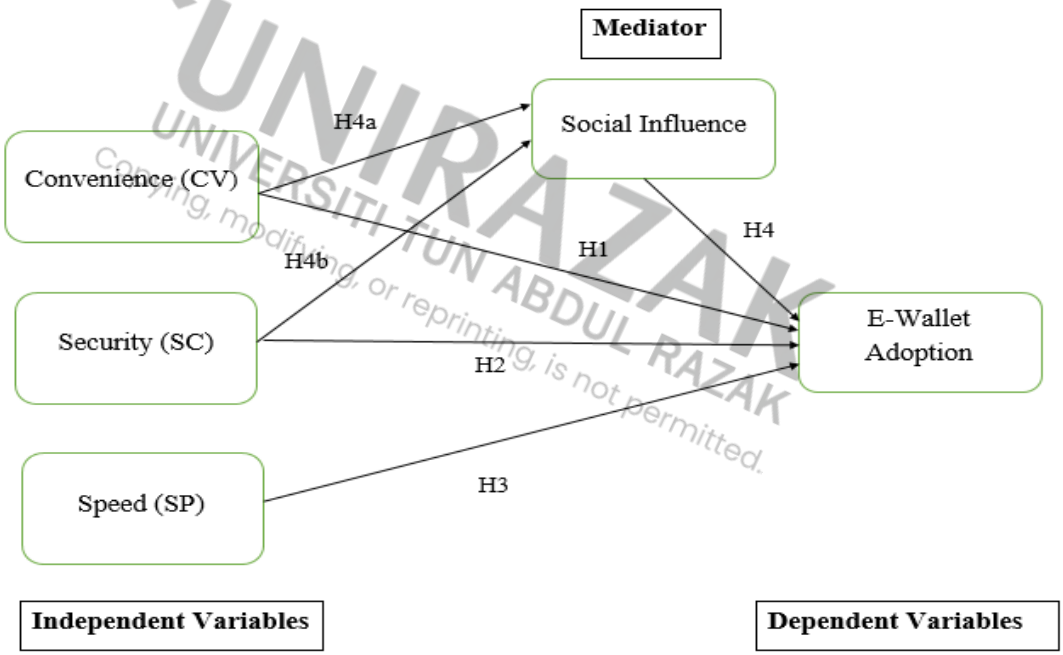
The researcher based the theoretical foundation of this study on the existing TAM and UTAUT, and the previous investigations discussed in Chapter 2. The TAM (Davis, 1989) incorporated and tested four distinct beliefs: PU, PEOU, ATT, and BI. According to the model, respondents weigh the utility of a new system before deciding whether to use it, and an attitude toward behaviour development is essential for the intention to utilise technology. The model has paved the way for further research into the incorporation of external factors that can affect an individual's belief in a system. According to Venkatesh and Davis (1996), external variables include system characteristics, user training, user input in the design, and the implementation process. Li, et al. (2019) examined a Chinese user's readiness to utilise Alipay using a comprehensive TAM model consisting of PEOU, PU, ATT, and BI. However, Aditia, et al. (2018); Qi, et al. (2021); and Setiawan, et al. (2018) demonstrated that perceived utility has a negligible effect on technological acceptance. Similarly, Nidhi Singh, et al. (2020) employed PEOU, ATT, SI, and BI in their study of mobile wallets in India. As a result of the foregoing, the researcher used PEOU and ATT as determinants of e-wallet acceptability and excluded PU from the framework. Despite the TAM's success in being tested and adapted over time, there has been criticism of the model's weaknesses (Mohammad, 2009). Concerns about the variables and their relationships within the model (Burton-Jones & Hubona, 2006), the methodology used (Yousafzai, et al., 2007), and the model's fundamental theoretical foundation were some of the limitations (Bagozzi, 2007). Given that the TAM study is continuing, it is vital for anyone interested in gauging user acceptance in terms of technology to understand the TAM's assumptions, strengths, and limitations. Straub (2009) concurred that the two variables in TAM (perceived ease of use and perceived usefulness) were

insufficient to account for individuals' beliefs and attitudes regarding certain technologies. Thus, in addition to the TAM, the researcher used the UTAUT to develop the theoretical framework. The UTAUT was used to illustrate the relationship between multiple important previous technology acceptance models and was intended to provide a unified perspective on the TAM model (Duy Phuong, et al., 2020). The UTAUT's relevance and applicability in this study is demonstrated by emphasising consumer usage rather than organisational behaviour. Numerous studies have been conducted on this subject, highlighting the link between the TAM and the UTAUT. Odoom and Kosiba (2020) examined the intention of micro-enterprises in an emerging/less-developed economy to continue using mobile money using the complete UTAUT models PE, EE, FC, SI, and BI. However, based on prior research, the author has incorporated some more variables to increase its explanatory power in the context at hand. According to some authors, security (Ariffin, et al., 2020; Phan, et al., 2020) and customer trust (Abdullah, et al., 2020; Al-Saedi, et al., 2020) have a significant impact on customer acceptance to use the e-wallet payment system and should be included in the research model because they are the primary reasons for low e-wallet payment service adoption. Similarly, to Soodan and Rana's model (2020), the researchers employed SC and SI to predict users' intentions to use an electronic wallet in a developing country. The study incorporated SI, SC, and TR into the e-wallet adoption paradigm based on the discussion above.

Apart from that, referring to Figure 2.5 shows the theoretical framework of this study where convenience was found to be one of the most significant factors influencing the adoption of the E-wallet system. Besides that, security and speed will also affect E-wallet adoption. Consumers are more likely to accept and use an application if they believe it is compatible with their current behaviour. As a result, marketing personnel can concentrate on the development and application of marketing communication, as well as on the compatibility, security, and speed of the application with use cases and advantages for different lifestyles in the target audience.

In terms of social influence, this study expected that social influence would strengthen the relationships between convenience, security, and speed towards the adoption of E-wallet. On the other hand, there are previous studies that disagree with the statement that social influence has a substantial impact on the adoption of e-wallets (Alkhowaiter, 2020; Pal, et al., 2020; and Soomro, 2019). Therefore, based on the above discussion, various variables have been compiled. The variables used in this study were convenience (CV), security (SC), speed (SP), social influence (SI), education (EDU), and e-wallet adoption (eAD). Below is the theoretical framework for this study.

Figure 2.5
Theoretical Framework



2.6 Hypothesis Development

2.6.1 Convenience

According to Manikandan and Jayakodi (2017), the independent variable, convenience, plays a significant role in the respondents' E-wallet adoption, specifically indicating that convenience in

usage will contribute significantly to future growth in E-wallet adoption. Like Singh & Rana's (2017) study, convenience plays a significant role in the adoption of digital wallets. Bezhovski's (2016) research confirmed this as well. Therefore, the hypothesis was:

H0: There is no significant relationship between convenience and E-wallet adoption amongst the Klang Valley customers.

H1: There is a significant positive relationship between convenience and E-wallet adoption amongst the Klang Valley customers.

2.6.2 Security

According to previous research, consumers consider the security of an E-wallet when deciding whether to use it. According to Batra and Kalra (2016), security is a positive significant factor in the adoption of E-wallets, which means that as security is strengthened, the intention to use E-wallets will also increase. Kabir, et al. (2017); Junadi and Sfenrianto (2015); Sardar (2016); and Taheam, et al. (2017) all concurred (2016). According to Batra and Kalra (2016), the respondents' primary concern was the security of financial transactions. Sardar (2016) stated that most of the respondents believed that security was a critical factor when making an online purchase. This demonstrates that security is a significant factor influencing E-wallet adoption. Therefore, the hypothesis was:

H0: There is no significant relationship between security and E-wallet adoption amongst the Klang Valley customers.

H2: There is a significant positive relationship between security and E-wallet adoption amongst the Klang Valley customers.

2.6.3 Speed

According to Chen and Nath (2008), a faster transaction speed would result in a higher rate of digital payment adoption amongst respondents. Speed plays a significant role in performance expectancy as one of the components. It is concluded that increased transaction speed benefits consumers and encourages greater adoption of electronic payments (Junadi & Sfenrianto, 2015). According to Tella and Olasina (2014), there is also a relationship between speed and consumers' intentions to continue using the digital payment system. Therefore, the hypothesis was:

H0: There is no significant relationship between speed and E-wallet adoption amongst the Klang Valley customers.

H3: There is a significant positive relationship between speed and E-wallet adoption amongst the Klang Valley customers.

2.6.4 Social Influence

The effect of social influence on the adoption of electronic payments has been estimated by Oliveira, et al. (2016) to be either direct or indirect. They found that Yang, et al. (2012) found that social influence affected the rate of E-wallet adoption by influencing security. They discovered that social influence was an important factor for both the people who had experienced direct effects and the people who might become potential users. There was a significant correlation between social influence and the intention and attitude an individual had toward a new technology (Taheam, et al., 2016). Additionally, Do and Do (2020) show that SI had an indirect effect on the intention to adopt an e-wallet, or that both of those characteristics were mediated in Vietnam by perceived convenience, perceived utility, and reputation. The hypothesis was, therefore:

H0: There is no significant relationship between social influence and E-wallet adoption amongst the Klang Valley customers.

H4: There is a significant relationship between social influence and E-wallet adoption amongst the Klang Valley customers.

H4a: Social influence mediates the relationship between convenience and E-wallet adoption amongst the Klang Valley customers.

H4b: Social influence mediates the relationship between security and E-wallet adoption amongst the Klang Valley customers.

2.7 Summary

This chapter has conducted a review of journals and articles from previous empirical studies to provide direction for this research topic. Additionally, the pertinent theoretical framework was discussed in greater detail to develop a new conceptual framework and the hypotheses for evaluating the relationship between the relevant determinants. Chapter 3 will discuss the research methodology used in this study in greater detail.

