

FACTORS INFLUENCING THE INTENTION TO ADOPT E-WALLET: A REGIONAL DISTRIBUTION PERSPECTIVE IN MALAYSIA

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Abstract

Current mode of cashless payment in Malaysia has reached maturity. E-wallet players has transcended globally, more so with the onset of Covid-19 pandemic that mandated social distancing in early 2020. The renewed and acute need awareness triggered an immense support of e-wallet adoption. Yet, contrary to expectations, only 11% of the total population adopts e-wallet which is one-fifth of total smartphone users in the nation. More than 50% of Malaysia's revenue comes from taxes. However, substantial revenue is lost through high tax evasion due to less traceable transactions and increased illegal financial outflow. Quenching this curiosity, the research explores factors influencing adoption of e-wallet based on constructs of knowledge, perceived ease of use, perceived usefulness, social influence. Besides, a regional distribution, and the mediating effect of perceived trust between knowledge and intention to adopt e-wallet is examined. Notwithstanding the current technological prevalence in Malaysians' lifestyle, perceived ease of use and perceived usefulness is purposely posed as respective independent variables rather than as a mediator as in the Technology Acceptance Model. Using a quantitative approach and purposive sampling technique, data collection is engineered to have a prerequisite of minimum 50 respondents per region. Based on parameters of two tailed test with confidence interval of 95% (significance level 0.05), a total of 400 responses were analysed via SmartPLS with PLS-SEM algorithm. Knowledge, perceived ease of use, perceived usefulness, and the mediating effect of perceived trust on knowledge were found significant. Thus, both the daily performance improvement and effort to manoeuvre e-wallet are essential. Social influence was, however, found insignificant. It could imply that promoting e-wallet adoption through advertisements and peer reviews is not adequate as generally expected. In contrary, enhancing user experience of the e-wallet adopters in terms of ease of use and usefulness is the ultimate key. Regional distribution findings showed that Northern Region (Perlis, Kedah, Penang, and Perak) has the highest e-wallet adoption rate of 94.4%, followed closely by Central Region (Selangor, Federal Territory of Kuala Lumpur, and Putrajaya) at 92.3%. Reminiscing upon a current launch of e-Tunai (e-cash) at Penang at time of the study, practical knowledge is found to be impactful in influencing the intention to adopt e-wallet. As such, opportunities are abundant for relevant stakeholders to strategize and enhance e-wallet adoption among the public as well as the under-served community.

Keywords: Adoption of e-wallet by regions, Knowledge, Perceived ease of use, Perceived usefulness, Perceived trust

Introduction

While cash still serves its purpose, current trends challenge the purpose of cash which brings about high cost of storage, transfer, and production especially for coins. The production cost of coins is often more expensive than the value it brings. Indeed, this led to the discontinuation of one cent coin production as well as the introduction of Rounding Mechanism in Malaysia (BNM 2008). Further, it undeniably contributes to a set of complications. For instance, the increase the difficulty for authorities to trace cash flow within the market, leading to massive tax evasions, expedites the frequency and amount of illegal financial outflows (Chao 2012; Chu & Kana 2018). This is critical as income tax constitute more than half the country's total revenue yet only 15% of the 15 million Malaysian workforces are in the tax bracket (Ooi 2018). Between 2015 and 2016 alone, the country estimates a loss of anticipated tax revenues amounting to RM 47 billion (Kana 2018). The World Payment Report indicates that the growth of cashless transactions is fuelled by emerging markets, and it is expected to have compound annual growth rate (CAGR) of 23.5% by 2022 with e-wallet commanding emerging Asia's 30% CAGR growth (Capgemini 2019).

