WHEN WALLET FUSES INTO SMARTPHONE: HOW DO CONSUMERS RESPOND?

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DECLARATION

We hereby declare that:

(1) This undergraduate research project is the end result of our own work and that due acknowledgement has been given in the references to ALL sources of information be they printed, electronic, or personal.

(2) No portion of this research project has been submitted in support of any application for any other degree or qualification of this or any other university, or other institutes of learning.

(3) Equal contribution has been made by each group member in completing the research project.

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LIST OF ABBREVIATIONS

B2C	Business- to- Consumer
BI	Behaviour Intention
DV	Dependent Variable
EE	Effort Expectancy
FC	Facilitating Conditions
Gen Y	Generation Y
HM	Hedonic Motivation
HT	Habit
IV	Independent Variable
MRA	Multiple Regression Analysis
MW	Mobile Wallet
MWSP	Mobile Wallet Service Provider
NFC	Near Field Communications
PE	Perceived Enjoyment
PE	Performance Expectancy
PEOU	Perceived Ease of Use
PLR	Partial Least Regression
PU	Perceived Usefulness
PV	Price Value
SEM	Structural Equation Modelling
SI	Social Influence

TAM	Technology Acceptance Model
UTAUT	Unified Theory of Acceptance and Use of Technology
UTAUT2	Unified Theory of Acceptance and Use of Technology 2

PREFACE

Nowadays, smartphones are smart enough to supplant a conventional wallet. Most people especially Gen Y may accept new and advanced mobile technologies – MW due to their abundant use of mobile services and devices. Moreover, there is huge potential to implement MW in Malaysia because of establish a mobile digital wallet system is one of the projects of Digital Malaysia. Smartag Solutions Berhad was corporated with Samsung Malaysia Electronic Sdn. Bhd. and Malaysian Electronic Clearing Corporation Sdn. Bhd. to set up a trusted NFC platform in Malaysia. Hence, the issue of BI of Gen Y to adopt MW would be a fascinating topic for depth investigation.

ABSTRACT

This research aims to investigate the determinants affecting the adoption of MW in Malaysia by using UTAUT2. Moreover, this study is an empirical study and the data was gathered from 418 Gen Y through self-administered and online survey. Research questions presented in this study will be tested by using MRA. The results indicated that PE, EE, FC, HM, and HT are positively associated to Gen Y's BI to adopt MW in Malaysia. However, SI and PV are not the main determinants influencing Gen Y to adopt MW. Finally, this research will provide useful insights and thorough understanding of Gen Y's BI on adoption MW for mobile service providers and other businesses operating in Malaysia on the new alternative payment method.

CHAPTER 1: RESEARCH OVERVIEW

1.0 Introduction

Chapter 1 aims to discuss the background and identified problem statement of this study, clarify the research questions and objectives, and list out the significance of study.

1.1 Research Background

NFC which is a contactless communication technology had become a trend and gained popularity among the mobile devices in recent years (Ondrus & Pigneur, 2007). Major mobile devices manufacturer like Samsung, HTC, Nokia and Sony are actively employing NFC technology into their new generation mobile devices (Du, 2013).

Innovated NFC-based technology was introduced to public resulted from the rising trend of NFC (Du, 2013). MW is one of such technology. It supplants a conventional wallet (Shin, 2009), allowing people to store their identification cards such as driving license, insurance cards, loyalty cards, passport, credit and debit cards that can be

encrypted, as well as personal items like pictures and shopping lists in their smartphone (Olsen, Hedman, & Vatrapu, 2012; Shin, 2009). People can refer these items ubiquity via MW, without bringing those physical documents in their wallet. They also can save their digital receipts and coupons, manage loyalty program rewards and location-based offers as well as support electronic ticket sales and transfer (First Data Corporation, 2012).

MW was also considered a novel payment solution (Amin, 2009), where consumers are able to make payment in retail stores simply by touching their smartphone against the contactless payment symbol on the payment terminal (Curran, Millar, & Garvey, 2012). They just have to launch MW application and enter pin codes before making payment as shown in Appendix A (First Data Corporation, 2012).

MW has been implemented in Japan, South Korea and United States (U.S.). For instance, Osaifu-Keitai (Ondrus & Pigneur, 2007) and Mobile Suica (Amoroso & Magnier-Watanabe, 2012) in Japan, ZOOP in South Korea (Chen & Adams, 2004) and Google Wallet in U.S. (First Data Corporation, 2012). However, MW is not launched in Malaysia yet (National digital economy initiative, 2013).

MW as an innovative technology perfectly suits Gen Y - a technological savvies group (Benckendorff, Moscardo, & Pendergast, 2010) born in year 1980 to 1994 (Chung & Holdsworth, 2012; Kim & Hahn, 2012). Therefore, understanding the desire of Malaysia's Gen Y is critical due to their abundant use of mobile services and devices (Kim & Hahn, 2012).

This research used a new theoretical framework - UTAUT2 (Venkatesh, Thong, & Xu, 2012) to examine Gen Y's BI to adopt MW in Malaysia, since it was specifically

proposed to explain the technology acceptance and use from consumers' perception. UTAUT2 grants some benefits over UTAUT with the incorporation of additional constructs which supports mainly to its adaptation to consumers' acceptance of technology.

1.2 Problem Statement

Evolvement of technology has largely changed the payment landscape in Malaysia. The existence of smartphone has sharpened the consumers' awareness on the convenientness of advancement technology brings, which will eventually raise their expectation for a more efficient payment services (Wong, 2013). M-payment has emerged as the most popular payment methods recently (Wong, 2013). Meanwhile, mobile penetration rate in Malaysia had achieved 132.93% in 2012 as shown in Appendix B (Mobile penetration rate, 2012) showing the usage of mobile phone has been growing rapidly in recent years. Therefore, there is a huge potential for MW as the evolved m-payment to be implemented in Malaysia.

Moreover, developing an established mobile digital wallet system is one of the projects of Digital Malaysia, which was an exclusive program that advocates digital economy by 2020 (National digital economy initiative, 2013). In year 2012, Smartag Solutions Berhad cooperated with Samsung Malaysia Electronics Sdn. Bhd. and a subsidiary owned by Bank Negara Malaysia - Malaysian Electronic Clearing Corporation Sdn. Bhd. by signing Memorandum of Understanding to establish a trusted NFC platform in Malaysia as illustrated in Appendix C and D (Smartag, 2012; Smartag, 2012). Although there is a huge potential of adopting MW in Malaysia, yet

the public awareness of MW is still low and NFC system is remain under development (National digital economy initiative, 2013).

Past research on acceptance of MW had been carried out in developed countries such as Canada (Shaw, 2014) and U.S. (Shin, 2009). The researchers claimed that the readiness and acceptance of MW were the main factors of successfully implemented MW system. Nonetheless, these past studies were limited by geographical constraints as they only focused on consumers in Canada and U.S. It was rare to find a detailed MW study in Malaysia. Most of the previous studies in Malaysia focused on adoption of other mobile related technologies such as mobile credit card (Tan, Ooi, Chong, & Hew, 2014), mobile entertainment (Leong, Ooi, Chong, & Lin, 2013), mobile commerce (m-commerce) (Chong, Chan, & Ooi, 2012) and mobile coupons (Jayasingh & Eze, 2009).

Amin (2009) had studied on the drivers of adoption on MW in Sabah by using TAM model. This past study only focused on the bank users. However, his definition of MW was only limited to transaction-based. According to Swartz's study (as cited in Amin, 2009), MW is a payment method through mobile devices. Although MW has not been universally defined, its functions are way more than transactions. The study did not truly reflect the acceptance of MW of bank customers, but focused more on m-payment which is one of the functions of MW. Thus, there is an imperative to conduct a research to determine the determinants of consumers' BI on adoption of MW in Malaysia.

1.3 Research Objectives and Questions

Table 1.1 General Objective and General Question of This Study.

General objective	General question
1. This study is to investigate the determinants of Gen Y's BI on MW adoption in Malaysia.	1. What are the determinants of Gen Y's BI on MW adoption in Malaysia?

Source: Formulated for this research

Table 1.2 Specific Objectives and Specific Questions of This Study.

Specific objectives	Specific questions
1. This study is to examine the relationship between **PE** in UTAUT2 towards Gen Y's BI on MW adoption in Malaysia.	1. Is there any relationship between **PE** in UTAUT2 towards Gen Y's BI on MW adoption in Malaysia?
2. This study is to examine the relationship between **EE** in UTAUT2 towards Gen Y's BI on MW adoption in Malaysia.	2. Is there any relationship between **EE** in UTAUT2 towards Gen Y's BI on MW adoption in Malaysia?
3. This study is to examine the relationship between **SI** in UTAUT2 towards Gen Y's BI on MW adoption in Malaysia.	3. Is there any relationship between **SI** in UTAUT2 towards Gen Y's BI on MW adoption in Malaysia?

4. This study is to investigate the relationship between **FC** in UTAUT2 towards Gen Y's BI on MW adoption in Malaysia.	4. Is there any relationship between **FC** in UTAUT2 towards Gen Y's BI on MW adoption in Malaysia?
5. This study is to investigate the relationship between **HM** in UTAUT2 towards Gen Y's BI on MW adoption in Malaysia.	5. Is there any relationship between **HM** in UTAUT2 towards Gen Y's BI on MW adoption in Malaysia?
6. This study is to investigate the relationship between **PV** in UTAUT2 towards Gen Y's BI on MW adoption in Malaysia.	6. Is there any relationship between **PV** in UTAUT2 towards Gen Y's BI on MW adoption in Malaysia?
7. This study is to investigate the relationship between **HT** in UTAUT2 towards Gen Y's BI on MW adoption in Malaysia.	7. Is there any relationship between **HT** in UTAUT2 towards Gen Y's BI on MW adoption in Malaysia?

Source: Formulated for this research

1.4 Significance of the study

Throughout the study, no detail study on the adoption of MW in Malaysia was found. Therefore, this research provides basis and act as a reference for the future

researchers. Research model of this study is adapted from UTAUT2 which was developed by Venkatesh et al. in 2012. UTAUT2 is the latest model used to test consumers' intention to adopt technology. Consequently, this research will be the first to investigate the consumers' BI on MW adoption in Malaysia by using UTAUT2.

To the society, this research provides knowledge and better understandings on the functions of MW. Videos and diagrams will be shown to the target respondents throughout the survey process to help them understand better about MW. It illustrates the users that even in-store payment can be made by scanning their smartphone through a terminal, which will indirectly encourage them to adopt this technology. Thus, it may improve consumers' living standards and simplify their live.

Up till today, the MW system in Malaysia is far lag behind compared with Japan and Korea. Samsung, as one of the leading smartphone manufacturer had launched their Samsung wallet earlier and the applications can be downloaded from Google Play Store. Besides, Samsung gained the majority mobile market share in Malaysia as per reported in the Star and CNBC (Lim, Han, & Chan, 2013; Naidu-Ghelani, 2013) and also collaborated with Smartag Solutions Berhad to establish a NFC market in Malaysia (Smartag, 2012), thereby it was believed that Samsung will be the first mover to implement MW in Malaysia. To the practitioners, this research provides a deeper understanding on consumers' BI on MW adoption in Malaysia as it is the main components of successfully implemented MW system (Shaw, 2014; Shin, 2009). It will encourage more potential MWSPs to implement this innovative technology and thereby a reform payment services will be enhanced, indirectly contribute to the economic growth in Malaysia.

1.5 Chapter Layout

Chapter one illustrates the rationale to conduct this study, followed by chapter two which presents the theoretical foundation - UTAUT2, review of past studies, proposed research model as well as hypothesis development. Chapter three will proceeds with the methods of conducting this research. Then, the result of data analysis will be elucidated in chapter four. Finally, chapter 5 will discuss the discussion of major findings, implications, limitation and suggestion for future research.

1.6 Conclusion

The rationale to conduct this research had been discussed in this chapter. The next chapter will illustrate the relevant literature review.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

After explained the intention to conduct this research in Chapter 1, this chapter aims to outline the theoretical foundation of this study – UTAUT2, and its application. Relevant empirical studies had been review to hypothesize the relationship of IVs and DV; following by an establishment of proposed conceptual framework to depict their relationship.

2.1 Review of the Literature

2.1.1 Performance Expectancy

Venkatesh, Morris, Davis, and Davis (2003) mentioned that PE reflects user's perception of performance improvement while Davis, Bagozzi, & Warshaw (1989) defined PE as the extent to which an individual believes that his or her job performance will be better by using an information system. Once

individuals use it and they found out that information systems are able to improve their performance, then they will continue the usage (Zhou, 2011).

Jaradat and Al Rababaa (2013) had studied the factors (PE, EE, SI and FC) affecting consumers' acceptance and usage of m-commerce in Jordan. 447 sets of data were collected from undergraduate students studying in public universities of Jordan through survey questionnaires. SEM and PLR techniques were used to analyse the data and result showed that PE was positively correlated with consumers' acceptance and usage of m-commerce in Jordan.

Fuksa (2013) had investigated the connection between PE and consumers' BI to use mobile internet in Latvia by disseminating 2000 questionnaires via internet. The data was analyzed with correlation analysis and concluded that PE was significantly related to consumers' BI to use mobile internet.

Lu, Yu, and Liu (2009) had gathered 1320 sets of data via survey questionnaires in order to examine the users' decision pattern of 3G mobile data service acceptance in urban China. The data was tested with SEM technique and hierarchical multiple regression. The results concluded that PE was important in affecting consumers' BI to use 3G mobile data service.

In the study of Thomas, Singh, and Gaffar (2013), the relationship between PE and BI to adopt mobile learning (m-learning) in Guyana was being examined. A total of 322 data were obtained through web survey and tested by using SEM. The result indicated that PE had a significant positive effect towards m-learning adoption in Guyana.

Alkhunaizan and Love (2012) had examined UTAUT model, trust and cost that affect the consumers' BI towards the adoption of m-commerce within Saudi Arabia. The survey data was collected via online and self-administered questionnaires from 574 smartphone users. By using MRA, the result revealed that PE had the strongest impact on citizen's adoption and usage of m-commerce services in Saudi Arabia.

2.1.2 Effort Expectancy

Several information system researchers had evaluated that EE can be determined as PEOU in information system (Venkatesh et al., 2003). When users realized that information systems are easy to use, it may contribute to users' higher expectations towards acquiring the expected performance (Zhou, Lu, & Wang, 2010). Not only that, some researchers perceived that electronic presentations through the information system may help in their decision making process (Banker, Chang, & Kao, 2002).

Yang and Zhou (2011) had done an investigation to explore American young consumers' attitude and BI to use mobile viral marketing by collecting data via online survey questionnaires from 440 college students. The results, which were tested with Pearson's correlation, MRA and SEM, had concluded that there was a strong relationship between EE and their intention of sharing information.

A study to examine the linkage between EE and users' BI to use m-learning in Taiwan had been carried out by Wang, Wu, and Wang (2009). The researchers had distributed 330 self-administered survey questionnaires to undergraduate students from 5 universities of Taiwan. The data was tested by using squared multiple correlations comparison and the results showed that there was a linkage between EE and users' BI to adopt m-learning.