CHAPTER 3
RESEARCH METHODOLOGY

3.1 Introduction

The study's primary objective was to examine the convenience, security, speed, and social influence as mediators of E-wallet adoption amongst the Klang Valley customers. The study was designed using specific procedures and methods that were critical for validating the results (Bickman & Rog, 1998). This chapter begins by discussing the research methodology, followed by discussions about the study's approach. Following that, the theoretical framework emphasises the study's exogenous, endogenous, mediating, and moderating variables. Following that, five hypotheses are developed to aid in the comprehension of the variables' effects. The research design section contains information about the study's methodology. In the meantime, the flow chart illustrates the research process. Because this study was conducted via survey, data were gathered using questionnaires. This chapter discusses the survey validation method in greater detail, as well as the reliability test. Data analysis was carried out using Smart PLS 3.3.6 for Partial Least Square Structural Equation Modelling by the developed data analysis plan (PLS-SEM). In general, this chapter discusses the methodological framework that was used to accomplish the research objectives and answer the research questions in this study.

3.2 Research Methodology

The methodology of the research describes the quantitative or qualitative designs that guide the research procedure (Creswell, 2009). It details the procedures used to address the research's objectives and questions. The method chosen is critical because it directs the conduct of the research and influences the quality of the results (Creswell, 2009). In this study, a positivistic paradigm was used, with an emphasis on (i) calculation in the collection and analysis of data, and

(ii) testing the associations between theory and research (theory testing) (Bryman & Bell, 2007). Statistical measures were used to examine the relationships between the variables (Creswell, 2009). In quantitative research, the two most frequently used methodologies are survey research and experimental research (Creswell, 2009).

The survey research methodology was used in this study because it provided consistent evidence for defining variables and investigating their associations (Malhotra & Galletta, 1998). This methodology enabled data collection from the respondents, which was used to investigate the relationships between the factors and the never-ending knowledge sharing. Additionally, the study's "what" type of research questions necessitated the use of a survey research methodology. According to Yin (1994), questionnaire-based research is appropriate for studies involving who and what questions.

3.3 Data Collection Method and Procedures

3.3.1 Study Design

The examination of the independent variables (convenience, security, speed, and social influence) about E-wallet adoption was one of the methods used to confirm the subject matter of this research. Due to the exploratory nature of this study, a cross-sectional approach was used to collect data on customer responses, with questionnaires distributed concurrently with previous studies. From October 2021 to December 2021, data was collected from customers in the Klang Valley area. SPSS was used to analyse the data collected, with a focus on the correlation between convenience, security, speed, and social influence, as well as their relationship to E-wallet adoption. Because the purpose of this study was to examine the relationship between convenience, security, speed, social influence, and E-wallet adoption, it was a causality study.

3.3.2 Sampling Techniques

Sampling generally functions to obtain representatives from a wider population of interest. Comprehending the sample's features will enable a researcher to simplify an observation to signify the overall population (Sekaran, 2003). In this study, customers who were using e-wallet applications and were situated in the Klang Valley were selected as participants. This was due to the study objective which aimed to investigate the factors influencing E-wallet adoption of customers in the Klang Valley. Therefore, the respondents were selected according to their eligibility to provide such information.

Sampling techniques are classified into two types: probability sampling and non-probability sampling. This study opted for a non-probability sampling method. Four types of non-probability sampling exist, namely convenience sampling, quota sampling, snowball sampling, and judgmental sampling (Sekaran & Bougie, 2010). Due to the study's time and budget constraints, as well as the study's large sample size, convenience sampling was the most appropriate technique. The primary objective of convenience sampling is to collect information about respondents that is readily accessible to the researcher (Etikan, Musa, & Alkassim, 2016). The respondents were generally chosen because they were in the right place at the right time.

3.3.3 Sampling Size

The target respondents in this study were Klang Valley residents who used an e-wallet application. The sample size for this study was calculated using G-power software, which determined the required minimum sample size. Given that the model contained a maximum of four predictors (for the outcome variable E-wallet adoption), the effect size was set to be medium (0.3), and the required power was 0.80. Across the social sciences, convention establishes a minimum acceptable power of 80% (Gefen, et al., 2011). The required sample size was 85. As a result, the data collected exceeded the required number slightly (refer to appendix A). The

questionnaires for this study were distributed via email to 600 respondents in the Klang Valley. However, only 428 of the 600 questionnaire-eligible respondents responded. According to Sekaran and Bougie (2010), this sample size results in a response rate of 71.3 per cent, which is considered satisfactory. Another technique for determining sample size is to use the Krejcie and Morgan table. As previously stated, sampling size is defined as the total number of samples used in a study. The sample can serve only a portion of the total target population (Etikan, et al., 2016). According to Krejcie and Morgan, a table was created to calculate the target population sampling size (1970). According to the findings in Table 3.1, the distribution of questionnaires to customers in the Klang Valley provided sufficient data for the research; however, to avoid missing data or inaccurate results, the survey was also distributed to Klang Valley residents. For populations greater than 1,000,000 in the Klang Valley, a sample size of 384 was required.

Table 3.1
Krejcie and Morgan's Determining Sample Size Table

N	S	N	S	N	S
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351

90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Note: N is population size; S is the sample size.
Source: Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30, 607-610.

3.3.4 Unit of Analysis

The unit of analysis corresponds to the study's central objective, for which data are gathered (Bailey & Pearson, 1983). According to Yin (1994), one can determine the unit of analysis by observing how research questions are phrased. Individual customers in the Klang Valley were prominently featured in the study's research questions. As a result, individuals were used as the unit of analysis in this study.

3.4 Measurement of variables

This study employed a convenience sampling method with a self-administered survey. The respondents were chosen by the specified characteristics (Etikan, et al., 2016). To collect data for the research model constructs, questionnaires were developed. Three sections made up the questionnaire. The first section dealt with demographic information. The second section discussed

the adoption of electronic wallets (a dependent variable), whilst the third section discussed convenience, security, speed, and social influence (independent variables). The structure of the questionnaire is summarised in Table 3.2. The questions were constructed strategically to aid in the investigation of the research objectives.

Table 3.2
Questionnaire Design

Section	Category	Remarks
Part One	Respondent Profile	This section obtained information regarding the respondents' demographic
Part Two	Dependent Variable	This section focused on the E-wallet adoption of Klang Valley customers.
Part Three	Independent Variables	This section concentrated on the three independent and one mediator variables: convenience, security, speed, and social influence mediators.

The measurements of the items for the variables adopted from various authors is shown in Table 3.3. The firms were contacted and requested to provide information about their unique demographic profile (gender, age, marital status, education background, and occupation).

All questions in the variables section (convenience, security, speed, social influence, and E-wallet adoption) were closed-ended. Five items each for convenience (CV), security (SC), and speed (SP); a total of fifteen items for the independent variables. Five items were developed for the mediator variable, social influence (SI), and five items for the dependent variable, E-wallet adoption (eAD). The variable section's item statements were evaluated subjectively using a five-point Likert scale (with 1 indicating strong disagreement and 5 indicating strong agreement). Appendix 1, which contains the survey questionnaire, contains the complete set of these measurement items and questions (final version). Individual customers who used e-wallet applications and resided in the Klang Valley, Malaysia were targeted, ensuring convenience in coverage and outreach.

Table 3.3

Source of Measurement

Variables	Source of Measurement Items
Convenience	Davis, Balaji, & Gurusamy (2017); Kim, Mirusmonov, & Lee (2010); Abrahao, Moriguchi, & Andrade (2016).
Security	Davis, Balaji, & Gurusamy (2017); Taheam, Sharma, & Goswami (2016).
Speed	Davis, Balaji, & Gurusamy (2017); Chen & Nath (2008).
Social Influence	Koening-Lewis, Marquet, Palmer, & Zhao (2015); Lu, Yao, & Yu (2005).
E-wallet adoption	Manikandan & Jayakodi (2017); Schierz, Schilke, & Wirtz (2010); Ajzen (1991).

3.5 Data Analysis: Introduction to Structural Equation Modelling (SEM)

The Structural Equation Model (SEM) enables investigators to evaluate the overall fit of the model and to examine the structural model collectively (Chin, 1998b; Gefen, Straub, & Boudreau, 2000). Apart from evaluating hypothesised structural relationships between variables, SEM considers the relationships between variables and the actions associated with them. SEM is a multivariate statistical technique used to investigate the direct and indirect relationships between one or more independent latent variables (LVs) and one or more dependent latent variables (LVs) (Gefen, et al., 2000). It is an extremely malleable modelling tool that can be used for a variety of multivariate statistical analyses, such as path analysis, regression analysis, canonical correlation analysis, factor analysis, and growth curve modelling (Gefen, et al., 2000; Urbach & Ahlemann, 2010).

SEM is advantageous for first-generation analysis techniques (e.g., principal component analysis, factor analysis, or multiple regression) because it accounts for the elasticity of a theory-data interaction (Chin, 1998a). According to Chin (1998a), SEM enables researchers to: 1) model relationships between multiple predictors and criterion variables; 2) construct unobservable latent variables (LVs); 3) model measurement errors for observed variables; and 4) statistically test a priori theoretical and measurement assumptions against empirical data.

SEM is classified into two types based on their approach: covariance-based (CB-SEM) and partial least squares structural equation modeling (PLS-SEM) (Fornell & Bookstein, 1982; Marcoulides, Chin, & Saunders, 2009; and Wetzels, Dakerhens Schroder, & van Oppen, 2009). The difference between these two approaches is in the type of fit statistic generated and the underlying statistical assumptions (Gefen, et al., 2000).

CB-SEM employs the maximum likelihood (ML) function to minimise the variances between the covariances of the samples and the predicted covariances of the theoretical model. The estimated parameters replicate the observed values' covariance matrix. When the ML function is used, observed variables have a normal distribution and the observations are contained within themselves (Chin, 1998b; Hair, Ringle, & Sarstedt, 2011; and Urbach & Ahlemann, 2010). During this time, the PLS-SEM algorithm maximises the covariance between the independent and dependent LVs (Sosik, Kahai, & Piovoso, 2009). For single and multi-component models, it employs least squares estimation and canonical correlation (Chin, 1998b). Numerous constraint assumptions inherent in traditional machine learning techniques are avoided, avoiding insufficient resolution and factor indeterminacy (Fornell & Bookstein, 1982).