Credit cards have garnered popularity in the cashless payment atmosphere of Malaysia, but lately, the growth have been stagnant due to more stringent credit policies by banks to mitigate uncontrolled usage and financial management resulting in 9,400 Malaysians going bankrupt between 2014 and 2018 (Hani 2019). As such, the urgency to seek for alternative cashless transaction method such as e-wallet is accelerated. Towards this aspiration, the Malaysian government launched the e-Tunai (e-cash) programme in early 2020 via distribution of thirty Ringgit (RM 30) cash incentive to early adopters. Booths were setup in Penang Island by locals to teach the public on how and where they could redeem and use the e-Tunai. This initiative facilitates the cashless journey of many in the country. However, contrary to expectation, only 11% of the total population adopts e-wallet which is one-fifth of total smartphone users within the nation (Tan 2018). This phenomenon affirms that a high frequency of smartphone adoption does not translate directly into e-wallet adoption; thus, motivating researchers globally to examine the complex and intriguing behavioural intention.

The significance of knowledge in relevance to consumers' decision making is well established since several decades (Chen & He 2003). Studies by Wang, Dacko, and Gad (2008) found prior knowledge is significant in impacting adoption intention of new products; supported by similar findings in a recent study (Parkins, Rollins, & Comeau 2018). According to Vodus (2019), only 52% of the Malaysians are aware of the existence of e-wallet which indicates a voluminous knowledge gap on e-wallet adoption. Supplementary findings identified a vast range of prospective challenges to the broader adoption of technology which include individual factors such as knowledge, attitudes, and political beliefs (Arkesteijn & Oerlemans 2005). Fundamentally, product awareness relates to the probability of a product coming into mind; for example, the term iPhone once used to represent all smartphones, however, it does not mean all smartphones are iPhone just that it was the face for all smartphones (Giachetti 2018). The same applies to the current context, where Grab, Touch N Go and Boost are the face of e-wallet to the mass public in Malaysia.

Trust is an imperative element when dealing with personal finance, for which, the process of knowledge instillation becomes crucial as trust enhances with increasing extent of knowledge which contributed to the boom in the online retail industry in Taiwan (Wang, Chen, & Jiang 2009). The next dimension of product knowledge proposed by Keller (1993) is product image. It is the opinion and the mental image associated with the product; it represents what

the product presently stands for. An indispensable criterion for the construction of product image is that when a product node has taken roots in memory, the attribute of the product node would effortlessly affect various kinds of information and become attached to the product in memory (Chen & He 2003). Currently, e-wallet is picking up speed in market diffusion through government support and incentives by popular e-wallet players which ultimately, earned a certain degree of public trust due to its increased tangible presence. Besides, promotions portrayed e-wallet as a superior complementary tool in purchasing daily necessities that do not cost much yet offering cashbacks like those from credit card usage. The public is aware that these incentives would be available only in the introductory phases of e-wallet and therefore, grasping to try out the earliest they can. E-wallet players believe that the seamless experience and convenience of cashless payments whether for big or small monetary transactions would transform the payment habits of the public. This experience adds on to the product knowledge of users which in turn garners their trust as well. Multiple research findings determined that the increased frequency in internet usage in transacting payments has also elevated trust within consumers (McCole & Palmer 2002; Koehn 2003).

Perceived ease of use (PEOU) also known as effort expectancy is determined on two levels of motion freeing its users from hassle on both physical and mental state (Venkatesh et al. 2003). As such, the benefits of a newly introduced system determine the likelihood of system adoption by users. A complex system such as e-wallet app downtime and/or limited internet connectivity is a critical deterrent to its functionality in mobile payment and internet services (Davis 1989; Bosamia & Patel 2019). Both studies on adoption of mobile payment services and Fintech services in Malaysia concurred that perceived ease of use was an essential element to adoption of e-payment (Yeow, Khalid, & Nadarajah 2018; Jin, Seong & Khin 2018). Furthermore, findings on factors leading to adoption of mobile financial services in Korea, e-wallet in Japan, mobile payments in Brazil, and e-payment in India supported the importance of perceived ease of use in all cases (Lee et al. 2012; Amoroso & Magnier-Watanabe 2012; Abrahão, Moriguchi, & Andrade 2016; Shankar & Datta 2018). However, the impact of perceived ease of use in all cases listed above have lesser impact compared to perceived usefulness.