Furthermore, Peng, Xu, and Liu (2011) had carried out a study on the drivers and barriers (PE, EE, SI, and FC) in the acceptance of m-payment in China. Data was obtained through self-administration survey questionnaires, whereby 186 students had responded. This study concluded that there was no relationship among EE for users to accept and adopt m-payment after that data was tested by using regression analysis and chow test.

Moreover, Jayasingh and Eze (2009) had done an investigation to explore the factors (PU, PEOU, compatibility, SI and perceived credibility) affecting the acceptance of mobile coupons in Malaysia. The researchers distributed 1000 questionnaires via self-administration and 781 data was valid. The data was tested by using estimated measurement parameters (paths) and the results showed that there was a significant effect between EE and users' BI to adopt mobile coupons in Malaysia.

Bere (2014) had done a study to explore the potential determinants (PE, EE, SI, student-centric learning and HM) that affects the m-learning adoption in South Africa. The questionnaires were distributed to students in the University of Technology in South Africa via self-administration to 196 respondents. This study concluded that EE had positive effect on BI to use m-learning after tested that data by using MRA.

2.1.3 Social Influence

Venkatesh and Davis (2000) mentioned that SI is a process from subjective norm, voluntariness as well as image. Nysveen, Pedersen, Thorbjornsen, and Berthon (2005) had evaluated that those who are regarded as important people for an individual will affect the individual's BI through their perceptions. SI also had been defined as "the individual's internalization of the reference group's subjective culture and specific interpersonal agreements that the individual has made with others in specific social situations" (Thompson et al., 1991).

Shin (2009) had done an investigation to examine consumers' BI to use MW by distributing online questionnaires to high schools, undergraduate college and graduate college students. 296 of them had responded. After tested with Pearson correlation analysis and SEM, the results concluded that SI was insignificant to influence consumers' adoption of MW.

Lu (2014) had evaluated the criticalness of personal innovativeness and SI to determine the continuance usage of m-commerce. A total of 323 data, which was collected from graduate and undergraduate students via online and offline classes in a regional university, was tested by using SEM technique. The results indicated that SI had less influence on mobile users' towards continuous usage intentions of m-commerce.

Furthermore, Leong et al. (2013) had investigated the association between PEOU, SI, perceived self-efficacy, PU and perceived enjoyment towards consumers' BI to adopt mobile entertainment in Malaysia. The data was

drawn from 638 mobile device users through face-to-face administration. The result reflected that there was a significant influence of SI towards consumers' BI to use mobile entertainment after the data tested with SEM technique.

Yang and Forney (2013) had examined the moderating role of consumer technology anxiety in mobile shopping adoption by using UTAUT model and draw attention on FC and SI. 400 sets of data was distributed to mobile service users who drawn from a marketing research company via online survey. The hypothesized relationships are tested by using SEM and it concluded that SI had positively relationship with BI to use mobile shopping.

A study done by Carlsson, Carlsson, Hyvonen, Puhakainen, and Walden (2006) to examine the adoption of mobile devices or services in Åland island. The questionnaires were distributed via email to 300 Finnish consumers while 157 respondents took part. The result showed that SI was insignificant to consumers' adoption of mobile devices or services.

2.1.4 Facilitating Conditions

FC is defined as the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system (Venkatesh et al., 2003). In addition, Park, Yang, and Lehto (2007) defined FC as how people believe that the existed technical infrastructures able to insist them to use the system when required. According to Lu, Liu, Yu,

& Yao (2014), FC was technology factors and availability of resources such as money needed and time that may inhibit usage.

PU, PEOU, SI, FC, security risk and privacy risk were examined by Thakur and Srivastava (2013) in customer usage intention of m-commerce in India, particularly on working professionals. Data was obtained through distribution of 292 sets of online structured questionnaires. SEM technique was used for research model testing and FC was found to be insignificant in customer usage intention of m-commerce.

Chong (2013) had studied on the determinants that can predict the adoption of m-commerce in China by adapting UTAUT model with perceived value, perceived enjoyment, trust and personal innovativeness. 140 online surveys were obtained from China users through Chinese social media. The data was tested by using neural network analysis and FC was found to be insignificant with m-commerce adoption in China.

Moreover, Yang (2010) had investigated hedonic PE and UTAUT model on US consumers' intentions to use mobile shopping services. The researcher drawn a sample of 400 mobile services users from purchased consumer panel participated in the online survey. SEM technique was used to test the data and the results showed that FC of mobile shopping services usage was critical to the adoption of mobile shopping service.

Nassuora (2013) had evaluated the acceptance of higher education students on m-learning in Saudi Arabia. 80 questionnaires were collected from students at Al-Faisal University. It had been proved that FC had significant influence on

the attitude of higher education students to adopt m-learning by using squared multiple regression.

Chang (2013) had studied the impact of the constructs in UTAUT model (PE, EE, SI and FC) on users' BI to adopt library mobile applications in university libraries. 363 set of data was gathered from undergraduate and graduate students via self-administered online questionnaires. SEM technique was used to analyse the data and found that there was a positive relationship between FC with users' BI on adopting library mobile applications.

2.1.5 Hedonic Motivation

HM refers to the happiness and enjoyment of participants during knowledge sharing (Liao, To, & Hsu, 2013). HM is also defined as fun or pleasure derived from using a particular technology (Venkatesh et al., 2012). According to Hirschman and Holbrook (1982), HM refers to fun, fantasy, arousal, sensory stimulation, and enjoyment.

Chong and Ngai (2013) had evaluated the constructs in UTAUT2 model that influence travellers' adoption of location-based social media services for their travel planning by collecting 200 surveys from respondents in shopping malls located in Zhejiang Province of China. PLR was applied in the analysis of data. Results showed that HM had positive relationship with the actual use of the system.

Arenas-Gaitán, Ramirez-Correa, Rondan-Cataluña, and Alfaro-Perez (2013) had conducted a study to find out the variances of mobile internet services adoption on a sample of Chilean mobile internet users. Data was collected via face-to-face survey on 501 mobile internet users. Kruskal-Wallis one-way analysis of variance showed that there was a significant difference between the scores in men and women in HM. HM was positively related to the female users' intention to use mobile internet.

Ney (2013) had investigated the concept of UTAUT2 model on willingness of retailers adopting mobile smartphone applications for customer relationship management. Data was collected from the retailers in Netherlands by conducting survey and analysed using hierarchical regression analysis. The results showed that customers' HM had a positive link with the retailers' intention to use this system.

Additionally, Chong (2013) had examined the association of perceived enjoyment and consumers' intention on m-commerce adoption. A total of 376 surveys were obtained from m-commerce users in two universities located at Zhejiang Province, China. SEM and neural network were used to interpret the data. The result showed that perceived enjoyment had a positive relationship with m-commerce adoption.

Chong (2013) had studied on continuance usage intentions of Chinese consumers in m-commerce by using expectations-confirmation model, PEOU, trust, perceived enjoyment and perceived cost. Data was gathered from 410 students at 5 universities in China who experienced using m-commerce. SEM was employed to analyse the data and proved that perceived enjoyment significantly influence on consumers' continuance intention in m-commerce.

2.1.6 Price Value

The concept of perceived value was suggested by Dodds et al. (1991) whereby PV was defined as consumers' cognitive trade-off between the perceived benefits and the monetary cost of using the applications. According to Kuo, Wu, and Deng (2009), monetary and quality perceived value represents the difference of money paid with the actual value, together with the quality of product while Zeithaml (1988) assumed that ratio of perceived benefits to perceived cost was involved in consumer's assessment (as cited in Lin & Wang, 2006).

Kuo et al. (2009) conducted a study with the purpose of investigating the relationships among perceived value, service quality and mobile value-added services. The questionnaires were distributed to 1484 respondents in 15 selected universities. SEM technique and MRA were used for data analysis purpose. The result of this study indicated that perceived value, which including price and quality, had the largest positive influence on post-purchase intention of mobile value-added services.

Deng, Mo, and Liu (2014) had done a study to examine consumers' adoption of mobile health services in China. A total of 424 data was collected from middle-aged or older group mobile users in Wuhan, a central Chinese city via face-to-face interview and questionnaires distribution. The data was analyzed with SEM and independent samples t-test. The result reflected that perceived value, which including the relative benefits and associated costs, significantly affected the BI of middle-aged and older users in adopting mobile health services.

A study with the purpose to investigate the determinants of consumer loyalty in m-commerce contexts, particularly on perceived value, customer satisfaction, trust and HT, was done by Lin and Wang (2006). The questionnaires were distributed to 255 respondents from two universities, three high-tech companies and one insurance firm in Taiwan. The data was analyzed with SEM and the result showed that perceived value, which involved a consumer's assessment of the ratio of perceived benefits and perceived costs, had a strong positive impact on both customer loyalty and customers' satisfaction.

Turel and Serenko (2006) performed a study on identifying the consumers' satisfaction with mobile services in Canada. A total of 210 data, which analyzed using SEM and PLR, was collected from Canadian mobile phone users via questionnaires distribution. The result proved that there was a positive connection between perceived value and customer satisfaction with mobile services.

Wang and Wang (2010) conducted a study with the intention to examine a newly designed research model to test the elements that will influence individual perception on adopting mobile hotel reservation services. 235 valid responses were collected in Taiwan via internet survey and data was analyzed with SEM approach. The study showed that perceived value has a positive and significant relationship with BI.

2.1.7 Habit

According to Venkatesh et al (2012), HT is comprised of automaticity perspective and instant activation perspective, of which the two perspectives were opposed to one another. In addition, HT, as mentioned by Kim, Malhotra, and Narasimhan (2005) was identified with automaticity whereas Limayem, Hirt, and Cheung (2007) defined HT as the extent to which individual tends to perform behaviours automatically due to learning and prior experiences in the context of information system usage.

Phan and Daim (2011) performed a study to examine the effect of HT on the adoption of mobile services. Methods used to distribute questionnaires to 15 professional workers or university graduates, whom has at least one mobile device, includes phone, email and face-to-face. The researchers used analytical hierarchical process and cluster analysis to analyze the data and the result from the study tells that among the factors tested by Phan and Daim, HT significantly influence the attitude toward using a mobile service.

Dlodlo and Mafini (2013) conducted a study with the purpose of studying the relationship between usage frequency of m-commerce and acceptance of technology amongst Gen Y users. Regression analysis was used to assess the predictive validity of the scale. 204 respondents from a university in Gauteng Province, South Africa participated in the study and the result was there was a positive relationship in between m-commerce acceptance and the frequency of m-commerce technology used.

Zhong, Dhir, Nieminen, Hämäläinen, and Laine (2013) conducted a study with the purpose to investigate the relationship of payment HT and consumers' m-payment adoption. SEM technique was used to analyse the collected data. 365 of 431 respondents participated in the study and the study showed that consumers' e-payment HT was one of the factors that will determine the adoption of m-payment.

Teo and Pok (2003) conducted a study to determine the adoption of WAP-enabled mobile phones among internet users. The study involved 1085 respondents but only 1012 responses were valid. Data was collected with online questionnaires sent to newsgroups, forums, and e-mail to individual and was analysed with SEM technique. The result showed attitude has a positive relationship with BI and it significantly influence BI.

Park and Kim (2014) conducted a study to identify and investigate factors that contribute to shape perceptions and attitude of the users towards mobile cloud computing services. SEM analysis was used to analyse 1099 samples that were collected from internet survey and the results showed that attitude towards mobile cloud services positively affect the user's intention to use the service.

2.2 Review of Relevant Theoretical Models

One of the theoretical models for studying individuals' intentions to adopt a technology is UTAUT2.

Table 2.1 Introduction for UTAUT2 Model

UTAUT2
UTAUT2 was formulated by Venkatesh et al. in 2012. It was an extension of the Unified Theory of Acceptance and Use of Technology (UTAUT) model, by adding three cores constructs particularly HM, PV and HT to determine information system adoption and diffusion.

UTAUT2 was developed through the review and integration of eight dominant models (Venkatesh et al., 2003; Venkatesh et al., 2012) as shown in the Table 2.2 below.

Table 2.2 Review of Eight Dominant Models that Resulted in UTAUT2

Model	Description
Theory of Reasoned Action (TRA)	TRA is a model originated from the field of psychology to predict moral behaviour of individual (Vallerand, Deshaies, Cuerrier, Pelletier, & Mongeau, 1992). According to the developer of TRA - Fishbein and Ajzen (as cited in Venkatesh et al., 2003), TRA examines consumers' attitude towards behaviour and subjective norm.
Technology of Acceptance (TAM)	TAM was developed by Davis in 1986 to explain and predict users' adoption of information technology (Legris, Ingham, & Collerette, 2003). Individual's behavioural intention to accept a system is decided by two factors, which are PU and PEOU (Venkatesh & Davis, 2000).
Motivational Model	Lee, Cheung, and Chen (2005) explained that extrinsic motivation and intrinsic motivation are predictors of individual's behavioural intention to use an information system. From an extrinsic motivational perspective, behaviour is driven by

	specific rewards or goal, while intrinsic motivation relates to satisfaction from acting the behaviour (Vallerand, 2004).
Theory of Planned Behaviour (TPB)	TPB was developed from TRA and formulated by Ajzen in 1991 by inserting the construct of perceived behavioural control to influence behaviours (Armitage & Conner, 2001). Perceived behavioural control refers to individual's perception of the ease of difficulty of performing the behaviour (Ajzen, 1991).
Combination of TAM and TPB	This model joined the predictors of TPB or TRA with PU from TAM to provide a model (Taylor & Todd, 1995).
Model of PC Utilization (MPCU)	MPCU was formulated by Thompson, Higgins, and Howell (1991) to predict PC usage behaviour. This model consist of six core constructs as the determinant of intention and behaviour such as job-fit, complexity, long term consequences, affect towards use, social factors and FC (Venkatesh et al., 2003).
Innovation Diffusion Theory (IDT)	IDT was drawn from the field of sociology (Venkatesh et al., 2003). Moore and Benbasat (1991) adapted and refined the characteristics of innovation introduced by Rogers in 1983 to examine individual technology acceptance.
Social Cognitive Theory (SCT)	According to Venkatesh et al. (2003), SCT has become one of the most influential theory in human behaviour area, which proposed by Bandura in 1986. It is a useful theoretical framework to understand and examine why individuals adopt certain behaviour (Ratten & Ratten, 2007).

2.2.1 UTAUT2 – Variables and Definition

Table 2.3 demonstrates all the constructs in UTAUT2 with its definition. The proposed model of UTAUT2 was depicted in Appendix E.

Table 2.3 Definition of Constructs in UTAUT2

Independent Variables	Definition
PE	The extent to which using a technology will provide advantages or improvements to users in performing particular activities (Venkatesh et al., 2003).
EE	The easiness level accompanying by consumers' use of a technology (Venkatesh et al., 2003).
SI	The level to which consumers' friends and family will influence them to use a certain technology (Venkatesh et al., 2003).
FC	Consumers' point of view towards the support and resources available to perform specific behaviour (Venkatesh et al., 2003).
HM	The enjoyment or pleasure resulted from using a particular technology (Brown & Venkatesh, 2005).
PV	Consumers' cognitive trade-off between the monetary cost of using a technology associated with its benefits (Dodds, Monroe, & Grewal, 1991).
HT	The degree to which people tend to execute behaviours automatically due to learning (Limayem et al., 2007).