However, a previous study concluded that PLS-SEM is an ineffective procedure for examining associations between LVs (Rouse & Corbitt, 2008). Regardless of the criticisms, PLS-SEM is gaining traction in marketing and other sectors of business (Henseler, et al., 2009). Academics now regard the PLS-SEM method as an extremely precise technique for estimating the structural model (Henseler, et al., 2009). Additionally, it serves as a fallback technique in the absence of CB-SEM distributional assumptions (Hair, et al., 2011). In many areas of social science inquiry, both the informational and distributive requirements of CB-SEM are impractical (Wold, 1982). In this study, both statistical methods have been viewed as complementary procedures, not as competitors (Joreskog and Wold, 1982).

Thus, when deciding between CB-SEM and PLS-SEM, this paper followed Hair, et al., (2011) guidelines for determining the suitability of the statistical methods.

3.5.1 Rule of Thumb for Selecting CB-SEM or PLS-SEM

A thorough understanding of the fundamental assumptions underlying these statistical methods enables the researcher to select the statistical method that is most appropriate for the study. Hair, et al. (2011) suggested that the choice between PLS-SEM and CB-SEM can be influenced by a variety of factors, including the type of measurement model specification, the research objective, the data characteristics, structural model modelling, and model evaluation. Hair, et al. (2011) identified five critical guidelines for determining whether to use PLS-SEM or CB-SEM.

The first step in deciding between these two methods is to define the research objective. CB-SEM is almost always required when testing or confirming a theory, as it is necessary to depict the fitness of a theoretical model on observed data when testing a theory (Barclay, Higgins, & Thompson, 1995). Due to the fact that the objective of CB-SEM is to minimise the covariance matrix, hard modelling is an appropriate core strength. Meanwhile, PLS-SEM, also known as soft modelling, is well suited for research objectives that place a premium on prediction and theory development. The goal of soft modelling is to discover the optimal associations between variables. Priority is given to increasing the covariance between the LVs, as this improves the interpretability of the model (Sosik, et al., 2009).

Second, CB-SEM is applicable only to research models based on reflective measures. Earlier studies incorporated formative measures into their structural models, but this frequently resulted in identification difficulties (Henseler, et al., 2009). It becomes impossible to accurately describe the covariance of all indicators when formative constructs are included in CB-SEM (Chin, 1998b). Additionally, it is difficult to incorporate CB-SEM into both formative and

reflective assessments (Urbach & Ahlemann, 2010). By contrast, PLS-SEM is well-suited for analysing a research model that includes both formative and reflective constructs (Chin, 1998b). The PLS allows researchers to employ either reflective or formative constructs, or a combination of the two.

Third, when using CB-SEM, researchers must adhere to a set of assumptions prior to conducting the analysis using the CB-SEM software. The expectations include evaluating 1) the normality of multivariate data, 2) the observation of independence, and 3) the variable metric's uniformity (Sosik, et al., 2009). When CB-SEM is used, the data should be normally distributed and the sample size should be large. Without meeting these requirements, the CB-SEM results will be highly imprecise (Hair, et al., 2011). Meanwhile, PLS-SEM is more robust and capable of handling data with non-normal distributions, as it employs adjustment mechanisms to transform non-normal data into normal data that conform to the central limit theorem (Beebe, Pell, & Seasholtz, 1998).

Finally, the structural model evaluation demonstrates that the purpose of PLS-objective SEM's is to forecast theoretical models proposed in the literature, rather than to compare and test alternative model options (Sosik, et al., 2009). PLS connects residuals and latent variables, allowing for the estimation of PLS-SEM (Falk & Miller, 1992). The following table explains how to choose between PLS-SEM and CB-SEM.

Table 3.4
Summary of the Rules of Thumb in Selecting between CB-SEM and PLS-SEM

	Criteria to evaluate	CB-SEM	PLS-SEM
1	**Research goal**		
	i. Forecasting key target constructs.		√
	ii. Alternative theories comparison, testing theory, or confirmation of the theory.	√	
	iii. Exploratory of an existing structural theory.		√
2	**Measurement model specification**		

	i. If the structural model contains formative constructs.		√
	ii. If require additional specification in error terms such as co-variation	√	
3	**Structural Model**		
	i. Complex structural model		√
	ii. Non-recursive structural model	√	
4	**Data characteristics and algorithm**		
	i. Meet the distributional assumptions of data	√	
	ii. Did not meet the distributional assumptions of data		√
	iii. Consider sample size small		√
	iv. Consider sample size large		√
	v. Non-normal distribution	√	√
	vi. Normal distribution	√	√
5	**Model evaluation**		
	i. Latent variable scores are used in subsequent analyses		√
	ii. Need global goodness of fit criterion	√	
	iii. Measurement model invariance need to be a test	√	

Note. Adapted from Henseler et al. (2009) and Hair et al. (2011).

3.5.2 Partial Least Squares Structural Equation Modeling (PLS-SEM)

Herman Wold, an econometrician during the 60s and 70s, developed the PLS (Chin, 1998b). PLS comes from the family of alternating least squares algorithms, which encompasses principal component and canonical correlation analysis (Henseler, et al., 2009). Two sets of linear equations identified as the measurement model and structural model describe its path models (Henseler, et al., 2009). The relationships between unobserved or latent variables (LVs) are highlighted by the measurement model, whereas the relationships between an LV and its manifest variables are given by the router model. Both inner and outer model are at times called the structural and measurement models.

The PLS algorithm is an order of regressions based on weight vectors (Henseler, et al., 2009). The Basic PLS algorithm comprises the following stages:

Stage 1: An iterative estimation of LV scores, which involves a four-step iterative procedure that is repeated until convergence is attained:

i. Outer approximation of the LV scores
ii. Estimation of inner weights
iii. Inner approximation of the LV scores
iv. Estimation of the outer weights

Stage 2: Estimation of outer weights/loading and path coefficients

Stage 3: Estimation of location parameters.

3.5.3 Reflective and Formative Constructs

According to the available SEM literature, LV can be modelled using either a formative or reflective indicator. Jarvis, Mackenzie, and Podsakoff (2003) asserted that reflective constructs are influenced by the same underlying construct, practice corresponding measures that co-vary, and measure the same causal construct. In a reflective construct, causality flows from the construct (i.e., LV) to the indicators. Any modifications to the underlying construct may result in modifications to the indicators (Jarvis, et al., 2003). The arrow indicates the relationship between LV and reflective indicators in reflective constructs. Additionally, the indicators in a reflective construct should be internally consistent, as all measures imply an equal amount of valid information about the underlying LV (Petter, Straub, & Rai, 2007). Meanwhile, the term

"formative construct" refers to constructs that include formative indicators and collectively impart meaning to the LV (Petter, et al., 2007). All LVs were exhibited as reflective measures in this study. Each LV's causality flows were determined by the information gleaned from a literature search. It is critical to estimate the causality flow based on prior knowledge to avoid measurement model misspecification (Henseler, et al., 2009).

3.6 Evaluating Measurement and Structural Models in PLS-SEM

The research model was evaluated in two stages: 1) the measurement model was valued, and 2) the structural model was evaluated. Model validation ensured that both the measurement and structural models met the requirements for experimental work of a high standard (Urbach & Ahlemann, 2010). The following subsections discuss the criteria used to evaluate both the measurement and the structural models used in this study.

3.6.1 Measurement Model

Validation of a reflective measurement model can be established based on prior research by examining its internal consistency, indicator reliability, convergent validity, and discriminant validity (Lewis, Templeton, & Byrd, 2005; Straub, Boudreau, & Gefen, 2004).

3.6.1.1 Internal Consistency

Traditionally, the internal consistency of an item was determined using Cronbach's alpha (CA). Constructs with a high CA value indicate that the construct's items have a similar range and

meaning (Cronbach, 1971). CA calculates the reliability based on the indicator intercorrelations. In PLS, internal consistency is quantified using composite reliability (CR) (Chin, 1998b). Whilst both CA and CR have a similar measure (internal consistency), CR considers the fact that indicators have varying loadings. Meanwhile, CA grossly underestimates the reliability of internal consistency because it rejects the tau equivalent model and assumes that all indicators are equally weighted (Werts, Linn, & Joreskog, 1974). Apart from the specific reliability coefficient, internal consistency reliability is considered satisfactory when the early-stage value is greater than 0.7 and the advanced-stage value is greater than 0.8 or 0.9. Meanwhile, values less than 0.6 indicate a lack of trustworthiness (Nunnally & Bernstein, 1994).

3.6.1.2 Indicator Reliability

The reliability of an indicator refers to the degree to which a variable or set of variables provides a consistent measurement of the intended outcome (Urbach & Ahlemann, 2010). The reliability construct is distinct from the other constructs and is measured separately. Loadings of indicators must be greater than 0.7 and statistically significant at the 0.05 level (Chin, 1998b). This is because an LV with a loading value of 0.707 can account for at least 50% of the variance in its indicator. The significance of the indicator loadings can be determined using resampling techniques such as bootstrapping or jackknifing. According to Hensler, et al. (2009), when deciding whether to eliminate an indicator, one should take PLS consistency characteristics into account. An indicator should be eliminated only when its reliability is low and the process of elimination results in a significant increase in CR.

3.6.1.3 Convergent Validity

Convergent validity refers to the degree to which individual items measure the same construct as other items measuring different constructs (Urbach & Ahlemann, 2010). Convergent validity is determined using PLS based on the value of the average variance extracted (AVE). A value of at least 0.5 for the AVE of a construct indicates sufficient convergent validity (Fornell and Larcker, 1981).

3.6.1.4 Discriminant Validity

Discriminant validity establishes a distinction between construct measures. Contrary to convergent validity, discriminant validity examines whether the items unintentionally measure something else (Urbach & Ahlemann, 2010). Cross loading (Chin, 1998b) and the Fornell criterion and Larcker's LV are two commonly used measures of discriminant validity in PLS (Fornell & Larcker, 1981).