Referring to the Diffusion theory and Technology Acceptance Model, the behavioural intention to adopt particularly for technological tools exists when the introduction of a new service is deemed to provide an absolute if not relatively better advantage when compared with the current state of matters (Davis 1989; Roger 1995). In the context of this study, these benefits can be differentiated into two categories, external and internal (Lee, Lee, & Tussyadiah 2017). For users who do not have any exposure to e-wallet, external factors such as supported infrastructure and insistence by vendors as preferred mode of payment becomes crucial in impacting new users to adopt e-wallet services. The internal benefits are the reliability and user interface which determines if the service can provide a superior user experience, for example, incorporating a personalized financial planning tool (PWC 2019).

While social influence can be triggered by both peers as well as surrounding environment, it advocates a degree of individual freedom in allowing himself or herself to voluntarily choose one product / service over the other based on their own needs (Gibson & Smart 2017). For example, the comparison of the scenario in People's Republic of China and the Scandinavian countries. The rise of e-wallet in People's Republic of China is a result of vendors (environment) promoting the acceptance of e-wallet transactions whereas in Scandinavian countries, public initiative (peers) pushed for a change in payment mode of transactions that led the rise of mobile payments that mitigates or resolves the hassle in current means of fund transfer (Risikko, 2018; Yang, 2018). However, social influence and social

pressure could be eradicated as in recent China where vendors refused to accept other payment methods besides e-wallet; leading consumers who do not use e-wallet to be side-lined and discriminated, thus forcing Chinese authorities to act against such vendors through imposed fines (Ren 2018). Unlike these countries, Malaysia's e-wallet transition is still in the introductory phase, the effect and support for e-wallet transactions has not reach the extent of creating a social pressure (Aydin 2016). As such, the effect of social pressure could be absent from social influence to fundamentally strips users from the freedom in deciding to adopt e-wallet.

Thus, this research aims to address intention to adopt e-wallet in Malaysia based on constructs of knowledge, perceived ease of use, perceived usefulness, social influence, and the mediating effect of perceived trust on knowledge. Besides, the purported and preliminary regional distribution analysis encompassing different regions is hoped to represent more fairly the opinion of the general population within Malaysia.

Research Methodology

The overview of the research design process applied in this research is reflected in the research 'onion' model in Figure 1 to ensure that all aspects of the research process was considered and reviewed before the next stage was pursued.



Figure 1: The Research 'Onion' Model for this research (Saunders et al., 2012)

A purposive sampling technique was applied whereby some pre-requisites were set to ensure the purpose of the research is met. The demographics require respondents to identify their current living place namely Northern, Southern, Central, East Coast and East Malaysia region. This is further illustrated below in Table 1.

No	Item	Description
1	Gender	Male and Female and 50% male and 50% female respondent. Can have slightly less females, to-date the ratio of gender population in Malaysia for females to males are 100:107 (Kannan 2018)
2	Location	North Region, East Coast, Central Region, Southern Region and West Malaysia. Based on the top 20 most populated cities in Malaysia, the Northern region, Central region, East coast, Southern region and East Malaysia has a population ratio of 16%, 38%, 11%, 13% and 22% respectively (WorldPopulationReview.com 2019).

Table 1: Proposed Sampling Method for Data Collection

A summarised illustration of the methodology procedural process is shown in Figure 2 below.

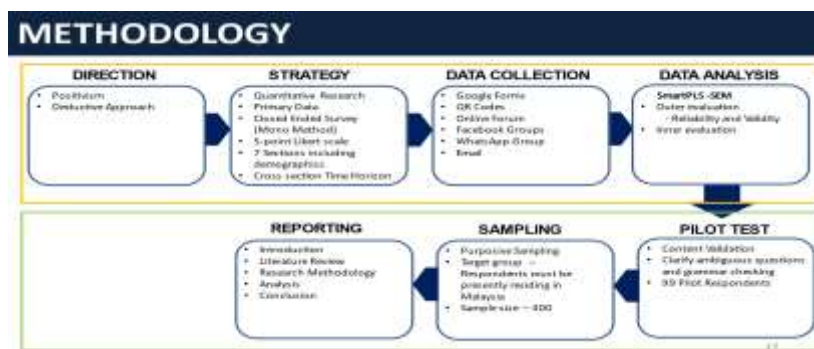


Figure 2: Methodology procedural process

The conceptual framework in Figure 3 shows the relationship and hypotheses of the tested variables.