Behavioural Intention	An individual's subjective possibility of acting a specified behaviour, and is the key factor of actual usage behaviour (Ajzen, 1985).
Use Behaviour (UB)	Also known as usage behaviour, of which it is a direct role of behavioural intention (Taylor & Todd, 1995).

2.2.2 Use of UTAUT2 on Other Area

UTAUT2 is gradually being adapted or adopted by researchers to determine the consumers' use and acceptance context of technology in different areas of studies. For instance, Martins (2013) adapted UTAUT2 in his dissertation study on music context to examine individuals' BI and to adopt online music services; Escobar-Rodr ́guez and Carvajal-Trujillo (2014) had adapted UTAUT2 in their research to analyse the consumers' acceptance and use of low-cost carrier electronic commerce websites to buy flight tickets; while Slade, Williams, and Dwivedi (2013) adapted an extension of UTAUT2 in their research towards the significance of age by using thematic analysis to explore public acceptance and adoption of mobile information technology for healthcare purposes.

2.2.3 Application of Theory – UTAUT2

There are a few reasons why this study recognizes UTAUT2 to be a more suitable research model to determine the factors affecting adoption of MW

instead of TAM, UTAUT or any other relevant research models. TAM and UTAUT were proposed to study the elements which impact employees' acceptance and use of technology in an organizational context rather than to explicitly explain the technology acceptance and use from the consumers' point of view (Venkatesh et al., 2003; Escobar-Rodr ́guez, Carvajal-Trujillo, & Monge-Lozano, 2014); while UTAUT2 was specifically proposed to explain the technology acceptance and use from the customer's perspectives (Venkatesh et al., 2012).

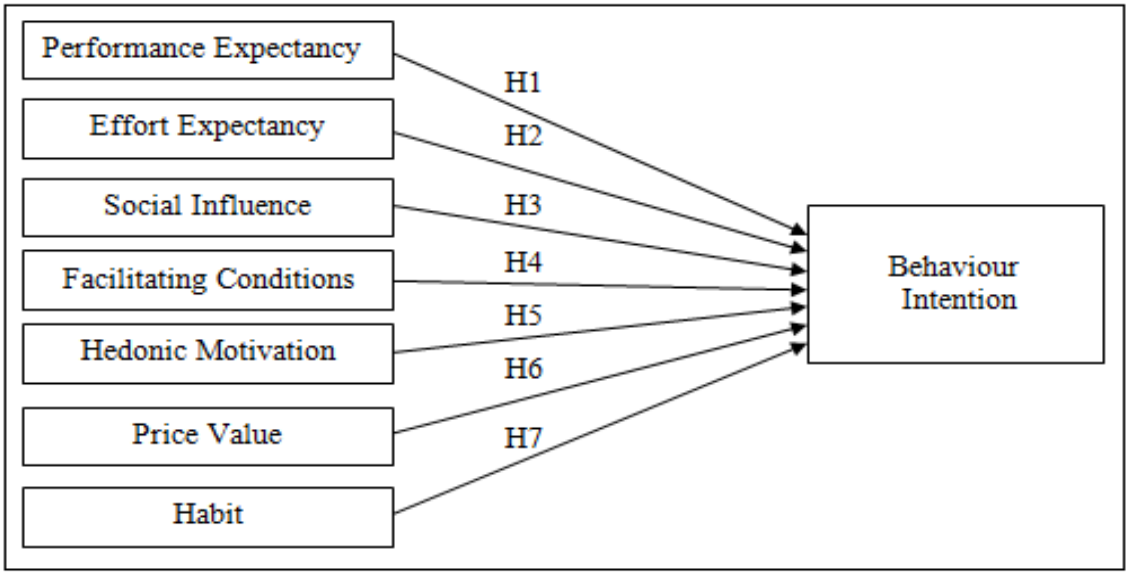
According to Alawan, Dwivedi, and Williams (as cited by Venkatesh et al., 2003; 2012), UTAUT2 is an extension of UTAUT, where UTAUT was known as the most inclusive and predictive model to test consumers' use and acceptance context of technology. Thus, UTAUT2 was believed to be the current, latest and most comprehensive research model to determine the technology acceptance and use from the customer's point of view.

Besides retaining core constructs in UTAUT, UTAUT2 consists of additional constructs to improve the quality of UTAUT, particularly HM, PV, and HT, which resulting in seven core determinants (refer Appendix E) of examining consumers' use and acceptance context of technology. Therefore, all the constructs in UTAUT2 are believed to be important because each of it will directly influence the consumer's BI on adoption of MW. Thus, all the constructs in UTAUT2 will be the IVs for this study.

2.3 Proposed Theoretical/ Conceptual Framework

Diagram 2.4 represents the research model of this study, which was adapted from UTAUT2 (Venkatesh et al., 2012).

Diagram 2.4 shows the research model of this study



Adapted from: Venkatesh et al., 2012

2.4 Hypotheses development

H1: There is a positive relationship between PE and Gen Y's BI to adopt MW in Malaysia.

H2: There is a positive relationship between EE and Gen Y's BI to adopt MW in Malaysia.

H3: There is a positive relationship between SI and Gen Y's BI to adopt MW in Malaysia.

H4: There is a positive relationship between FC and Gen Y's BI to adopt MW in Malaysia.

H5: There is a positive relationship between HM and Gen Y's BI to adopt MW in Malaysia.

H6: There is a positive relationship between PV and Gen Y's BI to adopt MW in Malaysia.

H7: There is a positive relationship between HT and Gen Y's BI to adopt MW in Malaysia.

2.5 Conclusion

Review of the past empirical studies was provided and subsequently, the proposed conceptual framework and relevant hypotheses were established in this chapter. An outline of the research methodology which clarifies the method to conduct the study will be included in Chapter 3.

CHAPTER 3: METHODOLOGY

3.0 Introduction

In chapter 3, elaboration on the research methodology will be performed in five sections which included research design, data collection method, sampling design, research instrument, variables measurement, data processing, and techniques to analyze the data.

3.1 Research Design

This is a deductive research and cross-sectional study, combining exploratory and descriptive study with quantitative data. According to Couper (1998), data collected can be analyzed with computer to assist the researchers in capturing varieties of processed data (as cited in Heeringa & Groves, 2006). Mohl and Laflamme (2007) also mentioned that data collection is the key component in the survey process. Analysis of generated data will explain the relationship between the IVs and the MW adoption among Gen Y. In order to display quantitative research analysis, questionnaires will be distributed to Gen Y in Malaysia. This study used survey data collection method as it allowed gathering of more data and information from a large sample size of a population (Saunders, Lewis, & Thornhill, 2012) as well as information from large amount of target respondents in different geographical areas

(Sekaran, 2003). Surveys will be distributed via internet and self-administration in order to collect sufficient information.

3.2 Data Collection Methods

3.2.1 Primary data

The questionnaires were distributed through face-to-face and online administration via drive.google.com. A video demonstration of MW was shown to target respondents before they answer the questionnaires. Closed-ended questions were designed for this study's questionnaire by using 5-point Likert scale. 550 sets of questionnaires were distributed throughout Malaysia and an estimation of 400 valid survey questionnaires will be collected.

3.3 Sampling Design

3.3.1 Target Population

The target population for this study was Gen Y in Malaysia who own smartphone.

3.3.2 Sampling Elements

Sampling elements of this study were Gen Y smartphone users in Malaysia whom aged between 20 to 34 years old. Gen Y occupied around 37% of Malaysia's population in year 2013 (Department of Statistics Malaysia, 2014). They grow in an entirely online environment and had extensively used mobile phones, personal computers and internet from an early age (Constantine, 2010). Therefore, Gen Y was the most qualified respondents in this study.

3.3.3 Sampling Technique

Sampling is needed to represent Malaysia's Gen Y population. Sample offers representative look of the total population in small scale (Sekaran & Bougie, 2010). This study adopted non-probability sampling technique since the size of Gen Y is unknown and therefore difficult to establish sampling frame (Choong, Keh, Tan, Lim, & Tho, 2013). More specifically, a convenience sampling was used to select the sample of Gen Y. According to Roberts-Lombard's study (as cited in Chigamba & Fatoki, 2011), subjects are selected due to convenient accessibility and approachability to the researcher as well as cost effectiveness and time savings, which is more likely to ensure a high participation rate of public (Jaafar & Tudin, 2010). Other researchers (Amin, 2008, 2009; Peng, Xiong, & Yang, 2012) also employed the same technique to study the individual's acceptance behaviour in mobile technologies.

3.3.4 Sample Size

Hinkin (1995) recommended that an appropriate sample size can be estimated by item-to-response ratios range from 1:4 to 1:10 for each set of variables. 1:4 indicates that for every 1 item, 4 respondents are needed. 35 items were used to develop 8 variables in this study, thus, at least 140 respondents would be needed for data collection. Hence, 400 sample size for this study was considered sufficient. Furthermore, it also achieved the minimum requirement of 1 IV to 10 sample (1:10) as recommended by Hair, Black, Babin, and Anderson (2010).

3.4 Research Instrument

Pilot testing was conducted on 31st March 2014, of which 30 sets of questionnaires were distributed among UTAR students in order to ensure the applicability and appropriateness of survey questionnaire (Burns, Duffett, Kho, Meade, Adhikari, Sinuff, & Cook, 2008). According to Collins's study (as cited in Burns et al., 2008), pilot testing may increase the reliability of questionnaire by reducing the opportunity of target respondents misinterpreting questions and failure to justify what was required by the questions.

3.5 Constructs Measurement

All survey items were adapted from previous studies (refer to Appendix H). A scale defined as any series of items that arranged progressively according to value or magnitude (Thanasegaran, 2009). Nominal, ordinal and interval measurements scales will be used to measure the items in this research (refer to Appendix G).

3.5.1 Independent Variables

Gen Y's BI on adoption of MW was evaluated by the 7 IVs adapted from UTAUT2. Items of each constructs in this study were adapted from Peng et al. (2011), Tan, Chong, Ooi, and Chong (2010) and Venkatesh et al. (2012). The seven IVs asked in questionnaire, particularly consisting five items on PE, four items on EE, six items on SI, six items on FC, four items on HM, three items on PV and four items on HT, totalling 35 items in this study. Sample items include: "Once consumer use MW, they may enjoy hassle-free shopping experience" (PE), "The level of easiness to use will affect consumers' adoption of MW (EE), "Environment factors will affect consumers' use of MW" (SI), "Availability of resources such as smartphone will influence consumers' use of MW" (FC), "Consumers' enjoyment will affect their adoption of MW" (HM), "Price worthiness of MW services will influences consumers' adoption of MW" (PV), and "Consumers' frequency to use MW" (HT). Interval scale measurement was employed to measure the IVs by using 5-point Likert scale, ranging from strongly disagree (1) to strongly agree (5).

3.5.2 Dependent Variables (DV)

All three items of DV asked in questionnaire were taken from Peng et al. (2011). Responses to these items were evaluated with 5-point Likert scale, ranging from strongly disagree (1) to strongly agree (5).

3.6 Data Processing

3.6.1 Data Checking

Data checking can enhance the quality of the collected data as it can identify the invalid questionnaires such as incomplete questionnaires and unqualified respondents.

3.6.2 Data Editing

Data editing was conducted to withdraw the inappropriate questionnaire from the collected data before the data was analyzed. Among 550 questionnaires, 250 were distributed through face-to-face and the remaining via internet, but only 493 were returned. Out of the total 493 sets, 75 sets of questionnaires were invalid for this study, remaining 418 valid questionnaires. Therefore, the total response rate of this study was 76%.

3.6.3 Data Coding

SAS Enterprise Guide 5.1 was used in this study for data coding and analysis. For instance, gender of respondent was coded "1" and "2", representing male and female accordingly. While in section B, "1" for strongly disagree; "2" for disagree, "3" for neutral, "4" for agree, and "5" for strongly agree.

3.7 Data Analysis

3.7.1 Descriptive Analysis

Descriptive statistics have been used for demographic analysis of the target respondents which contained frequency and percentage of the population (Washington, Karlaftis, & Mannering, 2010). Additionally, central tendency, particularly mean, mode and standard deviation were applied to examine the conclusions and significance of the findings (Lodico, Spaulding, & Voegtle, 2010).

3.7.2 Scale Measurement

3.7.2.1 Normality Analysis

In order to ensure data is normally distributed and fulfill the normality assumption, normality analysis was conducted. According to Ghasemi

and Zahediasl (2012), skewness and kurtosis refer to the shape of data distribution, which may deviate from normal. The results of each item must be within the absolute value of ±1 (Ghasemi and Zahediasl, 2012), while Kline (2011) mentioned that it must be ranged between ±3 to satisfy the assumptions of multivariate model. Positive value represent the data are more peaked than a normal distribution and vice versa (Osborne, 2010).

3.7.2.2 Reliability Test

Reliability assessment was tested using Cronbach's alpha to measure internal consistency for all constructs, ranging from 0 to 1 (Tavakol & Dennick, 2011). According to Fornell and Larcker (1981), a Cronbach's alpha of 0.50 or higher is considered as acceptable value for internal consistency of the measures (as cited in Tanakinjal, Deans, & Gray, 2010). Liu and Li (2010) and Ha, Yoon, and Choi (2007) also mentioned that value which is greater than 0.6 would indicates a sound reliability level.

3.7.2.3 Validity Test

According to Bharati and Chaudhury (2004), content validity is an essential requirement and must be tested before further statistical analysis (as cited in Lee, Leong, Hew, & Ooi, 2013). It refers to the

level of representativeness and comprehensiveness of an item and thus, items in this research were adapted from previous researches in order to ascertain the validity of content (Tan et al., 2014). All items of questionnaires were adapted from Peng et al. (2011), Tan et al. (2010), as well as Venkatesh et al. (2012).

3.7.3 Inferential Analysis

The inferential analysis of this study included Pearson correlation and MRA, which can be used to investigate the connections between two or more variables and compare samples to examine their potential differences (Marshall & Jonker, 2011). Generally, inferential statistics permits the discovery of significant variances in variables that are relevant to a particular research question (Marshall & Jonker, 2011).

3.7.3.1 Pearson Correlation Analysis

Pearson correlation was used to measure the linkage between IVs and DV as Pearson's correlation coefficient (r) can assess the strength of connections between two variables (Saunders et al., 2012). According to Marshall and Jonker (2011), the r value should range within ±1, whereby -1 indicates a perfect inverse relationship and +1 reflects a perfect positive relationship. The r value is 0 if two variables are unrelated (Marshall & Jonker, 2011).

3.7.3.2 Multicollinearity Analysis

Kumari (2008) stated that correlation coefficient value should be less than 0.8 to prevent multicollinearity problem between IVs. Multicollinearity among IVs was tested using tolerance value and variance inflation factor (VIF). Multicollinearity threats occur when tolerance value is less than 0.10 and the IV is having VIF value that is greater than 10 (Sekaran & Bougie, 2010).

3.7.3.3 Multiple Regression Analysis

MRA allows researchers to examine the roles of multiple IVs towards a single DV (Nathans, Oswald, & Nimon, 2012). Beta weights for each IV were interpreted to measure the importance of variable (Zientek, Carpraro, & Capraro, 2008). It provides an initial ranking of IVs' contributions to a MRA equation (Nathans et al., 2012). Therefore, it was suitable to apply in this study as there were 7 IVs and 1 DV in the conceptual framework.