Cross-loading occurs when the component scores of each LV are correlated with the component scores of all other items (Chin, 1998b). Indicators with a higher loading for their designated construct than for the other constructs indicate that the indicators for dissimilar constructs cannot be interchanged.

According to the Fornell criterion, Larcker's LV must share a greater proportion of variance with its assigned indicators than other LVs. As a result, each LV's AVE should be greater than its highest squares correlation with any other LV. The validity guidelines for evaluating a reflective measurement model are summarised in Table 3.5.

Table 3.5
Summary of Validity Guidelines for Assessing Reflective Measurement Model

	Validity Type	Criterion	Guidelines
1	Internal consistency	CR	CR < 0.6 (lack of reliability) CR > 0.7 (for exploratory study) CR > 0.8 (advanced research)
2	Indicator reliability	Indicator loadings	Items loading > 0.7, The significance level should be at least 0.5
3	Convergent validity	AVE	AVE > 0.5
4	Discriminant validity	Cross loading	Items loading of each factor is highest for its designated construct.
		Fornell and Larcker	The square root of the AVE of a construct should be greater than the correlation between the construct and another construct in the model.
		HTMT	Using Monte Carlo simulation study. Detect the collinearity problems among the latent constructs (multicollinearity).

Hence, the measurement model's validity was satisfactory in this study when:

1. CR was greater than 0.8.
2. Item's loading was greater than 0.7 and significant at the 0.05 level.
3. AVE value for each construct was larger than 0.50.
4. Each indicator had an item loading that was highest for its designated construct.
5. The square root of the AVE of a construct was greater than the correlations between the construct and other constructs in the model.

3.6.2 Structural Model

Validating the structural model enables researchers to determine whether the hypotheses contained in the structural model are supported by the data (Urbach & Ahlemann, 2010). The structural model can be analysed only after the measurement model has been confirmed successfully. In PLS, a structural model can be evaluated using the coefficient of determination (R^2) and path coefficients.

Evaluating the coefficient of determination (R^2) of each endogenous LV is a critical first step in evaluating the PLS structural model. The R^2 determines the relationship between an LV's explained variance and its total variance. R^2 values of approximately 0.67 are considered substantial, values of approximately 0.333 are considered average, and values of 0.19 and less are considered weak (Chin, 1998b).

Whilst the path coefficient value provides insight into the strength of the relationship between two LVs, the researcher must also consider the path coefficients, algebraic sign, magnitude, and significance when examining the relationship between two LVs. According to Huber, et al. (2007), path coefficients greater than 0.100 at a 0.05 level of significance indicate a certain effect within the model. The guidelines for validating the structural model are summarised in Table 3.6.

Table 3.6
Summary of Validity Guidelines for Assessing the Reflective Structural Model

	Validity Type	Criterion	Guideline
1	Model Validity	Coefficient of determination (R^2)	0.67 (substantial) 0.333 (moderate) 0.190 (weak)
2		Path coefficients	Path coefficient must be at least 0.100. The significance level should be at least 0.05

Hence, the structural model was evaluated in this study using the following test:

1. The coefficient of determination had to be larger than 0.19.

2. The path coefficient between LVs had to be at least 0.1, follow the correct algebraic sign (in the case of this study—positive), and be significant (at least 0.05).

3.6.3 Mediating Relationship

A mediating factor is a third variable that influences the relationship between the independent (predictor) and dependent variables (outcome) (Baron & Kenny, 1986). A mediator is a term that refers to the mechanism by which a predictor influences an outcome variable. According to Preacher and Hayes (2008), the mediator should be tested by bootstrapping the indirect effect. Bootstrapping, a nonparametric resampling procedure has been recognised as a more rigorous and powerful method for determining the mediating effect (Hayes, 2009; Shroud & Bolger, 2002; and Zhao, et al., 2010). Hair, Ringle, and Sarstedt (2013) recently advocated for the use of bootstrapping in mediation analysis, stating that "when testing mediating effects, researchers should follow Preacher and Hayes (2004, 2008) and bootstrap the indirect effect's sampling distribution, which works for simple and multiple mediator models". Additionally, bootstrapping is said to be ideal for PLS-SEM because it makes no assumptions about the shape of the variables' distributions or the sampling distribution of the statistic, and thus can be used with small sample sizes (Hair, Ringle, & Sarstedt, 2013; Preacher & Hayes, 2008).

3.7 Summary

To summarise, the following chapter has gone into a lot of detail about the approach used in this research. Design of the research and methods for data collection, as well as the demographic target group, sampling method, and size of the sample are highlighted in the specific subject. The findings will be examined in Chapter 4 for further discussion.

CHAPTER 4

DATA ANALYSIS

4.1 Introduction

This chapter analyses the research data statistically. The analyses were carried out using the statistical techniques described in the methodology section. The findings in this chapter are intended to examine the relationship between convenience, security, and speed, as well as the role of social influence as a mediator in E-wallet adoption. This chapter begins by presenting preliminary data findings. Following that, the study discusses the findings and statistical tests used. Before conducting the inferential analysis, this chapter used SPSS software to perform screening procedures to ensure the data were clean. Finally, PLS-SEM was used to evaluate the measurement and structural models for path modeling, followed by the presentation of the hypotheses testing results.

4.2 Preliminary Data Analysis

The initial data analysis process entailed coding and entering data into a database, as well as filtering the raw data to identify missing data. The missing values occurred because of respondents being unable to comprehend or they overlooked the survey instrument's questions. Other reasons for incomplete responses included the following: (a) respondents provided the same response to all questions; (b) questionnaires were incomplete, and respondents did not complete answering all questions, and (c) respondents did not devote their full attention to answering all questions or responded too quickly. Only 428 of the 600 people invited to participate in the current study responded to the survey questionnaire. These 428 cases were entered into the database after considering any incomplete or invalid data collected during the collection process. Following the preliminary analysis, the SPSS software was used to load all 428 cases for the following purposes:

1. Analyse each variable in the dataset to identify any missing or invalid data.

2. Analyse to identify any outliers that may affect the nature of the data.

3. Conduct analyses to determine the distribution of the data, such as the normality test using skewness/kurtosis and the Kolmogorov Smirnov test.

4. Produce narrative statistical reports.

This study used Smart-PLS 3.3.7 to analyse the measurement and structural models using PLS-SEM. Before analysing these models with Smart-PLS, the data was transformed into an Excel CSV file to generate the application's raw input.

4.2.1 Data Screening

Data screening was used to ensure that the data was entered correctly and to certify that the data used was valid and complete. Additionally, data screening was performed to ensure that all the data were free of outliers, to identify the possibility of common method biases, and to confirm the data distribution's normality. All variables have been renamed to correspond to the primary constructs (e.g., CV, SC, SP, SI, and eAD) to provide a concise description of the data contained in each column and row. Following that, the data were screened using the SPSS software to identify missing values, outliers, and normality.

4.2.1.1 Missing Data

When respondents fail to respond to one or more questions in a survey questionnaire, missing data occurs. To evaluate missing data, it is necessary to determine which data and how much data are missing (Tabachnik & Fidell, 1996). If the missing data represent less than 5% of the total

data retrieved, no assessment to determine the missing data's patterns is required. There were no missing values in this study's dataset. As a result, the data were deemed valid.

4.2.1.2 Outliers

An outlier is a value that deviates abnormally from other values in a population sample, which could be due to measurement variability in the study's observations. In the context of survey research, an outlier is defined as an individual who responds irrationally to a single question or as an individual who responds irrationally to all questions (J. Hair, et al., 2014). By implementing Tabachnik and Fidell's (1996) z-score approach in SPSS, this study identified the outliers.

4.2.1.3 Data Normality

The scale data were analysed to determine the distribution's normality to satisfy the assumption of the factor analysis as SEM requires that variables be normally distributed (Hair, Sarstedt, Hopkins, & Kuppelwieser, 2014; Kline, 2005). This study used three statistical analyses during this stage: (1) skewness and kurtosis, (2) Kolmogorov-Smirnov, and (3) Mardia's multivariate skewness and kurtosis test (Cain, et al. 2016). To begin, SPSS software was used to determine the data's normality via skewness and kurtosis. When the standard error for each variable was considered, the results indicated that the data distribution was non-normal, with skewness and kurtosis for a few constructs exceeding the recommended threshold of -1 to +1. (Hair, et al., 2014). The mean, standard deviation, skewness, kurtosis, and Kolmogorov-Smirnov values for each variable are summarised in Table 4.1. The Kolmogorov-Smirnov test revealed that all the variables had significant values of 0.000.

Table 4.1
Assessments for Normality Distribution

Constructs	N	Mean	SD	Skewness	Kurtosis	Kolmogorov-Smirnov (Sig.)*
eAD	423	3.9749	0.65516	-0.625	1.753	.000
CV	423	3.9825	0.59665	-0.253	0.354	.000
SC	423	3.6161	0.68285	-0.217	0.271	.000
SP	423	3.9835	0.66348	-0.405	0.420	.000
SI	423	3.4340	0.69690	-0.173	0.316	.000

Finally, like Hair, Hult, Ringle, Sarstedt, and Thiele (2017) and Cain, Zhang, and Yuan (2016) suggested, this study assessed multivariate skewness and kurtosis using the software available at:

https://webpower.psychstat.org/models/kurtosis/results.php?url=fb9771ad65087c96b dc6a3139fa338. The results indicated that the data were not multivariate normal (non-normal): Mardia's multivariate skewness (=10.97421, p.01) and Mardia's multivariate kurtosis (=71.58621, p.01; see Appendix 2). All tests produced consistent results indicating that the assumption of data normality was violated, thereby justifying the use of Smart PLS, a non-parametric analysis software package.

4.2.1.4 Common Method Variance

Finally, the data were examined for possible method variance (CMV). When data are collected via self-reported questionnaires, CMV must be examined, even more so when the predictor and criterion variables are obtained from the same person (Podsakoff, Mackenzie, & Podsakoff, 2016). According to Podsakoff and Todor (2014), "invariably, when self-reported measures from the same sample are used in research, concerns about same-source bias or method variance arise".