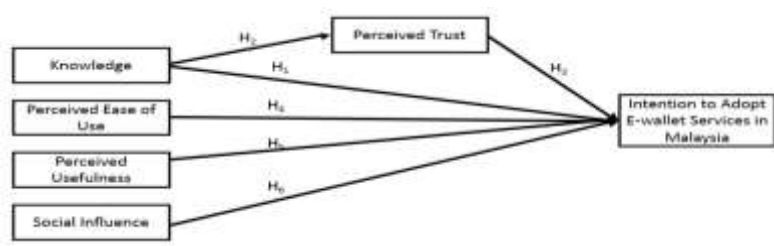


Figure 3- Conceptual Framework of the Research

Results and Discussion

For subsequent interpretation, the summary of demographic profile collected from 400 respondents is shown in Table 2.

Respondents Demographics		Frequency	Percentage
Gender	Male	203	50.75%
	Female	197	49.25%
Age	18 – 24	99	24.75%
	25 – 39	252	63.00%
	40 – 54	40	10.00%
	55 and above	9	2.25%
Monthly Income	RM 0 – RM 1,499	99	24.75%
	RM 1,500 – RM 3,999	127	31.75%
	RM 4,000 – RM 6,999	118	29.50%
	RM 7,000 – RM 9,999	30	7.50%
	RM 10,000 and above	26	6.50%
Current Living Place	Northern Region – Perlis, Kedah, Penang, and Perak	54	13.50%
	East Coast – Kelantan, Terengganu, and Pahang	61	15.25%
	Central Region – Selangor, Federal Territories of Kuala Lumpur, and Putrajaya	168	42.00%
	Southern Region – Negeri Sembilan, Melaka and Johor	51	12.75%
	East Malaysia – Sabah, Sarawak, and Labuan	66	16.50%
Do you use any form of e-wallet?	Yes	359	89.75%
	No	41	10.25%

Table 2: Demographics Profile from the Collected Respondents (N=400)

While respondents from the central region holds a large percentage, it is expected since majority of population resides in this region. Furthermore, the remaining regions collectively consists of 58% of the respondents provides an adequate representation of distribution in Malaysia.

After preliminary determination of the construct measures as valid and reliable, six hypotheses (Table 3) were tested in line with the research objectives (next page). Results indicate model's predictive power of exogenous constructs on 'Intention to Adopt E-wallet Services in Malaysia' (ITA) is moderate (R^2 at 0.598) while predictive power of 'knowledge' on 'perceived trust' is considered weak (R^2 at 0.434). The structural model relationship (hypothesis testing) based on the inner model constructs (refer Figure 4 below) was analysed using bootstrapping by simulation of five thousand subsamples and is conducted on parameters of two tailed test with confidence interval of 95% (significance level 0.05).