In order to examine the relationship between IVs, it was tested by the following equation,

Table 3.1: Multiple Regression Equation Model

$\mathbf{BI = \alpha + \beta 1PE + \beta 2EE + \beta 3SI + \beta 4FC + \beta 5HM + \beta 6PV + \beta 7HT + \varepsilon}$

Whereby,

BI	=	Consumer's Behavior Intention On MW Adoption
α	=	Constant Coefficient
PE	=	PE
EE	=	EE
SI	=	SI
FC	=	FC
HM	=	HM
PV	=	PV
HT	=	HT
β1… β7	=	Regression Coefficient for PE, EE, SI, FC, HM, PV, and HT
ε	=	Error Term

3.8 Conclusion

This chapter mentioned about the methodologies use in this study. Chapter 4 will analyse the data by using SAS Enterprise Guide 5.1. In order to have a clearer understanding on the results, this chapter will be presented in table form.

CHAPTER 4: DATA ANALYSIS

4.0 Introduction

Research methodology had been explained in Chapter 3. This chapter will illustrate the results generated from the survey which mainly consists of descriptive analysis and inferential analysis. The statistic results are yielded using SAS Enterprise Guide 5.1.

4.1 Pilot Test Analysis

Pilot test was tested for the reliability and normality of each variable, through the pre-testing of 30 sets surveys that had been distributed to UTAR students.

4.1.1 Normality Test

Normality test had been performed on the pilot test data. Skewness and kurtosis value were generated and shown in Table 4.1. The rule of thumb for skewness and kurtosis value were ±3 respectively as recommended by Kline (2011). Based on the table below, it was concluded that the pilot data was normally distributed.

Table 4.1: Normality Test on Pilot Test

Variables	Number of Items	Skewness	Kurtosis
PE	PE1	0.2014	-0.4528
	PE2	0.0033	0.2289
	PE3	-0.2466	-0.0026
	PE4	0.4301	-1.9499
	PE5	-0.6993	0.7040
EE	EE1	0.2014	-0.4528
	EE2	-0.6392	0.5692
	EE3	0.2221	-0.0853
	EE4	-0.5171	-0.2522
SI	SI1	0.6972	0.1810
	SI2	0.0883	0.1873
	SI3	-0.2703	-0.6526
	SI4	0.3550	0.2933
	SI5	0.2107	-0.7212
	SI6	0.7019	1.3143
FC	FC1	-1.2235	0.7949
	FC2	-0.2320	-0.0430
	FC3	0.0674	-0.1785
	FC4	-0.2103	-0.2343
	FC5	0.4064	0.1483
	FC6	0.0594	0.1911
HM	HM1	0.0503	-0.6986
	HM2	0	-2.1481
	HM3	-0.6350	-0.4528
	HM4	-0.4220	0.0416
PV	PV1	0.8820	-0.1684
	PV2	0.1408	-2.1269

	PV3	0.6993	0.7040
HT	HT1	-0.3353	-0.3694
	HT2	-0.6118	0.2368
	HT3	0.2103	-0.2343
	HT4	-0.2081	-0.6518
BI	BI1	-0.0125	-0.1684
	BI2	-0.7865	2.0086
	BI3	-0.5409	0.5646

Source: Formulated for the research

4.1.2 Reliability Test

Reliability test had been conducted by showing the Cronbach's alpha value for IVs and DV. Fornell and Larcker (1981) stated that Cronbach's alpha at a level of 0.50 or higher was an acceptable level of reliability. As shown in Table 4.2, all variables fulfilled the criteria which the Cronbach's alpha value was higher than 0.50

Table 4.2: Reliability Test of Pilot Test Data

Variables	Number of Items	Cronbach's Alpha
PE	5	0.5140
EE	4	0.7444
SI	6	0.7887
FC	6	0.7301
HM	4	0.7441
PV	3	0.6291
HT	4	0.8255
BI	3	0.6586

Source: Formulated for the research

4.2. Descriptive Analysis

4.2.1 Demographic Profile of the Respondents

493 sets of data were collected out of 550 surveys distributed, contributing to 89.60% response rate. However, there was only 418 sets of valid data.

Table 4.3 Target Respondents Demographic Profile

Profile	Categories	Frequency	Percentage (%)
Gender	Male	137	32.78
	Female	281	67.22
Age	20 years-24 years	322	77.03
	25 years-29 years	75	17.94
	30 years-34 years	21	5.02
States	Johor	19	4.55
	Kedah	104	24.88
	Kelantan	6	1.44
	Malacca	13	3.11
	Negeri Sembilan	9	2.15
	Pahang	23	5.50
	Penang	65	15.55
	Perak	56	13.40
	Perlis	4	0.96
	Sabah	13	3.11
	Sarawak	7	1.67
	Selangor	78	18.66

	Terengganu	4	0.96
	Wilayah Persekutuan	17	4.07
Highest Level of Education	High School Graduate	65	15.55
	Diploma/ Advanced Diploma	128	30.62
	Bachelor Degree	216	51.67
	Master	2	0.48
	PHD Degree	3	0.72
	Others	4	0.96
Duration of using Smartphone	2 years or less	173	41.39
	3 to 5 years	190	45.45
	More than 5 years	55	13.16
Occupation	Student	269	64.35
	Employed for Wages	91	21.77
	Self-employed	16	3.83
	Professionals	38	9.09
	Currently Unemployed	2	0.48
	Others	2	0.48
Respondent Industry	Audit/ Accounting/ Taxation/ Management Consulting	110	26.32
	Banking	37	8.85
	Construction	8	1.91
	Education	88	21.05
	Manufacturing	34	8.13
	Telecommunication	35	8.37
	Trading	26	6.22
	Others	80	19.14
Monthly Income	Less than RM 1000	256	61.24
	RM 1001- RM 2000	41	9.81

	RM 2001- RM 3000	63	15.07
	RM 3001- RM 4000	28	6.70
	RM 4001- RM5000	14	3.35
	Above RM 5001	16	3.83

Source: Formulated for the research

Table 4.3 shows the demographic information of the survey's target respondents. There were 418 respondents, consisting of 137 male respondents and 281 female respondents. Majorities of the respondents are from Kedah and Selangor. however there are only 4 respondents from both Perlis and Terengganu. 77.03% of total respondents are aged between 20-24 years old. Moreover, the analysis also indicated that occupation status of respondents correspond well with the age group. Most of the respondents were students which amounting to 269 respondents, followed by employed for wages, 91 respondents.

Besides, mode of education level among respondents located on bachelor degree which consists of 216 respondents, followed by diploma or advanced diploma holder, 128 respondents. These data shall have sufficient supports with the mode of the age group in this study were between 20-24 years old. Furthermore, the results also shows that all target respondents in this study own a smartphone. 45.45% of the respondents owned 3-5 years experiences of using smartphone.

4.2.2 Central Tendencies Measurement of Constructs

The mean range for the tested variables were PE (3.4904 – 3.8373), EE (3.5957 – 3.8110), SI (2.7321 – 3.3756), FC (3.2034 – 3.7990), HM (3.5287 – 3.6986), PV (3.2727 – 3.3995), HT (2.7919 – 2.8756), and BI (3.2464 – 3.8182). These indicated that most of the items in the variables were mostly neutral and agreed by the respondents while those items with means from 2.7321 to 2.9999 had a tendency towards disagree.

Meanwhile, the lowest standard deviation was 0.7409, positioned at the variable of PV (PV 1) whilst the highest standard deviation value is 1.0960, located at the variable of HT (HT 2), indicating that the standard deviation for all variables were below than 1.10.

Table 4.4: Mean and Standard Deviation of This Study

Research Constructs and Research Items		Mean	Standard Deviation
Performance Expectancy			
PE 1	I think MV is useful for me to buy products or services.	3.7129	0.8588
PE 2	I think MW makes it easier for me to buy products or services.	3.8373	0.8001
PE 3	I think MV saves time for me to buy products or services.	3.8014	0.8202
PE 4	I think MW is more prompt than other payment	3.4904	0.8794

	patterns.		
PE 5	I think MW can make things better than other payment patterns.	3.5502	0.9022
Effort Expectancy			
EE 1	I think using MW is easy.	3.7488	0.8115
EE 2	I think it is easy for me to learn how to use MW.	3.8110	0.8254
EE 3	I think the use's interface of MW is friendly.	3.5957	0.7815
EE 4	I don't think it will spend much time in learning to use MW.	3.7775	0.8626
Social Influence			
SI 1	My relatives or my friends also use MW.	2.7321	1.0796
SI 2	People important to me think I should use MW.	2.9282	0.9743
SI 3	Mass media (e.g., TV, newspaper, articles, radio) will influence me to use MW.	3.3493	0.9659
SI 4	Using MW I can communicate with some specific group better.	3.3756	0.9109
SI 5	I can't keep in tune with others if they use MW while I don't.	3.1340	0.9873
SI 6	I am expected or needed to use MW in my daily lives.	3.2010	1.0097
Facilitating Condition			
FC 1	I have the resources necessary (i.e. smartphone) to use MW services.	3.7990	0.9124
FC 2	I think it is easy to buy a smartphone for MW.	3.6914	0.9536
FC 3	I think the MW system is accessible if necessary for me.	3.6507	0.8180
FC 4	It's easy to use MW though I have never experienced it before.	3.6412	0.8762
FC 5	I can get help from others when I have difficulties	3.5431	0.8838

	using MW.		
FC 6	I have the knowledge necessary to use MW.	3.2034	0.9643
Hedonic Motivation			
HM 1	Using MW services is enjoyable.	3.5407	0.7832
HM 2	Using MW services is exciting.	3.5431	0.8506
HM 3	Using MW services is pleasant.	3.5287	0.7899
HM 4	Using MW services is interesting.	3.6986	0.8425
Price Value			
PV 1	MW services are reasonably priced.	3.2727	0.7409
PV 2	MW is a good value for the money.	3.3995	0.7901
PV 3	At the current price, purchasing at MW services provides a good value.	3.3660	0.7539
Habit			
HT 1	The use of MW has become a habit for me.	2.8756	1.0543
HT 2	I am addicted to using MW services.	2.7919	1.0960
HT 3	I must use MW services.	2.8493	1.0679
HT 4	Using MW is something that I do without thinking.	2.7919	1.0739
Behaviour Intention			
BI 1	I am willing to learn how to use MW.	3.7967	0.7861
BI 2	I will try to use MW if necessary.	3.8182	0.7929
BI 3	I intend to use MW often.	3.2464	0.9415

Source: Formulated for the research

4.3 Scale Measurement

4.3.1 Normality Test

According to Ghasemi and Zahediasl (2012), normality analysis refers to the shape of the distribution data and its correspondence to normal distribution. Skewness measures the symmetry of data distribution, while kurtosis shows its peak or flatness which are in relation to a normal distribution (Osborne, 2010).

Skewness and kurtosis of all items must be within the acceptable range of ±1.0 as it is an indicator for an acceptable range for the normal distribution (Ghasemi and Zahediasl, 2012). Based on Table 4.5, the skewness of all items were in the range of -0.6209 (BI2) to 0.1468 (SI1) whereas kurtosis were in the range of -0.6745 (HT4) to 0.9546 (BI2). For the normality test, skewness and kurtosis value of all variables fulfilled the range of ±1.0.

Table 4.5: Skewness and Kurtosis of the Study

Research Constructs and Research Items		Skewness	Kurtosis
Performance Expectancy			
PE1	I think MW is useful for me to buy products or services.	-0.3927	0.0219
PE2	I think MW makes it easier for me to buy products or services.	-0.4889	0.2536
PE3	I think MW saves time for me to buy products or services.	-0.5093	0.2972
PE4	I think MW is more prompt than other payment patterns.	-0.1089	-0.2154
PE5	I think MW can make things better than other payment patterns.	-0.2492	-0.3699

Effort Expectancy			
EE1	I think using MW is easy.	-0.3490	-0.0063
EE2	I think it is easy for me to learn how to use MW.	-0.4590	0.0640
EE3	I think the use's interface of MW is friendly.	-0.0327	-0.1023
EE4	I don't think it will spend much time in learning to use MW.	-0.2750	-0.4709
Social Influence			
SI1	My relatives or my friends also use MW.	0.1468	-0.5021
SI2	People important to me think I should use MW.	-0.1058	-0.1326
SI3	Mass media (e.g., TV, newspaper, articles, radio) will influence me to use MW.	-0.3782	-0.1404
SI4	Using MW I can communicate with some specific group better.	-0.2201	-0.1262
SI5	I can't keep in tune with others if they use MW while I don't.	-0.1962	-0.2769
SI6	I am expected or needed to use MW in my daily lives.	-0.1443	-0.2879
Facilitating Conditions			
FC1	I have the resources necessary (i.e. smartphone) to use MW services.	-0.5626	0.1123
FC2	I think it is easy to buy a cellular for MW.	-0.3991	-0.3113
FC3	I think the MW system is accessible if necessary for me.	-0.2546	-0.1373
FC4	It's easy to use MW though I have never experienced it before.	-0.4369	0.1170
FC5	I can get help from others when I have difficulties using MW.	-0.4768	0.1403
FC6	I have the knowledge necessary to use MW.	-0.1425	-0.1758
Hedonic Motivation			
HM1	Using MW services is enjoyable.	-0.1654	0.0875
HM2	Using MW services is exciting.	-0.0998	-0.2607
HM3	Using MW services is pleasant.	-0.0362	0.0266
HM4	Using MW services is interesting.	-0.2048	-0.1837

Price Value			
PV1	MW services are reasonably priced.	0.0487	0.5834
PV2	MW is a good value for the money.	-0.2815	0.2951
PV3	At the current price, purchasing at MW services provides a good value.	0.0576	0.5631
Habit			
HT1	The use of MW has become a habit for me.	-0.0826	-0.4958
HT2	I am addicted to using MW services.	0.0027	-0.6251
HT3	I must use MW services.	-0.0169	-0.5167
HT4	Using MV is something that I do without thinking.	-0.0330	-0.6745
Behaviour Intention			
BI1	I am willing to learn how to use MW.	-0.5766	0.7730
BI2	I will try to use MW if necessary.	-0.6209	0.9546
BI3	I intend to use MW often.	-0.1457	-0.1711

Source: Formulated for this research

4.3.2 Reliability Test

Table 4.6: Reliability Test of This Study

Variables	Number of items	Cronbach's Alpha
PE	5	0.8804
EE	4	0.8494
SI	6	0.8598
FC	6	0.8272
HM	4	0.9100
PV	3	0.8872
BI	3	0.7811

Source: Formulated for this research

In this research, reliability of IVs and DV were assessed by the Cronbach's alpha reliability coefficient. As shown in Table 4.6, the Cronbach's alpha coefficient of all variable were ranged from 0.7811 to 0.9100, which were greater than the benchmark value of 0.6 as recommended by Liu and Li (2010) and Ha et al. (2007), exhibiting that each IVs and DV were reliable measures for its respective constructs.