The existing literature suggests several ways to address the issue of bias. The degree of CMV infection was determined using a marker variable approach (Lindell & Whitney, 2001). The items were used to create the marker variables from the Lin et al. (2015) study. After introducing marker indicators as an exogenous variable capable of predicting each endogenous construct within the model, this study discovered that all significant effects observed in the model without markers remained significant at the difference of R squared, being less than 10% for all the endogenous variables in the new model with markers (Hock, et al., 2015), corroborating the conclusion that CMV was not a significant issue in this case (Table 4.2).

Table 4.2
Marker Variable for CMV

Endogenous construct	R Squared	
	Without Marker	With Marker variable
Adoption E-wallet	0.51	0.511
Social Influence	0.375	0.414

4.2.2 Respondent Demographic Profile

Although 600 questionnaires were distributed, only 428 were returned, and 423 (70.5 per cent) were usable. According to Table 4.3, 148 (35%) of those interviewed were male, whilst the remaining (65%) were female. 37.6 per cent of the 423 respondents were students who frequently used e-wallets. Another 15.8 per cent of private-sector workers, and 37.1 per cent of public sector workers used e-wallets to pay monthly bills. The remaining respondents were self-employed at 5%, unemployed at 3.1 per cent, and retirees at 1.4 per cent who used e-wallets for their transactions. Additionally, 49.9 per cent of the respondents were aged 20 to 29, indicating that individuals in this age group are increasingly adopting e-wallets. Following that, 4.7 per cent of the respondents were younger than 20, indicating that the majority of today's youth are interested in using their device as an e-wallet. Around 12.3% of the respondents were between the ages of 30 and 39, whilst 19.9% were between the ages of 40 and 49, indicating that they were mature, busy working adults who relied on an e-wallet to pay their bills. The remaining 13.2 per cent were

50 years or older. Additionally, the majority of the respondents (67.8 per cent) possessed a bachelor's degree, indicating that the respondents were concerned about e-wallet adoption. 17.3 per cent of respondents had earned a diploma. 8.5 per cent of all the qualifications were obtained through secondary school education. Around 5.2 per cent of the respondents held a master's degree, whilst 1.2 per cent held a doctorate, indicating that e-wallets are gaining popularity as a method of financial transaction.

Table 4.3
Respondent Profile

Demographic	Frequencies	Percentage (%)
Gender		
Male	148	35
Female	275	65
Age		
Below 20 Years Old	20	4.7
20-29Years Old	211	49.9
30-39 Years Old	52	12.3
40-49 Years Old	84	19.9
50-59 Years Old	53	12.5
Above 60 Years Old	3	0.7
Marital Status		
Single	205	48.5
Married	213	50.4
Diploma	32	22.1
Divorce	5	1.2
Education		
Secondary	36	8.5
Diploma	73	17.3
Bachelor's degree	287	67.8
Master's Degree	22	5.2
PhD	5	1.2
Occupation		
Student	159	37.6
Private Sector	67	15.8
Public Sector	157	37.1
Self-employed	21	5.0
Unemployed	13	3.1
Retired	6	1.4

4.2.3 Construct Type

Multiple items were used to assess each construct in this research model. Before assessing the measurement properties of multi-item constructs, it is critical to properly categorise them as formative or reflective. Misspecification of the measurement model can result in measurement error, which can jeopardise the structural model's validity (Jarvis, MacKenzie, & Podsakoff, 2003). Consistent with prior empirical research, this study conceptualised the multi-item constructs as reflective. The reliability and validity of all reflective constructs were determined using CFA with PLS-SEM.

4.3 Measurement Model Assessment

In this study, the PLS (Smart PLS 3.3.6) approach was used to evaluate the measurement and structural models (Hair, Ringle, & Sarstedt, 2011). This Smart PLS 3.3.6 program evaluates the measurement model's psychometric properties and estimates the structural model's parameters. This measurement model includes four assessment components, as suggested by Henseler, Ringle, & Sinkovics (2009). The analyses include indicators of indicator reliability, internal consistency reliability, convergent validity, discriminant validity, and evaluation of multicollinearity. The following subsections summarise the findings from each of the analyses conducted in this study to determine the validity of the measurement model.

4.3.1 Indicator Reliability

By examining the item loadings, the indicator reliability of the measurement model was determined. Loadings of 0.70 or greater were deemed to be extremely satisfactory (Chin, 1998; Hair, Ringle, & Sarstedt, 2011; and Hanseler, et al., 2009). As shown in Table 4.4, all twenty items in the measurement model had loadings greater than 0.70, ranging from 0.714 to 0.931. These findings indicated that the loadings had a high degree of indicator reliability.

4.3.2 Internal Consistency Reliability

Consistency reliability is a more accurate measure of internal consistency because it considers the standardization of various item loadings when the PLS-Algorithm is used. When the CR of each construct is greater than 0.70, a measurement model has satisfactory internal consistency reliability (Henseler, Ringle, & Sinkovics, 2009). Construct reliability of 0.60–0.70 is considered acceptable for an exploratory study (Hair, Ringle, & Sarstedt, 2011). As shown in Table 4.4, the CR values ranged from 0.909 to 0.953, which is greater than the appropriate value of 0.70. Thus, the results indicated that the items used to represent the constructs were internally consistent and reliable.

4.3.3 Convergent Validity

Convergent validity refers to the amount of variance a construct captures from its related items because of measurement errors (Henseler, et al., 2009). Typically, the convergence validity of a measurement model is determined using the loadings, CR, and AVE (Gholami, et al., 2013). Table 4.4 demonstrates that the loadings for all items in this study were greater than 0.7. Additionally, the CR for all constructs was greater than 0.9, and the AVE values for all constructs ranged from 0.668 to 0.802, exceeding the Hair, Sarstedt, Hopkins, and Kuppelwieser recommended threshold value of 0.50 (2014). The findings indicated that the measurement model possessed sufficient convergent validity.

Table 4.4
Convergent Validity

Constructs	Items	Loadings	CR[a]	AVE[b]
Convenience	CV1	0.826	0.933	0.669
	CV2	0.795		
	CV3	0.832		
	CV4	0.801		
	CV5	0.835		
Security	SC1	0.853	0.938	0.751

	SC2	0.895		
	SC3	0.909		
	SC4	0.874		
	SC5	0.797		
Speed	SP1	0.881	0.953	0.802
	SP2	0.914		
	SP3	0.931		
	SP4	0.917		
	SP5	0.83		
Social Influence	SI1	0.841	0.909	0.668
	SI2	0.852		
	SI3	0.714		
	SI4	0.842		
	SI5	0.828		
E-Wallet Adoption	eAD1	0.814	0.933	0.736
	eAD2	0.882		
	eAD3	0.91		
	eAD4	0.819		
	eAD5	0.859		

[a]Composite reliability = (square of the summation of the factor loadings)/ [(square of the summation of the factor loadings) + (square of the summation of the error variances)]

[b]AVE = (summation of squared factor loadings) / (summation of squared factor loadings) (summation of error variances)

4.3.4 Discriminant Validity

The term "discriminant validity" refers to the degree to which a construct does not correlate with other, dissimilar measures (Hair, et al., 2014). To confirm discriminant validity, this study used Henseler, Ringle, and Sarstedt's (2015) heterotrait-monotrait (HTMT) approach. According to (Henseler, et al., 2015), discriminant validity exists when the correlation coefficient between two constructs is less than one. However, this study used a more conservative cutoff of 0.85, indicating a distinct separation of the constructs (Clark & Watson, 1995; Kline, 2011). If the value exceeds the specified threshold, it indicates that the measurement model has a discriminant validity problem. In contrast, a value less than the specified threshold indicates that the discriminant

validity is adequate, and the testing may proceed to the structural model evaluations. Correlation estimates for the HTMT evaluations are presented in Table 4.5. It demonstrates that the correlation coefficient between the constructs was less than 0.85, indicating that the discriminant validity of the HTMT assessment was met.

Table 4.5
Discriminant Validity HTMT

	Adoption	Convenience	Security	Social Influence	Speed
Adoption					
Convenience	0.737				
Security	0.537	0.621			
Social Influence	0.494	0.563	0.624		
Speed	0.701	0.803	0.615	0.478	

4.3.5 Multicollinearity Assessment

The multicollinearity analysis was used to ensure that the correlation between the exogenous and endogenous constructs was not extremely high; in other words, that they were similar to one another. The variance inflation factor test was used to conduct the analysis (VIF). When the correlation coefficient between an independent and dependent variable is less than 3.3, this indicates that the constructs are free of significant collinearity issues (Hair, et al., 2014). The results of the multicollinearity test are shown in Table 4.6. The VIF results indicated that none of the independent variables (convenience, security, and speed) had a problem with multicollinearity with their respective dependent variables (social influence and E-wallet adoption) as the correlation between the constructs generated VIF values ranging from 1.454 to 2.431, which did not exceed the 3.3 collinearity threshold (Hair, et al., 2014).

Table 4.6
Analysis of Multicollinearity – VIF Values

	Adoption	Convenience	Security	Social Influence	Speed
Adoption					
Convenience	2.431			1.454	
Security	1.846			1.454	

Social Influence	1.600
Speed	2.356

4.4 Structural Model Assessments

After establishing the measurement model's reliability and validity, the research hypotheses are tested. A path diagram is used to test the relationship between the exogenous and endogenous constructs in the structural model. Thus, Hair, Hult, Ringle, and Sarstedt (2014) proposed observing the R^2, beta, and corresponding t-values via a bootstrapping procedure with a 5,000-resample size to evaluate the structural model. The methodology chapter summarised the various aspects and criteria for evaluating a structural model.