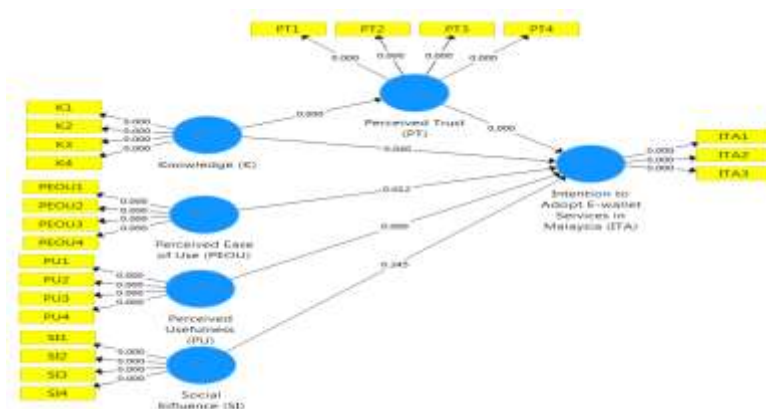


Figure 4: Inner Model Measurement Constructs

Herein, discussion is focused on the tested hypotheses (refer Table 3) in line with the six research objectives (RO) to identify the effect of four independent variables as in - RO1 – “To identify the effect of knowledge on intention to adopt e-wallet in Malaysia”; RO2 - “To probe the effect of knowledge on perceived trust on consumers’ in Malaysia”; RO3- “To probe the mediating effects of perceived trust on knowledge and intention to adopt e-wallet in Malaysia”; RO4 - “To determine the role of perceived ease of use in influencing the intention to adopt e-wallet in Malaysia”; RO5 - “To determine the role of perceived usefulness in influencing the intention to adopt e-wallet in Malaysia”; and finally, RO6 - “To investigate the effects of social influence in influencing the intention to adopt e-wallet in Malaysia”.

RO	Hypotheses	Constructs	Path Coefficient	T-Statistics	P-Values	Statistical Significance
RO1	H1- Extent of knowledge is positively associated with consumers’ intention to adopt e-wallet in Malaysia.	Knowledge (K) -> Intention to Adopt E-wallet in Malaysia (ITA)	0.122	2.055	0.040	Positively Significant
RO2	H2 - Extent of knowledge is positively associated with consumers’ perceived trust in Malaysia.	Knowledge (K) -> Perceived Trust (PT)	0.658	21.56	0.000	Positively Significant
RO3	H3 - Perceived Trust is positively associated with consumers’ intention to adopt e-wallet in Malaysia.	Perceived Trust (PT) -> Intention to Adopt E-wallet in Malaysia (ITA)	0.146	2.546	0.011	Positively Significant
RO4	H4 - Perceived ease of use is positively associated with	Perceived Ease of Use (PEOU) -> Intention to	0.308	5.331	0.000	Positively Significant

	consumers' intention to adopt e-wallet in Malaysia.	Adopt E-wallet in Malaysia (ITA)				
RO5	H5- Perceived usefulness is positively associated with consumers' intention to adopt e-wallet in Malaysia.	Perceived Usefulness (PU) -> Intention to Adopt E-wallet in Malaysia (ITA)	0.289	5.191	0.000	Positively Significant
RO6	H6 - Social influence is positively associated with consumers' intention to adopt e-wallet in Malaysia.	Social Influence (SI) -> Intention to Adopt E-wallet in Malaysia (ITA)	0.049	0.949	0.343	Not Significant

Table 3: Results of P-values with Complementing Path Coefficient, T-Statistics for All Constructs

From the findings in Table 3, all exogenous constructs have significant effect on 'ITA' except for 'social influence' (p-value = 0.343) which is consistent with the findings in path coefficient (nearing 0), t-statistics <1.96 indicating no significance level at 5% (Hair et al. 2017). Further, the path analysis results showed the path coefficient (β) values of 'knowledge'->'ITA' is $\beta=0.122$ indicating significant positive relationship but a small effect. The product of path coefficient (β) values for total indirect effect of 'knowledge'->'perceived trust' of $\beta=0.658$ and 'perceived trust'->'ITA' of $\beta=0.308$ is $\beta=0.203$ indicating a stronger effect in affecting intention to adopt E-wallet in Malaysia as in Table 4 below. However, since there is a significant direct relationship between 'knowledge'->'ITA', the mediation effect of 'perceived trust' can be concluded as complementary mediation on 'knowledge'->'ITA'.

Research Objectives and Hypotheses		Constructs	Path Coefficient (Total Effect)	T-Statistics	P-Value	Decision
RO1	H2- Extent of knowledge is positively associated with consumers' perceived trust in Malaysia.	Knowledge (K) -> Perceived Trust (PT)	0.658	21.513	0.000	Supported
RO3	H3 - Perceived Trust is positively associated with consumers' intention to adopt e-wallet in Malaysia	Perceived Trust (PT) -> Intention to Adopt E-wallet Services in Malaysia (ITA)	0.308	5.352	0.000	Supported
	H2, H3	Knowledge (K) -> Perceived Trust (PT) -> Intention to Adopt E-wallet Services in Malaysia (ITA)	$0.203 + 0.122 = 0.325$	5.085	0.000	Supported
*0.203 is Product of 0.308 & 0.658 (Total Indirect Effect) + 0.122 (Direct Effect from Knowledge (K) -> Intention to Adopt E-wallet Services in Malaysia (ITA)) = 0.325						