4.4 Inferential Analysis

4.4.1 Pearson Correlation Analysis

Table 4.7: Correlations Between Variables

Variables	PE	EE	SI	FC	HM	PV	HT	BI
PE (PE)	*1.0000							
EE (EE)	*0.5400	*1.0000						
SI (SI)	*0.5051	*0.3793	*1.0000					
FC (FC)	*0.5656	*0.5335	*0.5930	*1.0000				

HM (HM)	*0.6667	*0.4967	*0.5958	*0.6277	*1.0000			
PV (PV)	*0.4983	*0.4429	*0.6250	*0.6121	*0.5767	*1.0000		
HT (HT)	*0.4416	*0.2367	*0.7039	*0.4868	*0.5757	*0.5463	*1.000	
BI (BI)	*0.5596	*0.5007	*0.5617	*0.6317	*0.6146	*0.5458	*0.5224	*1.0000

* Correlation is significant at the 0.0001 level.

Source: Formulated for the research

The analysis of strength of connections between variables, with all the connected pairs of constructs significant at level 0.0001, is being displayed in Table 4.7. The analysis outcome indicates that PE ($r=0.5596$, $p<0.0001$), EE ($r=0.5007$, $p<0.0001$), SI ($r=0.5617$, $p<0.0001$), FC ($r=0.6317$, $p<0.0001$), HM ($r=0.6146$, $p<0.0001$), PV ($r=0.5458$, $p<0.0001$), and HT ($r=0.5224$, $p<0.0001$) were all significantly and positively associated with BI. However, among all the relationships between IVs and BI (DV) in this research, the association between FC and BI is the strongest ($r=0.6317$, $p<0.001$), following by HM and BI ($r=0.6146$, $p<0.001$) while the lowest association exist between EE and BI ($r=0.5007$, $p<0.0001$). Correlation coefficient values of this study were less than 0.80, hence there is no multicollinearity problem (Kumari, 2008).

4.4.2 Multiple Regression Analysis

Table 4.8: Result of MRA of this study

F-value	66.94						
Sig. of F	<.0001						
R-Square	0.5334						
Adj. R-Square	0.5254						
Independent Variables	**Beta**	**t-value**	**Sig. p-value**	**Hypotheses**	**Decisions**	**Collinearity Statistics**	
						Tolerance	**VIF**
(Constant)	0.4767	3.01	0.0028				0
PE	0.1084	2.21	0.0274	H1	Supported	0.4775	2.0941
EE	0.1512	3.35	0.0009	H2	Supported	0.5962	1.6774
SI	0.0699	1.39	0.1650	H3	Not Supported	0.3877	2.5792
FC	0.2594	4.83	<.0001	H4	Supported	0.4468	2.2381
HM	0.1485	2.85	0.0046	H5	Supported	0.3948	2.5328
PV	0.0611	1.22	0.2216	H6	Not Supported	0.4778	2.0931
HT	0.1049	2.87	0.0043	H7	Supported	0.4382	2.2823

Source: Developed for the research

Result of MRA was illustrated in Table 4.8. F-value (66.94) for this study is large by a significant $p<0.0001$, illustrating that at least one of the IVs in this research model has significant relationship with the Gen Y's BI to adopt MW. In other words, the research model employed in this study is fit.

From the Table 4.8, r-square value is 0.5334 which shows that 53.34% of the Gen Y's BI to adopt MW could be explained by the 7 IVs in the research model. The tolerance value and VIF value of this study have been validated that there is no multicollinearity problem which are greater than 0.10 and less than 10 accordingly as shown in Table 4.8 (Sekaran & Bougie, 2010).

Besides, all of the IVs of this study are positively correlated to the Gen Y's BI on MW adoption in Malaysia which are PE (β=0.1084), EE (β=0.1512), FC (β=0.2594), HM (β=0.1485), HT (β=0.1049), SI (β=0.0699) and PV (β=0.0611).

However, only five IVs are significantly influencing the Gen Y's BI to adopt MW, particularly PE (p=0.0274), EE (p=0.0009), FC (p<0.0001), HM (p=0.0046) and HT (p=0.0043) as shown in the Table 4.8. Among these IVs, FC is the most influential determinant. HT has been found to be least influence on the Gen Y's BI but it is still significant. While, SI and PV had validated to be not significant in the relationship of Gen Y's BI. MRA equation of this research can be formulated as:

BI = **0.4767** + **0.1084 PE** + **0.1512 EE** + **0.0699 SI** + **0.2594 FC** + **0.1485 HM** + **0.0611 PV** + **0.1049 HT**

4.5 Conclusion

This chapter provided the statistical result of this study. Multiple regression equation was generated based on the result yielded. Chapter 5 will includes the discussions on the major findings, implications, limitation of this study as well as recommendation for the future study.

CHAPTER 5: DISCUSSION, CONCLUSION AND IMPLICATIONS

5.0 Introduction

Chapter 4 listed the target respondents' demographic profile and explained the generated results, this chapter will layout the discussions on the major findings based on each IV, implications and limitations of this study as well as propose suggestions for future research.

5.1 Summary of Statistical Analysis

76% out of 550 sets of surveys distributed were valid. The majority respondents are female (67.22%), and mostly are aged within 20-24 years old (77.03%), and still pursuing study (64.45%). Moreover, all respondents in this survey owned a smartphone and most of them had 3 to 5 years of experience of using it. Furthermore, mean of all variables ranged from 2.7321 to 3.8182, with standard deviation less than 1.10.

All the IVs of this study fulfilled the requirement of normality test (±1.00), reliability test (Cronbach's alpha > 0.60) and multicollinearity test (r < 0.80). Besides, F-value (66.94) for this study is large, accompanied by significant p-value < 0.0001,

indicating that the fitness of research model was assured. Besides, r-square of this study is 0.5334, which reveals that 53.34% on BI of Gen Y could be explained by the 7 IVs. MRA had showed that all the IVs have positive relationship with BI, yet SI and PV were found to be insignificant. FC was validated as the strongest determinant with a highest beta value (0.2439), followed by EE (β=0.1465), HM (β=0.0046), PE (β=0.0274) and HT (β=0.1464)

5.2 Discussions of Major Findings

5.2.1 Performance Expectancy

The hypothesized positive relationship between PE and Gen Y's BI to adopt MW in Malaysia was supported in this research. The result was coherent with past empirical studies conducted by Jaradat and Al Rababaa (2013), Fuksa (2013), Lu et al. (2009), Thomas et al. (2013) and Alkhunaizan and Love (2012).

Usefulness, versatility and benefit to the consumer are the keys for the acceptance and success of a new advanced technology (Weiss, 2011). Gen Y would adopt MW when they realized it can bring more practical benefits to them compared with traditional payment solution. Given that the action of touching a smartphone at a NFC-enabled terminal is simple, they are able to complete transaction through MW in a speedier way (Shaw, 2014). MW supported person-to-person electronic ticket sales and transfer, personal identity credentials, store and organize digital receipts, location-based offers

and others (First Data Corporation, 2013). which resulting in time saving, convenience, environmentally friendly as well as efficient business transaction. They will then be ready to adopt MW as a form of payment.

5.2.2 Effort Expectancy

The result drawn from MRA showed that EE is significant and positively correlated to BI of Gen Y in this study. This indicated that H2 was supported. The result was consistent with the past empirical studies of Wang et al. (2009), Jayasingh and Eze (2009), Bere (2014) and Yang and Zhou (2011), which proved that EE had a significant positive connection with BI. Nevertheless, Peng et al. (2011) realized that EE was negatively related to BI.

MW offers Gen Y a quick and easy access to money by having payment cards in their smartphone (Qasim & Siddiqui, 2012). For instance, Gen Y can easily make payment in any retail stores by touching their smartphone on the payment terminal to complete the payment (Curran et al., 2012). While comparing to traditional payment method, it will be time consuming to search for their available cash money or bank cards and subsequently wait for the cashier to return the balances, payment card or loyalty card. Hence, the probable reason of EE appeared to be significant in affecting Gen Ys' BI to adopt MW is due to their characteristic of willing to accept new technology.

5.2.3 Social Influence

SI has been verified that it was positive but insignificant in this study. Hence, H3 was rejected. This finding was supported by the study of Carlsson et al. (2006), Gao and Deng (2012), and Shin (2009), which proved that SI have no relationship to BI. Nonetheless, Yang and Forney (2013) and Yang (2010) found out that SI was positively related to consumers' BI.

SI is insignificant in affecting Gen Y to adopt MW in Malaysia as they are self-reliant, digital generation and independent compared to other generation such as baby boomers and Gen X (Martin, 2005) and thus, they tend to learn to use advanced technology by themselves because most of them are high educator, grew up with technology (Jones & Shao, 2011), and not influence by the opinions of others. Furthermore, Gen Y is also known as trendsetter because they are receptive to new products who has the ability to make the trend spread (Chen, 2008). They tend to adopt newly launched products, of which this is not due to the influence by others but contrariwise Apart from this, Gen Y is no pushover for advertisement. They will find information of the products they are interested in and make a better decision by analyzing the available products obtained from internet regardless the seductions of advertisement (Alch, 2000). Therefore, SI had no effects on Gen Y's BI to use MW services.

5.2.4 Facilitating Conditions

The relationship between FC and BI had been validated as significant and positive. Therefore, H4 was supported. Moreover, FC is the strongest determinants in affecting Gen Y's BI on adoption of MW. This result was supported by a few past studies, particularly on adoption of mobile shopping services (Yang, 2010), m-learning (Nassuora, 2013) and library mobile applications (Chang, 2013). In contrast, it was not consistent with the past studies on adoption of m-commerce in India (Thakur & Srivastava, 2013) and China (Chong, 2013).

The main resources that support the usage of MW are NFC-based smartphone and NFC payment terminal. Samsung, HTC, Nokia and Sony are the major manufacturer of NFC-based smartphone (Du, 2013) at the same time these brands are the famous smartphone brand in Malaysia (Lim et al., 2013). For instance, Samsung S IV, Samsung S V, Samsung Note III, Samsung Galaxy Mega (Samsung, 2014), Sony Xperia S, Sony Xperia P, Sony Xperia Z, Sony Xperia Sola (Sony, 2014), Nokia 808 (Nokia, 2014), HTC One, HTC Desire 610, HTC Butterfly and HTC One Max (HTC, 2014) are examples of the commonly used NFC-enabled smartphone models. Moreover, majority of the smartphone users in Malaysia are from Gen Y (Lim et al., 2013) whom are mostly more financially dependent on their parents (Benckendorff et al., 2010). Hence, it was firmly believed that Gen Y has higher chance to own a NFC-based smartphone due to their high purchasing power (Freestone & Mitchell, 2004). With the NFC technology, they will be able to enjoy the MW services such as location-based marketing offer and automated loyalty point redemption. Therefore, FC was the most influential factor on Gen Y's adoption of MW in Malaysia.

5.2.5 Hedonic Motivation

Based on the findings of this research, HM positively and significantly affects consumers' intentions to adopt MW in Malaysia The past research carried out by Ney (2013), Chong (2013), Arenas-Gaitán et al. (2013), Chong (2013) and Chong et al. (2013) had consistently supported the result and verified importance of HM in influencing Malaysia's Gen Y in adoption of MW.

Gen Y could interact with MW for entertainment purposes because Gen Y always keen on entertainment, fun, and joy (Knox & Schacht, 2009). Gen Y can receive location-based marketing offer - a type of targeted communications in the form of store promotions or food discount vouchers nearby them via MW, which makes them more sensitive to the latest offers as well as more relevant for the moment (First Data Corporation, 2013), comparing to the traditional advertising method whereby they need to be alert to the offers advertised in the television, radio or internet from time to time. Since MW can provide such exciting new function which could never be offered by a physical wallet, they would feel the urge to experience the enjoyable services of MW and thus, HM was significant in affecting Gen Y's BI to adopt MW.

5.2.6 Price Value

H6 of this study was not supported since PV had been proven to be a non-significant construct in clarifying the BI of Gen Y to adopt MW in Malaysia

although there is a positive relationship between PV and BI. It was opposed to the previous findings of Kuo et al. (2009), Lin and Wang (2006), Turel and Serenko (2006), Deng et al. (2014) as well as Wang and Wang (2010), which concluded that PV had a significant positive linkage on BI.

The probable reason of PV had no influence on the BI of Gen Y to adopt MW in Malaysia is due to it is inappropriate to assess consumers' responses to price by only using questionnaire based methodology, unless more precise information such as the actual price, offer price, and competing price of the products (Koenig-Lewis, Palmer, & Noll, 2010) together with its trade-off benefits are provided to the respondents. Thus, since Gen Y are not accessible to the PV information of MW currently, they are unable to evaluate the price of MW services with its associated benefits and therefore, PV appeared to be insignificant in the BI of Gen Y to adopt MW.

5.2.7 Habit

The results showed that HT has a significant and positive relationship with BI. However, HT has the least significant influence among other factors. Results of past studies conducted by Phan and Daim (2010), Dlodlo and Mafini (2013), Zhong et al. (2013), Teo and Pok (2002), and Park and Kim (2013) supported the finding of this study (H7) and confirmed the importance of HT as a determinant to affect adoption of MW in Malaysia.

It was known that the frequency of using a mobile phone among the Gen Y is high as they are more depending on communication technologies (Oblinger, Oblinger, & Lippincott, 2005). As mentioned by Zhong et al. (2013), mobile-

based innovative applications are supposedly able to fit into the user's daily life. Whereby as mentioned by Dlodlo and Mafini (2013), Gen Y are more likely to use mobile related technologies as long as the technologies can enhance their performance. Since most of the individuals made usage of smartphone as part of their lives, it is strongly acceptable to believe that it will be easy for the smartphone users to adapt such convenience by transforming their smartphone into MW and hence, HT was able to influence Gen Y's adoption of MW.

5.3 Implications of the Study

The results of this study consist of a few implications for the society, mobile industry as well as other researchers. For mobile related researchers, this study showed an additional option to measure the determinants affecting the consumers' adoption of MW.

5.3.1 Theoretical Implication

Several studies related to factors influencing the adoption of MW was conducted, however, the researchers used other model such as extended TAM model (Shaw, 2014) and modified UTAUT model (Shin, 2009) in Canada and U.S. respectively. Comparing to this study, UTAUT2 model was used to analyze the determinants of Gen Y's BI on MW adoption in Malaysia. Thus,

there existed a literature gap because TAM and UTAUT model were proposed to explain the technology acceptance and use from organizational contexts (Venkatesh et al., 2003; Escobar-Rodr ́guez et al., 2014), while UTAUT2 is a newer and better model to explain the acceptance and use of a technology specifically from consumer context (Venkatesh et al., 2012). Therefore, this study could fill up the literature gap of the previous empirical studies.

The results of this study showed that the variables of UTAUT2 models are able to measure the MW adoption decisions. To double that, factors in UTAUT2 which is PE, EE, FC, HM, and HT have significant relationship with consumers' BI to adopt MW; while PV and SI in UTAUT2 was proven that there is no significant influence towards consumers' BI to adopt MW.

5.3.2 Managerial Implications

Another important finding for this study is the influence on the mobile industry. Based on the results generated from this study, MWSP should focus on the variables that significantly influence the adoption of MW, precisely FC, EE, HM, PE, and HT.