4.4.1 Coefficient of Determination

The explained variance was calculated using the R^2 of the endogenous construct. Hair, et al. (2014) defined the R^2 of the endogenous construct as 0.75 for substantial, 0.50 for moderate, and 0.25 for weak. According to Sanchez, et al. (2015), an R^2 value greater than 0.60 indicates a high value, 0.30 to 0.60 indicate a moderate value, and less than 0.30 indicates a low value. As shown in Table 4.7, the R^2 values generated in this study were 0.51 and 0.375, respectively, indicating that convenience, security, social influence, and speed explained 51 per cent of the variance in e-wallet adoption. Furthermore, convenience and security accounted for 37.5 per cent of the variance in social influence. The model's R^2 was moderate, and the model's fit were very satisfactory.

Table 4.7
R^2 in relationship to the exogenous variables and endogenous variables

Relationships of IV→DV	R^2	Adjusted R^2
Convenience → Adoption	0.51	0.505
Security →Adoption	0.51	0.505
Speed →Adoption	0.51	0.505
Social Influence → Adoption	0.51	0.505
Convenience →Social Influence	0.375	0.372
Security →Social Influence	0.375	0.372

4.4.2 Path Coefficient

Each path connecting two constructs in the structural model represented a hypothesis. The structural model analysis enabled the researcher to confirm or refute each hypothesis and gain a better understanding of the strength of the relationship between the independent and dependent variables. The path coefficients for all the variables were determined by comparing their beta β values within the path model. The relationships between the independent and dependent variables were examined using the Smart PLS algorithm output to determine the strength of the relationships, based on the indication that high values indicated the strongest relationships between the exogenous and endogenous constructs.

To determine the significance level, the researchers generated t-statistics for each path using the Smart PLS bootstrapping function. The significance level of each relationship was determined using the t-statistics output. The path coefficients observed, t-statistics, and significance levels for all the hypothesised paths are summarised in Table 4.8. According to Hair, et al. (2014) and Henseler, Ringle, and Sinkovics (2009), acceptable t-values for determining the significance level for the two-tailed test were 1.65 (10 percent significance level at $p<0.10$), 1.96 (5 per cent significance level at $p<0.05$), and 2.58 (1 per cent significance level at $p<0.01$).

Table 4.8
Result of hypotheses tests based on the path coefficients, t-statistics, and p values, and Confidence Interval

Hypotheses	Relationship	Std Beta	Std Error	T-Values	P-Values	LL	UL	Decision
H1	CV →eAD	0.373	0.06	6.2	0	0.261	0.486	Supported
H2	SC → eAD	0.104	0.049	2.134	0.033	0.005	0.192	Supported
H3	SP→ eAD	0.316	0.049	6.403	0	0.213	0.404	Supported
H4	SI → eAD	0.099	0.046	2.172	0.03	0.005	0.183	Supported

Note: two-tailed: *p <0.10 (t ≥ 1.65), **p <0.05 (t ≥ 1.96), ***p <0.01 (t ≥ 2.58)
CV=Convenience, SC=Security, SP=Speed, SI=Social Influence, eAD=E-Wallet Adoption

The path coefficient between the two LVs was calculated to validate the proposed hypotheses and structural model. According to previous research, the path coefficient value had to be at least 0.1 to account for a specific effect within the model (Wetzels, Odekerken-Schröder, & Oppen, 2009; Hair, Ringle, & Sarstedt, 2011). Table 4.8's analysis of the path coefficients demonstrates that all paths supported the hypotheses. Most of the t-values were greater than the minimum threshold for significance, which was at least 0.05 or 5%. (Piaw, 2005). The findings for exogenous variables demonstrate that CV (=0.373, t=6.20, p<0.01), SC (=0.104, t=2.134, p<0.01), SP (=0.316, t=6.403, p<0.01), and SI (=0.099, t=2.172, p<0.01) had significant relationships on e-wallet adoption as the endogenous construct. As a result, the following hypotheses were supported: H1 (CV had a significant effect on e-wallet adoption), H2 (SC had a significant effect on e-wallet adoption), H3 (SI had a significant effect on e-wallet adoption), and H4 (SP had a significant effect on e-wallet adoption).

4.4.3 Mediating Analysis

The direct and indirect relationships between the exogenous and endogenous LVs in a structural model are critical for evaluation (Henseler, et al., 2009). These direct and indirect relationships can be observed by conducting a mediating or moderating analysis. This section will examine the mediating relationships between the exogenous and endogenous LVs. This section has evaluated the indirect effect of the mediating analysis. This analysis was conducted in accordance with the guidelines established by Zhao, et al. (2010), who discussed the various forms of mediation and non-mediation. This study employed the bootstrapping indirect effect. Bootstrapping is a form of nonparametric resampling that has been recognised as a more rigorous and powerful technique for determining the mediating effect (Hayes, 2009; Shroud & Bolger, 2002; and Zhao, et al., 2010). Additionally, Zhao, et al. (2010) classified mediation types using a, b, and c coefficients. Without the mediator, there is no requirement that the independent variable (X) have a significant effect on the dependent variable (Y). In other words, mediation does not require a statistically

significant total effect (c). Additionally, there are instances in which the aggregate effect is negligible but evidence of mediation is present. This is frequently the case when the independent variable (X) has a small effect on the dependent variable (Y), but the a and b effects are substantial. However, this result explains the existence of a relationship between X and Y theoretically. Additionally, Zhao, et al. (2010) were more concerned with the significance (as determined by bootstrapping) and the magnitude of the indirect effect (effect size).

Table 4.9
Result of Hypotheses of Social Influence as Mediator

Hypotheses	Relationship	Std Beta	Std Error	T-Values	P-Values	LL	UL	Decision
H4a	CV →SI → eAD	0.028	0.013	2.08	0.038	0.005	0.059	Supported
H4b	SC → SI → eAD	0.04	0.02	2.01	0.045	0.003	0.081	Supported

Note: two-tailed: *p <0.10 (t ≥ 1.65), **p <0.05 (t ≥ 1.96), ***p <0.01 (t ≥ 2.58)
CV=Convenience, SC=Security, SP=Speed, SI=Social Influence, eAD=E-Wallet Adoption

The bootstrapping analysis revealed that the indirect effect = 0.028(0.282 * 0.099) was significant with a t-value of 2.08 for the first relationship between convenience and e-wallet adoption mediated by social influence. Additionally, as Preacher and Hayes (2008) noted, the indirect effect (0.028, 95 pe rcent confidence interval [CI]: [LL = 0.005, UL = 0.059]) did not straddle a 0, indicating a mediation effect. The second relationship between security and e-wallet adoption mediated by social influence revealed a significant indirect effect = 0.04(0.409 * 0.099) with a t-value of 2.01. Similarly, as Preacher and Hayes (2008) demonstrated, the indirect effect (0.04, 95 per cent confidence interval [CI]: [LL = 0.003, UL = 0.081]) did not straddle a 0, indicating a mediation effect. By and large, the findings in Table 5.13 indicate that the mediation effect was statistically significant, confirming that H4a (the relationship between convenience and e-wallet adoption is significantly mediated by social influence) and H4b (the relationship between security and e-wallet adoption is significantly mediated by social influence) were supported.

4.5 Summary

The factors influencing e-wallet adoption were investigated using smart PLS. The analysis of the measurement and structural models has revealed a few annotations. The analysis revealed that the measurement model's reliability and validity measures were satisfactory. All constructs had CR values greater than 0.7 in terms of internal consistency. All item loadings exceeded 0.7 and were statistically significant at the 0.001 level, indicating indicator reliability. Additionally, the measurement model demonstrated satisfactory convergent and discriminant validity, as indicated by an AVE value greater than 0.50, the loading of all apparent variables on their respective LV, and the square roots of the AVE for each construct being greater than the inter-correlation for that construct.

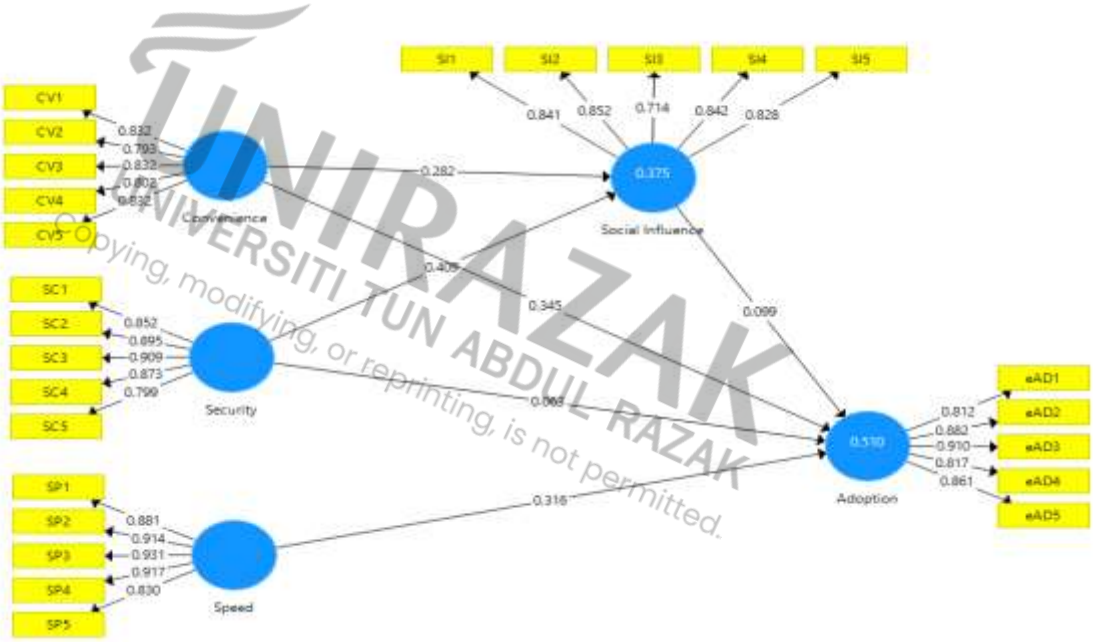
The structural model's validation yielded satisfactory results. The endogenous variable (e-wallet adoption) had a significant R2 of 45.5 per cent, indicating strong explanatory power. Additionally, Table 4.10 demonstrates that each of the four (4) proposed paths within the structural model was supported. According to the path coefficient analysis, the proposed relationships had a value greater than 0.1 and were statistically significant at the 0.01 level.