Table 4: Mediation Effects -Test Results for Hypothesis 2 and Research Objective 3

In overall, Table 4 shows that RO1 and RO3 tested through H1, H2 and combination of H2 & H3 depicts a significant positive relationship between 'knowledge' and the dependent variable (ITA). This is consistent with findings from the past researchers (Wang, Dacko, & Gad 2008; Parkins, Rollins, & Comeau 2018; Yeow, Khalid, & Nadarajah 2018). It is believed that while 'knowledge' is important in influencing the 'intention to adopt of e-wallet in Malaysia', input of knowledge must come from trusted sources to be effective. The second research objective (RO2) tested through H2 is significant. This is consistent with the findings from the past researchers (Yoon 2002; Koehn 2003; Wang, Chen, & Jiang 2009; Bonsón Ponte, Carvajal-Trujillo, & Escobar-Rodríguez 2015). Thus, 'perceived trust' can be improved through the increased scope of knowledge which is useful in many perspectives. The fourth and fifth research objective (RO4 and RO5) tested through H4 and H5 were also significant. These results are consistent with the findings from the past researchers (Lee et al. 2012; Amoroso & Magnier-Watanabe 2012; Abrahão, Moriguchi, & Andrade 2016; Shankar & Datta 2018). Therefore, both 'perceived ease of use' and 'perceived usefulness' which are the process

(effort expectancy) and result (performance expectancy) respectively are significant in influencing the 'intention to adopt of e-wallet in Malaysia'. Finally, the sixth research objective (RO6) tested through H6 is insignificant, which supports the findings of some researchers (Riffai, Grant, & Edgar 2012; Alalwan, Dwivedi, & Rana 2017; Chen, Chen & Chen 2019; Mensah 2019; Shaw & Sergueeva 2019) but varies from the findings of others (Bass 1969; Venkatesh et al. 2003; Dahlberg et al. 2008; Liébana-Cabanillas, Sánchez-Fernández, & Muñoz-Leiva 2014).

Conclusion

Overall, regional distribution shows the highest e-wallet adoption rate of 94.4% in the Northern Region (Perlis, Kedah, Penang and Perak) followed by 92.3% in the Central Region (Selangor, Federal Territory of Kuala Lumpur and Putrajaya). Interestingly, this corresponds with an observation on the Malaysian government's launch of the e-Tunai (e-cash) programme via distribution of cash (RM30) incentives at time of this study, whereby booths were setup in Penang Island by locals to teach the public on how and where they could redeem and use the e-Tunai. Thus, empirical evidence supports the role of practical knowledge to impact and facilitate transitions on adoption of new habits in this context.

Further, findings reaffirmed the influence of knowledge, perceived ease of use, perceived usefulness and mediating effect of trust on knowledge towards behavioural intention for technological adoption. The role of knowledge in this information age significantly impacts and facilitates transitions on new behavioural intentions. Trust is affirmed as an imperative element when dealing with personal finance, thus highlights the importance of educating the public to increase their intention to adopt e-wallet. Similarly, user experience enhancement in terms of performance and effort expectancy is critical. However, consumers would not compromise security for the sake of convenience especially when dealing with finance (Patterson 2018). Effect of social influence is subjective as e-wallet adoption is often conducted alone (Alalwan, Dwivedi & Rana 2017). While the findings on social influence remains a controversy even in past studies, it justifies the human behaviour which is complex. Besides, other unexplored mediation could be a reason for social influence to be effective on behavioural intention for technological adoption (Yang, Moon, & Rowley 2009; LaGuardia 2019). Among many motivators, cashbacks, wide acceptance and security are more likely to impact individuals when selecting a specific transaction method (Sunny & George 2018).

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