FC was suggested to be the most important determinant to adopt MW. However, there is still a problem that consumers do not know which stores had adopted MW system. MWSP should consider this as their biggest issue because it is important for Gen Y users to know such service is available in Malaysia. However, MWSP must ensure the facilities to use MW in Malaysia

are well prepared and available in order to minimize the possible technical errors which may occur during the transaction process. Besides, MWSP may inform shops that provide MW services to paste a notice in an obvious position to inform the users the availability of MW services in their shops.

EE is the second most significant factor to affect the adoption of MW. It is important for the smartphone users to know that it is easy to use MW. Therefore, MWSP should allow the smartphone users to know the easiness to learn and use MW. MWSP are recommended to introduce and demonstrate the method to perform MW functions through effective mass media such as radio, magazine, television, internet and others (Belch & Belch, 2003; Kurtz, MacKenzie, & Snow, 2009) before MW is officially launch. During the demonstration, MWSP need to exhibit the easiness, fastness and convenientness of using the MW. By sharing this useful information, consumers will gain knowledge of using MW. After they familiarize with the steps and tried using it, it will ultimately help them to improve their standard of living (Jayasingh & Eze, 2009).

HM was also found to be a significant factor in this study. MWSP needs to fulfill the users' desired enjoyment in using MW services as it increases the users' adoption rate. In order to deliver the feeling of excitement and enjoyment to the users, MWSP can allow a short trial period with free services for the users, so that they can experience interesting and exciting services of MW on their own. Besides, MWSP also can cooperate with merchants to provide a better offer for discounts to induce the users' usage of MW. For example, consumers will be entitled to additional discount when they make their payment with MW. This can be done with the location-based offer included in MW services, whereby the MW users will be able to receive

notification informing them the nearby offers that they can enjoy when they are within certain range from the particular shops.

The next factor that MWSP should focus is PE, which was proven to be significant as a factor to influence the adoption of MW. MWSP should try to introduce the features and benefits of using MW to the public by creating advertisements to attract the attention of smartphone users. The reason is to increase the public awareness of the existence of such technology. For example, Samsung can introduce the functions and benefits of MW such as location-based offer, one-touch payment method, storing of identity and loyalty card to the consumers through television and also social networks. Besides, Samsung could also advertise and demonstrate MW services via mobile advertisement by sending multimedia messaging service (MMS) to Samsung users.

The last significant factor, HT was also suggested to be considered by MWSP. Since most of the smartphone users are using smartphone frequently in their daily lives, MWSP can focus on how to make them habitualize the usage of MW by providing some benefits for the users whenever they use MW. For example, users can collect MW loyalty points for every time they use MW to make payment and when they purchased a promoted product during the promotion period, they will be entitled to double loyalty points. The points collected can be used to redeem MW rewards such as cash vouchers.

MWSP are suggested to disregard SI and PV since these two factors were found to be insignificant to influence Gen Y's adoption of MW in Malaysia. The possible reasons that caused both the IVs to be insignificant are due to Gen Y is a more independent generation, so they can hardly be influenced by

people around them (Martin, 2005) and they don't know the possible cost to pay for MW services.

5.4 Limitations of the Study and Recommendations for Future Research

This study has a few limitations. Firstly, the r-square of this study is 0.5334, which falls in the moderate level. Mezick (2007) proposed that r-square reflects the influencing power of an IV towards DV, and a weak r-square value is range from 0.04 to 0.24 while a moderate r-square value is between 0.25 and 0.64. Weil, Frank, Hughes, and Wagner (2007) had suggested that additional construct may increase r-square value. Future studies could be conducted by adding important constructs such as perceived security (Shin, 2009; Steffens, Nennker, Ren, Yin, & Schneider, 2009; Zhao & Muftic, 2011) to the research model of this study since consumers' concern towards the security of wireless transaction is critical in influencing their adoption of a technology (Shah, Peikari, & Yasin, 2014; Hartono, Holsapple, Kim, Na, & Simpson, 2014; Chellappa & Pavlou, 2002; Udo, 2001).

Secondly, data of this study was analyzed by using MRA, which is the first generation multivariate technique to assess variables and relationship between variables (Karimimalayer, 2012). SEM was recommended for future researchers to adopt as their data analysis technique because it studies all the variables simultaneously, evaluates whole model, contains more flexible assumptions as compared to MRA which performed analysis separately, examined by individual coefficients and must comply with assumptions (Karimimalayer, 2012). SEM takes multiple indicators into consideration to measure nonlinearities, modeling of interactions, correlated independents, correlated error terms, multiple latent

independents, and measurement error (Carvalho & Chima, 2014). Results obtained from MRA in this study revealed the causal relationship and association of each constructs; while SEM has the ability to examine the causal modeling, which is more practical to the research study due to its flexibility.

Additionally, this study employed cross-sectional approach, whereby data was collected in a single point of time (Cooper & Schindler, 2014). In future studies, researchers are encouraged to conduct the study by using longitudinal approach that required data collection of greater than one single point of time (Sekaran & Bougie, 2010). Rindfleisch, Malter, Ganesan, and Moorman (2008) claimed that a longitudinal study may establish the stability of the relationship and enhances causal inference when the indicator and outcomes are weakly correlated. In this study, PV and SI had been validated to be insignificant but there is a positive relationship on Gen Y's BI to adopt MW. Different result could be obtained by using longitudinal approach since this study was using cross-sectional approach. Researchers are recommended to study the Gen Y's BI between the pre-and post-exposure interval.

Besides, this study was carried out only in Malaysia, which is a emerging country. Different results might be generated if this study is being conducted in other developed, developing or emerging countries such as U.S., Japan, Singapore or Indonesia. Future studies could be performed by including different country's consumers context, and researchers could try to extend the scope of study by comparing consumers' from various emerging, developing, or developed countries, which may help in improving the generalizability of the research model (Leong et al., 2013).

5.5 Conclusion

As a result, this research had successfully proves that all the variables in UTAUT2 are positively related to BI of Gen Y on MW adoption in Malaysia. On top of that, the study shows that FC, PE, EE, HM and HT are all significant to influence the adoption of MW among Gen Y. Even though SI and PV also has positive relationship with BI, the relation was found to be insignificant. Meanwhile, FC was concluded as the strongest indicators of MW adoption among Gen Y in Malaysia. In conclusion, UTAUT2 was proven to be suitable to predict the BI of Gen Y in the adoption of MW, which means the objectives for this research are completely fulfilled.

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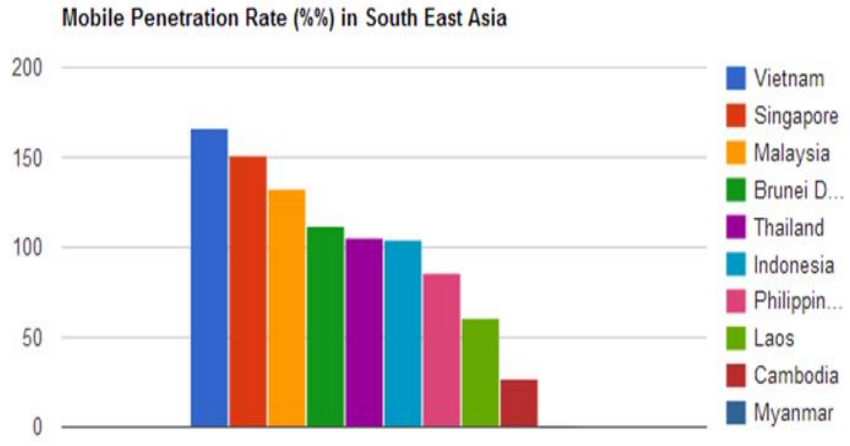
APPENDICES

Appendix A

Appendix A shows how to make payment via mobile wallet

Appendix B

MOBILE PENETRATION RATE



Country	Penetration Rate (%)
Vietnam	166.76%
Singapore	150.61%
Malaysia	132.93%
Brunei Darussalam	111.77%
Thailand	105.05%

Country	Penetration Rate (%)
Indonesia	104.25%
Phillipines	85.41%
Laos	61.35%
Cambodia	27.49%
Myanmar	0.92%

Appendix B illustrated mobile penetration rate % in South East Asia, year 2012

Appendix C

20 FEBRUARY 2012

PRESS RELEASE

SMARTAG SIGNED MOU WITH SAMSUNG FOR MOBILE NEAR FIELD COMMUNICATION ("NFC") TECHNOLOGY

- Smartag and Samsung to collaborate to bring NFC technology to Malaysia's market
- NFC is Radio Frequency Identification ("**RFID**") technology that is use on a mobile phone

Kuala Lumpur, 20 February 2012 - Total RFID solutions provider **Smartag Solutions Berhad** ("**Smartag**", "the Group", "智能电子标签解决方案有限公司") has signed a Memorandum of Understanding ("**MOU**") with **Samsung Malaysia Electronics (SME) Sdn Bhd** ("**Samsung**") to collaborate to bring the NFC technology to Malaysia's market (hereinafter referred to as the "**Collaboration**"). The MOU was signed by Mr. Kwon Jaehoon, Samsung's Managing Director and Mr. PK Lim, Smartag's Chief Executive Officer ("**CEO**").

NFC is a short-range wireless technology that enables the communication between devices over a distance of a few centimetres. Mobile NFC services bring a whole new dimension to customer's digital life, transforming mobile phones into contactless devices for touch-and-go applications: transport ticketing, payment, loyalty and other innovative services such as smart poster, peer-to-peer or access control. Leveraging on contactless technology and the interactivity of mobile phones, service innovation becomes limitless.

New market forecasts from Juniper Research show rapid adoption of NFC services over the next 3 years, with at least 1 in 5 smartphones worldwide having NFC contactless functionality. Worldwide, Juniper forecasts almost 300 million NFC capable smartphones by 2014.

(Source: Press Release of Juniper Research titled "1 in 5 Smartphones will have NFC by 2014, Spurred by Recent Breakthroughs: New Jupiter Research Report", dated 14 April 2011)

Thus, the Collaboration between Smartag and Samsung is expected to enable the creation of a NFC market in Malaysia. With this, Malaysians will be able to join the Juniper Research projected amount of people worldwide that will use their mobile phones for metro and bus tickets.

Under the Collaboration, Samsung will provide Smartag the necessary technical support to develop mobile applications on Samsung's product lines to support the Smartag's NFC Ecosystem as well as to promote more NFC-based mobile phones in Malaysia market to promote NFC Ecosystem,, while Smartag will provide application services, and software consulting, support and development services relating to Smartag's projects to support Smartag's partners and customers with NFC technology.

"Smartag is happy to be able to collaborate with Samsung in bringing innovative technology to Malaysia, and together, we will work closely towards to simplify the Malaysian's lifestyle by using Digital Wallet for credit card, debit card, membership card and loyalties card using mobile phone" said Mr. PK Lim, CEO of Smartag.

SMARTAG
Use Us To Be Ahead

Microsoft Partner

About Samsung

Samsung is the local subsidiary of Samsung Electronics Co. Ltd. ("**Samsung Electronics**") which is a global leader in semiconductor, telecommunication, digital media and digital convergence technologies with 2010 consolidated sales of USD135.8 billion. Employing approximately 190,500 people in 206 offices across 68 countries, the company consists of nine independently operated business units: Visual Display, Mobile Communications, Telecommunication Systems, Digital Appliances, IT Solutions, Digital Imaging, Memory, System LSI and LCD. Recognized as one of the fastest growing global brands, Samsung Electronics is a leading producer of digital TVs, semiconductor chips, mobile phones and TFT-LCDs. For more information, please visit www.samsung.com/my

About Smartag (ACE: 0169)

Smartag is listed on the Stock Exchange of Bursa Malaysia Securities Berhad and is a specialist in RFID technology applications and solutions. Smartag develops, and operates RFID container security system with automation services for Royal Malaysian Customs and Royal Thai Customs. Smartag's software solutions are based on global standards such as ISO 18186 and GS1 EPCglobal Electronic Product Code Information Service ("**EPCIS**") certified software. Smartag applications and solutions are being used by small to big multinational companies and governments for process improvement and security. Smartag has ventured into NFC that involves Mobile Phone RFID applications since year 2010. For more information, please visit www.smartag.my

SMARTAG SOLUTIONS BHD

MSC Malaysia Status Company

EPCglobal

Appendix C shows the Smartag Solutions Berhad was signed a Memorandum of Understanding with Samsung Malaysia Electronics SdnBhd to cooperate establish a trusted NFC platform in Malaysia.

Appendix D

For Immediate Release

SMARTAG SIGNED MOU WITH MYCLEAR TO COLLABORATE ON THE DEVELOPMENT OF A NEAR FIELD COMMUNICATION ("NFC") ECOSYSTEM FOR MALAYSIA

- Smartag and MyClear's collaboration was announced during the MSC Malaysia Partners Recognition Ceremony 2012 held at the Prime Minister's office, Putrajaya, witnessed by the Prime Minister, YAB Dato' Seri Najib Tun Razak.

- The collaboration will further strengthen the implementation of the project on "Establishing a Trusted Mobile Digital Wallet System" under Digital Malaysia.

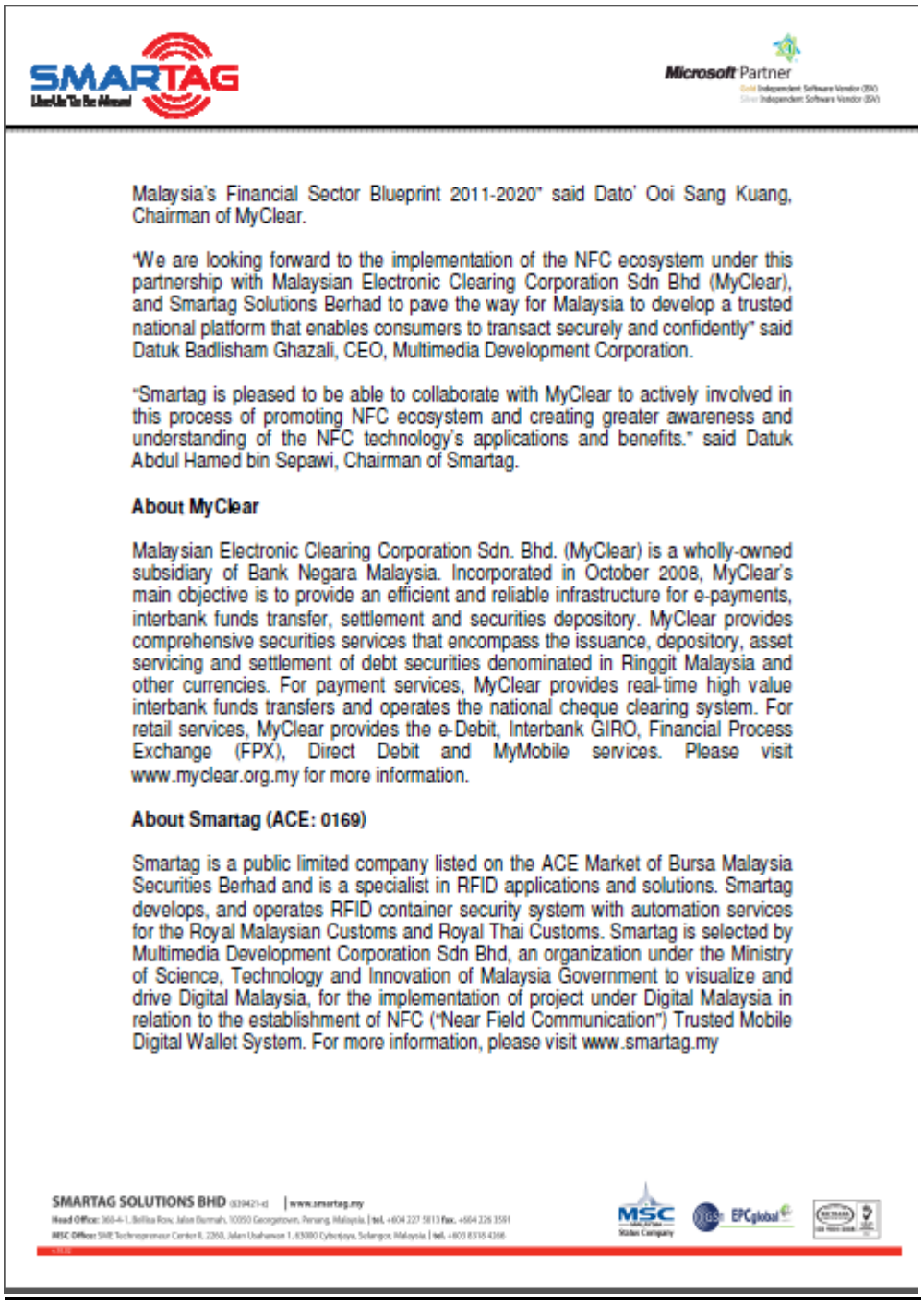
Kuala Lumpur, 9 October 2012 - RFID solutions provider **Smartag Solutions Berhad ("Smartag", "the Group"**, "智能电子标签解决方案有限公司") has signed a Memorandum of Understanding ("**MOU**") with **Malaysian Electronic Clearing Corporation Sdn Bhd ("MyClear")** to collaborate on the development of a Near Field Communication ("**NFC**") ecosystem for Malaysia ("**Project**"). The MOU was signed by Dato' Ooi Sang Kuang, Chairman of MyClear and Datuk Abdul Hamed bin Sepawi, Smartag's Chairman.

Later on the same day, Smartag and MyClear's collaboration was announced during the MSC Malaysia Partners Recognition Ceremony 2012 held at Prime Minister's office, Putrajaya and witnessed by the Prime Minister, YAB Dato' Seri Najib Tun Razak.

The NFC ecosystem consists of several stakeholders who are NFC mobile phones users, Mobile Network Operators, Secure Element vendors, a national Trusted Service Manager, partner banks and other card issuers.

Under the collaboration, MyClear and Smartag will work towards developing a value proposition on the Project and will undertake the necessary efforts to establish a nationwide NFC ecosystem; which is an initiative under Digital Malaysia, the nation's programme to advance the country towards a developed digital economy by 2020.

"MyClear is looking forward to exploring the various opportunities to be offered by leveraging on NFC technology as a means to providing more convenient and efficient mobile payment services nationally. We are excited at the prospect of working with Smartag towards adding more channels to complement our existing products and services, in line with the recommendations of Bank Negara



Malaysia's Financial Sector Blueprint 2011-2020" said Dato' Ooi Sang Kuang, Chairman of MyClear.

"We are looking forward to the implementation of the NFC ecosystem under this partnership with Malaysian Electronic Clearing Corporation Sdn Bhd (MyClear), and Smartag Solutions Berhad to pave the way for Malaysia to develop a trusted national platform that enables consumers to transact securely and confidently" said Datuk Badlisham Ghazali, CEO, Multimedia Development Corporation.

"Smartag is pleased to be able to collaborate with MyClear to actively involved in this process of promoting NFC ecosystem and creating greater awareness and understanding of the NFC technology's applications and benefits." said Datuk Abdul Hamed bin Sepawi, Chairman of Smartag.

About MyClear

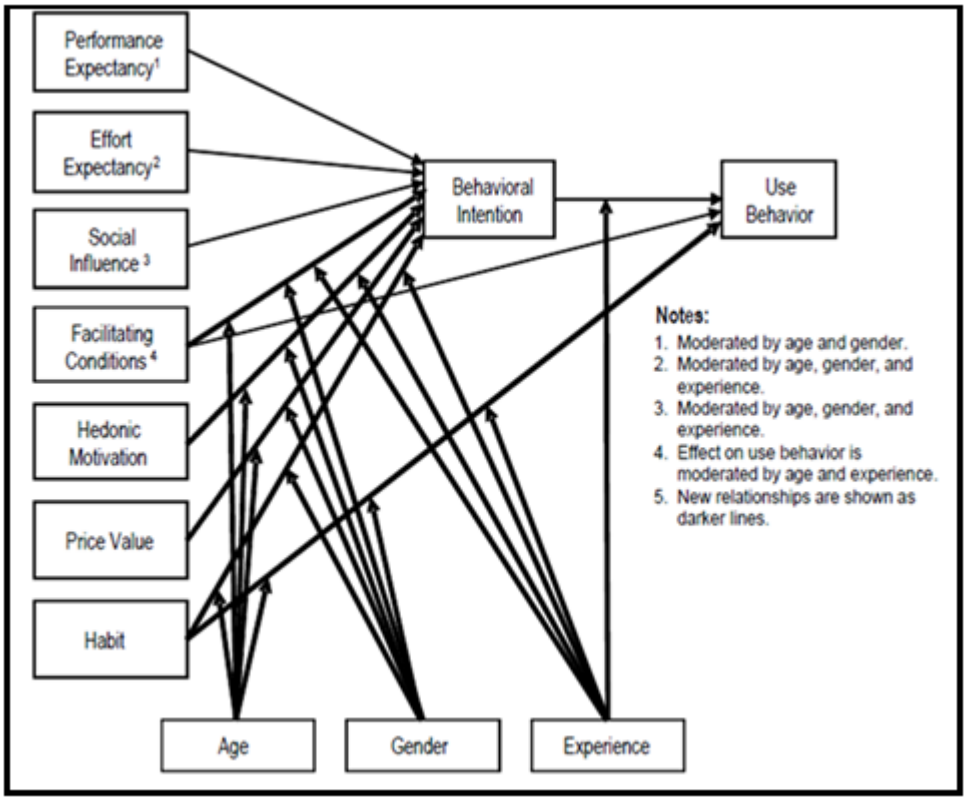
Malaysian Electronic Clearing Corporation Sdn. Bhd. (MyClear) is a wholly-owned subsidiary of Bank Negara Malaysia. Incorporated in October 2008, MyClear's main objective is to provide an efficient and reliable infrastructure for e-payments, interbank funds transfer, settlement and securities depository. MyClear provides comprehensive securities services that encompass the issuance, depository, asset servicing and settlement of debt securities denominated in Ringgit Malaysia and other currencies. For payment services, MyClear provides real-time high value interbank funds transfers and operates the national cheque clearing system. For retail services, MyClear provides the e-Debit, Interbank GIRO, Financial Process Exchange (FPX), Direct Debit and MyMobile services. Please visit www.myclear.org.my for more information.

About Smartag (ACE: 0169)

Smartag is a public limited company listed on the ACE Market of Bursa Malaysia Securities Berhad and is a specialist in RFID applications and solutions. Smartag develops, and operates RFID container security system with automation services for the Royal Malaysian Customs and Royal Thai Customs. Smartag is selected by Multimedia Development Corporation Sdn Bhd, an organization under the Ministry of Science, Technology and Innovation of Malaysia Government to visualize and drive Digital Malaysia, for the implementation of project under Digital Malaysia in relation to the establishment of NFC ("Near Field Communication") Trusted Mobile Digital Wallet System. For more information, please visit www.smartag.my

Appendix D shows that Smartag Solutions Berhad was signed a Memorandum of Understanding with a subsidiary owned by Bank Negara Malaysia - Malaysian Electronic Clearing Corporation SdnBhd to cooperate established a trusted NFC platform in Malaysia.

Appendix E



Appendix E illustrated the UTAUT2 model (Venkatesh et al., 2012).

Appendix F

Study	Country	Data	Major Findings
Performance Expectancy			
Jaradat and Al Rababaa, 2013	Jordan	447 set of data was obtained from undergraduate students in public universities of Jordan.	Performance expectancy was positively correlated with consumers' acceptance and continuance usage in Jordan.
Fuksa, 2013.	Latvia	Questionnaire via internet from 2000 internet users among 15-60 age groups.	From this study, performance expectancy responds that it is significant towards behaviour intention for users to benefit it.
Lu, Yu and Liu, 2009.	Australia	Survey questionnaire was collect from 1320 among the major regions of Hangzhou, Chengdu and Xian in China.	The relationship of performance expectancy was importance for behaviour intention to develop on mobile technologies and services.
Thomas, Singh and Gaffar, 2013	Guyana	A total of 322 data was obtained by web survey of the students of the University of Guyana.	The result indicated that performance expectancy had a significant positive effect towards mobile learning adoption in Guyana.
Alkhunaizan and Love, 2012	Saudi Arabia	The survey data were collected online and self-administration from 574 smartphones users.	The result revealed that performance expectancy had the strongest impact on citizen's adoption and usage of m-commerce services in Saudi Arabia.

Effort Expectancy			
Yang & Zhou, 2011	USA	E-mail survey towards 440 college students of public university in South eastern United States.	The results conclude effort expectancy having strong relationship with their intent of passing information.
Wang, Wu and Wang, 2009.	Taiwan	330 self-administrate survey questionnaires had been collected between from five organisations in Taiwan: Aerospace Industrial Development Corporation (AIDC), IBM Taiwan, NationalChanghua University of Education, Chung Chou Institute of Technology and Yuanlin Community University.	The determinants and age and gender differences in the acceptance of mobile learning that have strong positive relationship between effort expectancy and influence the users' behaviour intention.
Peng, Xu and Liu, 2011.	China	Data was distributed via self-administration survey questionnaire from 186 juniorand senior students in a provincial university.	The results to conclude effort expectancy on drivers and barriers in the acceptance of mobile payment in China are not linkage.
Jayasingh and Eze, 2009.	Malaysia	781 survey questionnaire via self-administration from mobile users in Malaysia.	The results showed that there was a significant effect between EE and users' BI to adopt m-coupons in Malaysia.
Bere, 2014.	South Africa	196 questionnaires collected from University of Technology in South Africa via self-administration.	The study concluded that EE had positive effect on BI to use m-learning.

Social Influence			
Shin, 2009.	Seoul (ROK)	Online questionnaire of 296 high school, undergraduate college and graduate college students.	An understanding of the consumer acceptance of mobile wallet was no relationship on social influence to behaviour intention.
Lu, 2014.	Australia	Questionnaire survey of 323 for both graduate and undergraduate student by using online and offline classes in University of Houston.	Social influence is much less influence on mobile users' towards continuance intentions in mobile commerce.
Leong, Ooi, Chong, & Lin, 2013.	Malaysia	The data was drawn from 638 mobile device users through face-to-face administration.	The result reflected that there was a significant influence of SI towards consumers' BI to use mobile entertainment
Yang and Forney, 2013.		400 sets of data was distributed to mobile service users who drawn from a marketing research company via online survey	The results show SI had positively relationship with BI to use mobile shopping.
Carlsson, Carlsson, Hyvonen, Puhakainen, and Walden, 2006.	Åland island	157 respondents for the questionnaires via email.	The result showed that there was no relationship between SI and BI to adopt mobile devices or services.

Facilitating conditions			
Thakur and Srivastava, 2013.	India	Primary data for the study were obtained through 292 set of online structured questionnaires. The respondents are working professionals.	Facilitating conditions were not found to be significant in customer usage intention of mobile commerce.
Chong, 2013.	China	140 online surveys were obtained from China users via Chinese social media.	Facilitating conditions had no significant relationship with m-commerce adoption.
Yang, 2010.	USA	A sample of 400 mobile services users from purchased consumer panel participated in the online survey.	Facilitating conditions of mobile shopping services usage were critical to the adoption of mobile shopping service.
Nassuora, 2012	Saudi Arabia	80 questionnaires were gathered from students at Al-Faisal University based on convenience sampling.	Facilitating conditions had significant relationship on the attitude of higher education students to adopt mobile learning.
Chang, 2013.	Taiwan (ROC)	Self-administered online questionnaire collected from 363 graduate and undergraduate students in eastern Taiwan from each department and school.	Facilitating conditions was significantly and positively related on user's behavior intention using library mobile applications.
Hedonic motivation			
Chong and Ngai, 2013.	China	200 surveys were collected from respondents in shopping malls, Zhejiang Province, China.	Hedonic motivation has positive relationship with the actual use of the location-based social media services their travel

			planning.
Arenas-Gaitan, Ramirez-Correa, Rondan-Cataluna, and Alfaro-Perez, 2013.	Chile	Data was collected through a face-to-face survey on a sample of 501Chilan mobile internet users.	Female users feel more enjoyment of using mobile internet than male users. Hedonic motivation was positively related to the female users' intention to use mobile internet.
Ney, 2013.	Netherlands	Data was collected by conducting survey with the retailers in Netherlands.	Customer hedonic motivation had a positive link with the retailers' intention to use mobile smartphone application for customer relationship management.
Chong, 2013	China	376 surveys were collected from m-commerce users in two universities located at Zhejiang Province, China.	Perceived enjoyment had a positive and significant relationship with m-commerce adoption.
Chong, 2013	China	Data was obtained from 410 students at 5 universities situated in China who experienced using m-commerce.	Perceived enjoyment had significant influence on consumers' continuance intention in m-commerce.
Price Value			
Kuo, Wu and Deng, 2009.	Taiwan	1484 questionnaires collected from the students in 15 selected universities	Price and quality has largest positive influence on post-purchase intention of mobile value-added services.
Deng, Mo, and Liu, 2014.	China	A total of 424 data was collected from middle-aged or older group mobile users in Wuhan, a central	Relative benefits and associated costs significantly affects the

		Chinese city via face-to-face interview and questionnaires distribution.	BI of middle-aged and older users in adopting mobile health services.
Lin and Wang, 2006.	Taiwan	The questionnaires were distributed to 255 respondents from two universities, three high-tech companies and one insurance firm in Taiwan.	Perceived benefits and perceived costs had a strong positive and highly significant impact on both customers' satisfaction and customer loyalty.
Turel and Serenko, 2006.	Canada	A total of 210 data was collected from Canadian mobile phone users via questionnaires distribution.	There is a positive connection between perceived value and customer satisfaction with mobile services.
Wang and Wang, 2010.	Taiwan	Survey was conducted through internet and 245 valid responses were collected.	Perceived value has a positive and significant relationship with BI
Habit			
Phan and Daim2011.	USA	Questionnaires were distributed through phone, email and face-to-face and 15 people responded.	Habit contributes 20% to the attitude towards using a mobile service.
Dlodlo and Mafini, 2013.	South Africa	Self-administered questionnaires were distributed to Gen-Y users and 204 responded.	There is a positive correlations between frequency of use and the acceptance of technology.
Zhong, Dhir, Nieminen, Hämäläinen and Laine, 2013.	Finland	Survey was distributed through online questionnaires, printed questionnaires and mailing method. 365 out of 431 people responded.	Consumers' e-payment habit will determine the adoption of m-payment.

Teo and Pok, 2003.	Singapore	Questionnaires were distributed through internet for data collection purpose and 1012 out of 1085 responses were valid.	Attitude has a positive relationship with BI and it significantly influence BI.
Park and Kim, 2014.	Korea	8 undergraduate students from private universities in Korea were approached with in-depth interviewing to create reliable and valid responds.	Attitude towards mobile cloud services positively and significantly affect the user's intention to use the service.

Appendix F describes the past studies.

Appendix G

Variables		Measurement	Scale of Measurement
Demographic Profile	Gender	Nominal	
	Age	Ordinal	
	States	Nominal	
	Highest level of academic qualifications	Ordinal	
	Do you own a smart phone?	Nominal	
	How long have you used a use smart phone?	Ordinal	
	Occupation	Nominal	
	Respondent industry	Nominal	
	Monthly income	Ordinal	
	Performance Expectancy	Interval	5-point Likert scale
	Effort Expectancy	Interval	5-point Likert scale
	Social Influence	Interval	5-point Likert scale
	Facilitating Conditions	Interval	5-point Likert scale
	Hedonic Motivation	Interval	5-point Likert scale
	Price value	Interval	5-point Likert scale
	Habit	Interval	5-point Likert scale
	Behavioural Intention	Interval	5-point Likert scale

Appendix G illustrated the measurement of demographic profile, independent and dependent variables.

Appendix H

Independent Variable / Definitions	Item	Description	Measu-rement	Reference
Performance Expectancy "The degree to which using a technology will provide benefits to consumers in performing certain activities"	**PE1**	I think MW is useful for me to buy products or services.	Interval	Peng, Xu and Liu (2011)
	PE2	I think MW makes it easier for me to buy products or services.		
	PE3	I think MW saves time for me to buy products or services.		
	PE4	I think MW is more prompt than other payment patterns.		
	PE5	I think MW can make things better than other payment patterns.		
Effort expectancy "The degree of ease associated with consumers' use of the technology"	**EE1**	I think using MW is easy.	Interval	Peng, Xu and Liu (2011)
	EE2	I think it is easy for me to learn how to use MW.		
	EE3	I think the use's interface of MW is friendly.		
	EE4	I don't think it will spend much time in learning to use MW.		
Social Influence "The extent to which consumers perceive that important others (e.g. family and friends) believe that they should use a particular technology"	**SI1**	My relatives or my friends also use MW.	Interval	Peng, Xu and Liu (2011) Tan, Chong, Ooi , and Chong, (2010)
	SI2	People important to me think I should use MW.		
	SI3	Mass media (e.g., TV, newspaper, articles, radio) will influence me to use MW.		
	SI4	Using MW I can communicate with some specific group better.		
	SI5	I can't keep in tune with others if they use MW while I don't.		
	SI6	I am expected or needed to use MW in my daily lives.		
Facilitating Conditions	**FC1**	I have the resources necessary (i.e. smartphone) to use MW services.	Interval	Venkatesh et al. (2012)

"Consumers' perceptions of the resources and support available to perform a behaviour"	**FC2** **FC3** **FC4** **FC5** **FC6**	I think it is easy to buy a cellular for MW. I think the MW system is accessible if necessary for me. It's easy to use MW though I have never experienced it before. I can get help from others when I have difficulties using MW. I have the knowledge necessary to use MW.		Peng, Xu and Liu (2011)
Hedonic Motivation "The pleasure or enjoyment derived from using a technology"	**HM1** **HM2** **HM3** **HM4**	Using MW services is enjoyable. Using MW services is exciting. Using MW services is pleasant. Using MW services is interesting.	Interval	Peng, Xu and Liu (2011)
Price value "Consumers' cognitive tradeoff between the perceived benefits of the applications and the monetary cost of using them"	**PV1** **PV2** **PV3**	MW services are reasonably priced. MW is a good value for the money. At the current price, purchasing at MW services provides a good value.	Interval	Peng, Xu and Liu (2011)
Habit "Consumers' frequency to use MW"	**HT1** **HT2** **HT3** **HT4**	The use of MW has become a habit for me. I am addicted to using MW services. I must use MW services. Using MW is something that I do without thinking.	Interval	Venkatesh et al. (2012)
Dependent Variable/ Definitions	**Items**	**Description**	**Measure ment**	**References**
Behavioural intention "The degree to which a person has formulated conscious plans to perform or not perform	**BI1** **BI2**	I am willing to learn how to use MW. I will try to use MW if necessary.	Interval	Peng, Xu and Liu (2011)

some specified future behaviour"	**BI3**	I intend to use MW often.		
Use Behaviour "Also known as usage behaviour, of which it is a direct function of behavioural intention"	**UB1** **UB2**	I often use cellular mobile payments. I have ever recommended mobile payment service to others.	Interval	Peng, Xu and Liu (2011)

Appendix H illustrates items of the questionnaire developed by researcher.

Appendix I

UNIVERSITI TUNKU ABDUL RAHMAN
Faculty of Business and Finance

BACHELOR OF COMMERCE (HONS) ACCOUNTING
FINAL YEAR PROJECT

TITLE OF TOPIC: When Wallet Fuses into Smartphone: How do Consumers Respond?

Survey Questionnaire

Dear respondent,

I am final year undergraduate student of Bachelor of Commerce (Hons) Accounting, from UniversitiTunku Abdul Rahman (UTAR). The **purpose** of this survey is pertaining to the elements that affect the acceptance and adoption of mobile wallet in Malaysia. Please answer all questions to the best of your knowledge. All responses are completely confidential.

Thank you for your participation.

UNIVERSITI TUNKU ABDUL RAHMAN
Wholly Owned by UTAR Education Foundation (Company No. 578227 M)

25th March 2014

To Whom It May Concern

Dear Sir/Madam

Permission to Conduct Survey

This is to confirm that the following students are currently pursuing their *Bachelor of Commerce (HONS) Accounting* program at the Faculty of Business and Finance, Universiti Tunku Abdul Rahman (UTAR) Perak Campus.

I would be most grateful if you could assist them by allowing them to conduct their research at your institution. All information collected will be kept confidential and used only for academic purposes.

The students are as follows:

Name of Student	Student ID
LAI CHIN CHIA	11ABB07450
LAW CHIN WEI	10ABB01703
LIEW MUN CHING	11ABB07233
PHUA YI VIAN	11ABB06623
TANG CHOR YEE	11ABB06492

If you need further verification, please do not hesitate to contact me.

Thank you.

Yours sincerely

.....
Mr Fung Choong Fe
Head of Department,
Faculty of Business and Finance
Email: fongce@utar.edu.my

.....
Ms Lee Voon Hsien
Supervisor,
Faculty of Business and Finance
Email: leevh@utar.edu.my

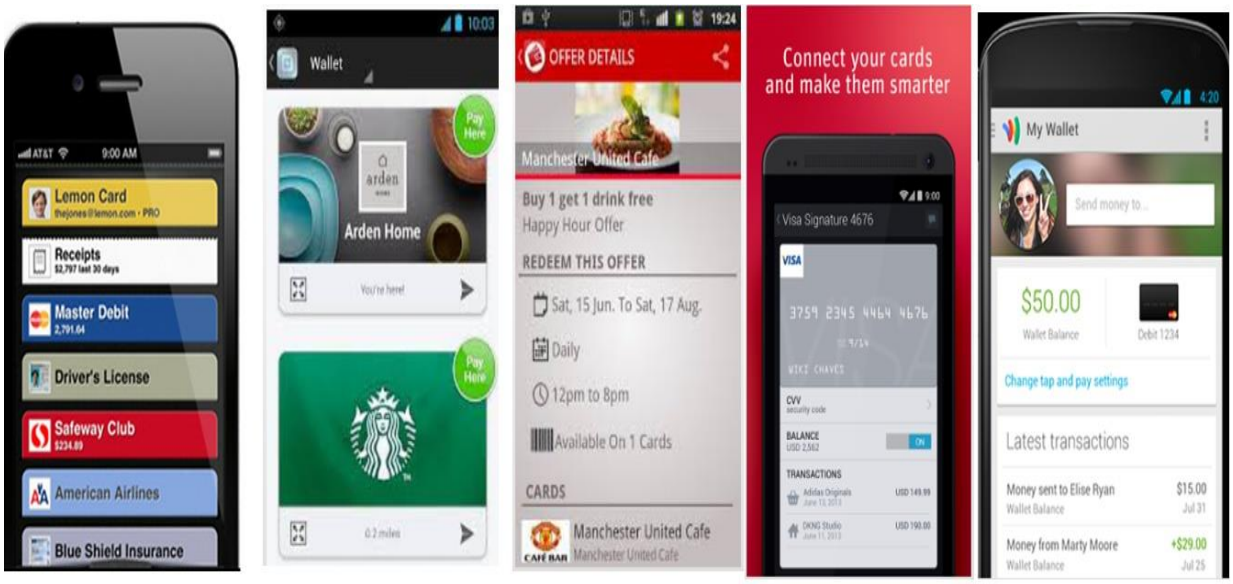
Address: No.9, Jalan Bersatu 13/4, 46200 Petaling Jaya, Selangor Darul Ehsan, Malaysia
Postal Address: P.O Box 11384, 50744 Kuala Lumpur, Malaysia.
Tel: (603) 7958 2628 **Fax:** (603) 7956 1923 **Homepage:** http://www.utar.edu.my

Instructions:

1) There are **TWO** (2) sections in this questionnaire. Please answer ALL questions in ALL sections.

2) Completion of this form will take you approximately 5 to 10 minutes.

3) The content of this questionnaire will be kept **strictly confidential**.



Section A: Demographic Profile

Please place a tick "√" or fill in the blank for each of the following:

1. Gender:

☐ Male ☐ Female

2. Age:

☐ Below 20 years old
☐ 20-24 years old
☐ 25-29 years old
☐ 30-34years old
☐ Above 35 years old

3. States:

☐ Johor
☐ Kedah
☐ Kelantan
☐ Melacca
☐ Negeri Sembilan
☐ Pahang
☐ Penang
☐ Perak
☐ Perlis
☐ Sabah
☐ Sarawak
☐ Selangor
☐ Terengganu
☐ Wilayah Persekutuan

3. Highest level of academic qualifications:

☐ High School Graduate
☐ Diploma / Advanced Diploma
☐ Bachelor Degree
☐ Master
☐ PHD Degree
☐ Others: _____

4. Do you own a smart phone?

☐ Yes
☐ No (Proceed to Q6)

5. How long have you used a use smart phone?

☐ 2 years or less
☐ 3 years- 5 years
☐ More than 5 years

6. Occupation:

☐ Student
☐ Employed for wages
☐ Self-employed
☐ Professionals
☐ Currently unemployed
☐ Others: _____

7. Respondent industry:

☐ Audit/Accounting/Taxation/Management Consulting
☐ Banking
☐ Construction
☐ Education
☐ Manufacturing
☐ Telecommunication
☐ Trading
☐ Other:_____

8. Monthly income:

☐ Less than RM1000
☐ RM1001 - RM2000
☐ RM2001 – RM3000
☐ RM3001 – RM4000
☐ RM4001 – RM 5000
☐ Above RM5001

Section B: Factors that influenceyou to accept and adopt mobile wallet (MW)

This section is seeking your opinion regarding the factors that influence your behavioural intention to accept and adopt mobile wallet. Respondents are asked to indicate the extent to which they agreed or disagreed with each statement using 5 Likert scale [(1) = strongly disagree; (2) = disagree; (3) = neutral; (4) = agree and (5) = strongly agree] response framework.

Please circle one number per line to indicate the extent to which you agree or disagree with the following statements.

Factor 1

No.	Performance Expectancy (PE) (1st Independent Variable)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
PE1	I think MW is useful for me to buy products or services.	1	2	3	4	5
PE2	I think MW makes it easier for me to buy products or services.	1	2	3	4	5
PE3	I think MW saves time for me to buy products or services.	1	2	3	4	5
PE4	I think MW is more prompt than other payment patterns.	1	2	3	4	5
PE5	I think MW can make things better than other payment patterns.	1	2	3	4	5

Factor 2

No.	Effort Expectancy (EE) (2nd Independent Variable)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
EE1	I think using MW is easy.	1	2	3	4	5
EE2	I think it is easy for me to learn how to use MW.	1	2	3	4	5
EE3	I think the use's interface of MW is friendly.	1	2	3	4	5

EE4	I don't think it will spend much time in learning to use MW.	1	2	3	4	5

Factor 3

No.	Social Influence (SI) (3rd Independent Variable)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
SI1	My relatives or my friends also use MW.	1	2	3	4	5
SI2	People important to me think I should use MW.	1	2	3	4	5
SI3	Mass media (e.g., TV, newspaper, articles, radio) will influence me to use MW.	1	2	3	4	5
SI4	Using MW I can communicate with some specific group better.	1	2	3	4	5
SI5	I can't keep in tune with others if they use MW while I don't.	1	2	3	4	5
SI6	I am expected or needed to use MW in my daily lives.	1	2	3	4	5

Factor 4

No.	Facilitating Conditions (FC) (4th Independent Variable)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
FC1	I have the resources necessary (i.e. smartphone) to use MW services.	1	2	3	4	5
FC2	I think it is easy to buy a smart phone for MW.	1	2	3	4	5
FC3	I think the MW system is accessible if necessary for me.	1	2	3	4	5
FC4	It's easy to use MW though I have never experienced it before.	1	2	3	4	5

FC5	I can get help from others when I have difficulties using MW.	1	2	3	4	5
FC6	I have the knowledge necessary to use MW.	1	2	3	4	5

Factor 5

No.	Hedonic Motivation (HM) (5^{th} Independent Variable)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
HM1	Using MW services is enjoyable.	1	2	3	4	5
HM2	Using MW services is exciting.	1	2	3	4	5
HM3	Using MW services is pleasant.	1	2	3	4	5
HM4	Using MW services is interesting.	1	2	3	4	5

Factor 6

No.	Price value (PV) (6^{th} Independent Variable)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
PV1	MW services are reasonably priced.	1	2	3	4	5
PV2	MW is a good value for the money.	1	2	3	4	5
PV3	At the current price, purchasing at MW services provides a good value.	1	2	3	4	5

Factor 7

No.	Habit (HT) (7^{th} Independent Variable)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
HT1	The use of MW has become a habit for me.	1	2	3	4	5
HT2	I am addicted to using MW services.	1	2	3	4	5
HT3	I must use MW services.	1	2	3	4	5
HT4	Using MV is something that I do without thinking.	1	2	3	4	5

Factor 8

No.	Behavioural Intention (BI) (Dependence Variable)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
BI1	I am willing to learn how to use MW.	1	2	3	4	5
BI2	I will try to use MW if necessary.	1	2	3	4	5
BI3	I intend to use MW often.	1	2	3	4	5

No.	Use Behaviour (UB)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
UB1	I often use cellular MW.	1	2	3	4	5
UB2	I have ever recommended MW service to others.	1	2	3	4	5

Thank you for your time and cooperation.
~ The End ~

Appendix I illustrated the questionnaire of this research.