Additionally, the confidence intervals for all the hypotheses did not include zero (0), indicating a significant effect. In terms of variance inflation factors (VIF), all the constructs had values less than 5. (Ringle, et al., 2015). The constructs were not multicollinear. Finally, the structural model identified two significant mediating relationships between an endogenous variable and two exogenous variables. Social influence acted as a mediator between convenience and e-wallet adoption, as well as between security and e-wallet adoption. The following chapter summarises the major findings and discusses the conclusion and recommendation of the thesis considering the obtained data. In this study, Table 4.10 summarises the results of the hypothesis tests for the direct and indirect relationships between the exogenous and endogenous variables. The structural model of the relationships between the exogenous, mediator, and endogenous variables is depicted in Figure 4.1.

Table 4.10
Summary of Hypotheses Results (Direct Relationship)

Hypotheses	Relationship IV → DV	Std Beta	Std Error	T-Value	P-Value	LL	UL	VIF	R^2	Decision
H1	CV → eAD	0.373	0.06	6.200	0.001	0.261	0.486	2.431	0.51	Supported
H2	SC → eAD	0.104	0.049	2.134	0.033	0.005	0.192	1.846	0.51	Supported
H3	SP→ eAD	0.316	0.049	6.403	0.001	0.213	0.404	2.356	0.51	Supported
H4	SI → eAD	0.099	0.046	2.172	0.03	0.005	0.183	1.600	0.51	Supported
H4a	CV →SI → eAD	0.028	0.013	2.08	0.038	0.005	0.059			Supported
H4b	SC → SI → eAD	0.04	0.02	2.01	0.045	0.003	0.081			Supported

Figure 4.1
Results of the Structural Model



CHAPTER 5

CONCLUSION AND RECOMMENDATION

5.1 Introduction

This chapter will focus on providing detailed statistical analysis in order to validate the hypotheses supported by the processed data collected in the preceding chapter. Additionally, the statistical research findings are discussed in terms of the analysis's limitations and future research recommendations.

5.2 Contribution of the Study

The current study used a survey-based methodology and discovered a significant correlation between convenience, security, speed, and E-wallet adoption. The purpose of this research was to assist entrepreneurs in determining whether or not to operate and provide E-wallet services through their businesses. This is the first study to examine whether social influence acts as a moderator between convenience and E-wallet adoption, as well as between security and E-wallet adoption.

5.3 Discussion of Major Findings

Table 5.1
Discussion of major findings

No	Independent Variable	Hypothesis	Findings
1	Convenience	H0: There is no significant relationship between convenience and E-wallet adoption. H1: There is a significant relationship between convenience and E-wallet adoption.	α: 0.05 P-value = 0.001 (<0.01) Reject H0 There is a significant relationship.
2	Security	H0: There is no significant relationship between security and E-wallet adoption. H2: There is a significant relationship between security and E-wallet adoption	α: 0.05 P-value = 0.033 (<0.05) Reject H0 There is a significant relationship.
3	Speed	H0: There is no significant relationship between speed and E-wallet adoption. Hp3: There is a significant relationship between speed and E-wallet adoption	α: 0.05 P-value = 0.001 (<0.01) Reject H0 There is a significant relationship.

4	Social Influence	H0: There is no significant relationship between social influence and E-wallet adoption. H4: There is a significant relationship between social influence and E-wallet adoption	α: 0.05 P-value = 0.03 (<0.01) Reject H0 There is a significant relationship.
5	Social Influence as mediator between convenience and E-wallet Adoption	H0: Social influence does not mediate the relationship between convenience and E-wallet adoption. H4a: Social influence mediates the relationship between convenience and E-wallet adoption.	α: 0.05 P-value = 0.038 (<0.01) Reject H0 There is a significant relationship.
6	Social Influence as mediator between security and E-wallet Adoption	H0: Social influence does not mediate the relationship between security and E-wallet adoption. H4b: Social influence mediates the relationship between security and E-wallet adoption.	α: 0.05 P-value = 0.045 (<0.01) Reject H0 There is a significant relationship.

H0 was rejected for convenience because its P-value (0.000) was less than 0.05. The result demonstrates that convenience had a significant relationship with E-wallet adoption. If an E-wallet is more convenient or simple to use, its adoption rate increases, and vice versa. Bezhovski (2016) asserted that consumer adoption of electronic payment methods is primarily motivated by convenience. Convenience is defined as the convergence of fundamental consumer needs, technological advancements, and user experience. Consumers have developed a trusted habit of using electronic payments as the technology advances and the method becomes more convenient.

Furthermore, for security, H0 was deemed insecure due to its P-value (0.033), which was less than 0.05. This finding emphasises the critical link between security and E-wallet adoption. In other words, the security of an E-wallet will influence consumers' decisions to use it. In other words, the consumer's choice of an E-wallet will be influenced by the E-wallet's security. Teoh, et al. (2013) substantiated this conclusion. Similarly, they investigated the factors that influence Malaysians' perceptions of electronic payments. They discovered that consumers' perceptions of security and trust are unimportant. This is because the respondents became increasingly aware of the security measures taken by numerous financial institutions. Additionally, financial institutions would warn consumers on a regular basis and keep them informed of any frauds. It increased consumer trust in the payment channel. As a result, consumers are disinclined to adopt E-payment due to security concerns.

As for speed, H0 was also excluded because its P-value was less than 0.05 (0.001). The result indicates that speed and E-wallet adoption were significantly correlated. If the E-wallet's speed is increased, the rate of usage will also increase, and vice versa. For example, the E-wallet's speed capacity should be increased above and beyond the capacity of traditional payment methods, as customers dislike waiting and wasting time on redundant and mundane tasks (Chen and Nath, 2008; Dewan and Chen, 2005). Rapid integration of new technologies enables rapid integration with established systems and processes, enabling rapid response to customer needs and expectations (Roozbahani, et al., 2015).

Lastly, for social influence, H0 was ruled out as having social influence due to its P-value being less than 0.05, which was 0.03. This demonstrates that social influence had a significant effect on the intention to adopt an E-wallet. Social influence also mediated the relationship between convenience and E-wallet adoption and security and E-wallet adoption. The conclusion is that the influence of friends, colleagues, and others influenced E-payment adoption significantly.

5.4 Implication of the Study

Prior to concluding the study, some pertinent issues will be discussed regarding the study's implications for financial institutions and software development companies, which will assist them in identifying potential issues that consumers may encounter when using an e-wallet. The study will aid financial institutions and software development firms in identifying and comprehending the areas that require improvement in order to successfully enhance electronic wallets in Malaysia. This chapter discusses the theoretical and practical implications, as well as the limitations. Additionally, suggestions for future research and development are considered, followed by a conclusion to the research.

5.4.1 Theoretical Implication

This study contributes significantly to the literature on the technology acceptance model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT) by empirically validating an integrated research model. This study developed a theoretical framework to guide the independent, mediating, and dependent variables' paths. The integration of multiple constructs resulted in the development of a single model.

5.4.2 Practical Implication

The research has a number of practical implications. To begin, this study raises awareness of E-wallet usage amongst the Klang Valley residents. Second, this study serves as a wake-up call to financial institutions and businesses that use e-wallet services, highlighting the difficulties faced by their customers when interacting with their e-wallet services.

Moreover, this study serves as a valuable resource for future research on mobile payments. Additionally, technology should be upgraded to increase the level of convenience, security, and speed available to customers so they can use the services more frequently. Financial institutions should acknowledge the issues that their customers face in order to retain them and also to attract new customers who can begin using their E-wallet services without worrying about late fees or insufficient security.

5.5 Limitation of the Study

This study was limited to the selected respondents in the Klang Valley Malaysia; thus, the feedback of customers in other states was not considered. The study was also limited to causal research. As the results were aimed to investigate the strength of the relationships between the constructs, they might not be applicable to support other related models. Last, the study was a self-report study, where the assessment was performed individually by the same respondents on

the constructs used in the study. Self-reporting requires each respondent to answer the questionnaires based on his or her own personal knowledge and judgment for the specific study. For this current study, investigating convenience, security, speed, social influence, and E-Wallet adoption by a single respondent would lead to social expectations. The E-wallet service provider might have biased perceptions toward their customers because they are from a different range of age and their standard of living also differs. Therefore, the E-wallet service provider should identify the customers who are frequently using their product and get responses from their loyal customers to minimise the social desirability bias. Reversed scored items could also minimise this bias (Podsakoff, Mackenzie, & Podsakoff, 2012).

5.6 Recommendations of the Study

After a number of constraints were examined throughout the process, there are some suggestions and recommendations that future scholars can use to address the limitations. To begin, future studies should broaden the generations and ages of the target respondents. Future researchers are encouraged to compare the usage of e-wallets with the third world countries and to include gender and age variables as moderators which influence the relationships between the predictor and explanatory variables. The underdeveloped countries may face with varying levels of exposure to technology, particularly financial technology, such as E-wallet services. According to Rogers (1962), there are various types of adopters, including innovators, early adopters, early majority, late majority, and laggards. Innovators are risk takers who are willing to invest in a newly developed product, whereas laggards are the last to adopt a newly developed product. As a result, the factors affecting the E-wallet adoption may vary across countries and the demographic groups.

5.7 Conclusion

The purpose of this study has been to ascertain the level of E-wallet adoption amongst customers in Malaysia's Klang Valley. Convenience, security, and speed were investigated as factors in E-wallet adoption, with social influence serving as a mediating variable. A total of 600 questionnaires were distributed, and 428 questionnaires were returned. The Statistical Package for the Social Sciences (SPSS) and PLS-SEM 3.2.6 software was used to analysze all the data collected via questionnaires. This study achieved its research objective by examining the factors influencing E-wallet adoption and the mediating role of social influence on E-wallet adoption in Malaysia's Klang Valley. As a result, this chapter presents the conclusion based on the findings from the entire research process. Numerous studies have revealed that E-wallet adoption is influenced by convenience, security, and speed (Yang, et al., 2021; Abdullah, et al., 2020; Ariffin, et al., 2020; and Odoom & Kosiba, 2020). On the basis of the overall findings in Chapter Four, it can be concluded that E-wallet adoption is influenced by convenience, security, and speed. Additionally, this study concluded that social influence does play a role in customers' decisions to prioritise convenience and security over other factors when it comes to adopting E-wallet services.

The results and findings of this research may provide facility providers and entrepreneurs with guidelines for providing more efficient services. Additionally, existing business owners can focus on elements that will improve E-wallet services, whilst future entrepreneurs can gain an understanding of what consumers desire in an E-wallet. Additionally, financial institutions can enhance the speed and convenience of transactions to increase consumer interest in adopting E-wallets. They will be able to improve their ability to compete with others in the market as a result of this.

Whilst the COVID-19 pandemic has wreaked havoc on the country's economy, it has also created favourable conditions for certain industries to grow and thrive. One such industry is the e-wallet industry, which is expected to grow in importance as the need for contactless payment increases. Even in the absence of COVID-19, Malaysia's e-wallet market was already primed and ready for rapid growth, owing in part to the region's favourable demographics and the government's numerous initiatives aimed at achieving a cashless society. Overall, the researchers of this study believe that the industry will continue to grow from here, which is great news for consumers, who now have a wider variety of e-wallets to choose from. Future studies can use this research as a reference point for conducting their own research.

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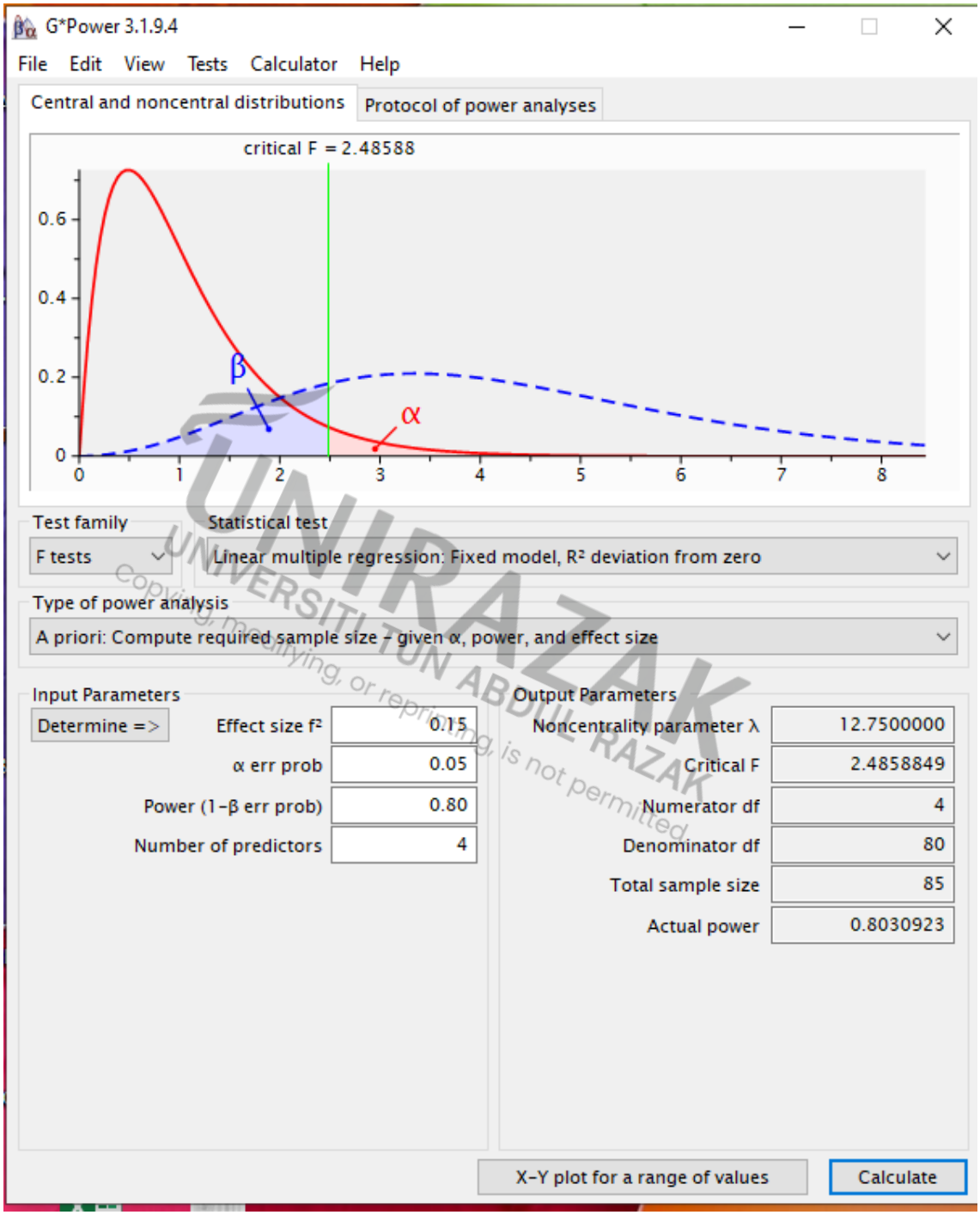
APPENDICES

APPENDIX A



APPENDIX B

WebPower

Statistical power analysis online

Output of skewness and kurtosis calculation

```
Sample size:  423
Number of variables:  5

Univariate skewness and kurtosis
                Skewness SE_skew Z_skew Kurtosis SE_kurt Z_kurt
Adoption          -0.737   0.119 -6.210    2.152   0.237  9.090
Convenience       -0.465   0.119 -3.918    1.263   0.237  5.333
Security          -0.408   0.119 -3.440    0.824   0.237  3.478
Social.Influence  -0.375   0.119 -3.163    0.735   0.237  3.104
Speed             -0.643   0.119 -5.418    1.291   0.237  5.451

Mardia's multivariate skewness and kurtosis
                b         z p-value
Skewness 10.97421 773.68167       0
Kurtosis 71.58621  44.96852       0
```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APPENDIX C

Questionnaire

Please tick (√) the following answer box for each question.

1. Are you using a smartphone?
   - ɾ Yes
   - ɾ No

2. Do you consider using E-wallet (e.g. E-wallet, AliPay, WechatPay, SamsungPay) in thefuture?
   - ɾ Yes
   - ɾ No

Section A: Demographic Profile

1. Gender
   - ɾ Male
   - ɾ Female

2. Age
   - ɾ 19 years old and below
   - ɾ 20 - 29 years old
   - ɾ 30 - 39 years old
   - ɾ 40 - 49 years old
   - ɾ 50 - 59 years old
   - ɾ 60 years old and above

3. State
   - ɾ Northen Region (Perlis, Kedah, Penang, Perak)
   - ɾ East Coast Region (Kelantan, Terengganu)
   - ɾ Southern Region (Negeri Sembilan, Melaka, Johor)
   - ɾ Central Region (Selangor, Kuala Lumpur, Pahang)
   - ɾ East Malaysia (Sabah, Sarawak)

Section B

Please indicate your degree of agreement on the following statements by circling the numbers given ranging from:

Strongly Disagree = 1, Disagree = 2, Neutral = 3, Agree = 4, Strongly Agree =5

Dependent Variable – ***Adoption of E-wallet***

	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
AD1	E-wallet can substitute the cash-based payment method.	5	4	3	2	1
AD2	E-wallet can support the existing payment method	5	4	3	2	1
AD3	Using E-wallet is beneficial.	5	4	3	2	1
AD4	Using E-wallet is wise.	5	4	3	2	1
AD5	Using E-wallet is interesting.	5	4	3	2	1

Independent Variable

(i) Convenience

	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
CV1	E-wallet are easy to use	5	4	3	2	1
CV2	Ensures access of account when abroad	5	4	3	2	1
CV3	Convenient to use while on travel	5	4	3	2	1

CV4	I would find a mobile payment procedure to be flexible to interact with	5	4	3	2	1
CV5	Using mobile payment would make me perform my financial transactions more quickly	5	4	3	2	1

(ii)Security

	Statement	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
SE1	Satisfied with the security system	5	4	3	2	1
SE2	E-wallets keep customers information private and confidential	5	4	3	2	1
SE3	Customers' financial information are protected	5	4	3	2	1
SE4	It keeps my payment credentials secure	5	4	3	2	1
SE5	Wallets ensure protection against risk of fraud and financial loss	5	4	3	2	1

(iii) Speed

	Statement	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
SP1	I believe that using E-wallet will improve the speed of transaction	5	4	3	2	1
SP2	Transactions will be faster compared to traditional payment methods	5	4	3	2	1
SP3	It will save my time for using E-wallet payment system	5	4	3	2	1
SP4	Using E-wallet can get quick response	5	4	3	2	1

SP5	No waiting time/delay	5	4	3	2	1

Moderator - Social Influence

	Statement	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
SI1	People who influence my behavior think that I should use mobile payment.	5	4	3	2	1
SI2	My friends think that I should use mobile payment.	5	4	3	2	1
SI3	Using mobile payment is considered a status symbol among my friends.	5	4	3	2	1
SI4	People who are important to me expect meto use mobile payment technology.	5	4	3	2	1
SI5	People who are important to me are likely to recommend using mobile paymenttechnology	5	4	3	2	1

- End of Questionnaire –

APPROVAL PAGE

TITLE OF PROJECT PAPER: FACTORS AFFECTING THE E-WALLET ADOPTION IN A CASHLESS SOCIETY

NAME OF AUTHOR : NIZAR BIN MISBAH

The undersigned certify that the above candidate has fulfilled the conditions of the project paper prepared in partial fulfilment for the degree of Master of Business Administration.

SUPERVISOR

Signature : _____

Name :

Date :

ENDORSED BY

_____

Dean

Graduate School of Business

Date: