Perceived Risk for Acceptance of E-Wallet Platform in Malaysia Among Youth: Sem Approach

Nurul Nabilah Mohd Razif[1], Masnita Misiran[2], Hasimah Sapiri[3], Zahayu Md Yusof[4]

Universiti Utara Malaysia, Sintok, Kedah, Malaysia, nabilah.mrazif95@gmail.com
Universiti Utara Malaysia, Sintok, Kedah, Malaysia, masnita@uum.edu.my
Universiti Utara Malaysia, Sintok, Kedah, Malaysia, hasimah@uum.edu.my
Universiti Utara Malaysia, Sintok, Kedah, Malaysia, zahayu@uum.edu.my

DOI: https://doi.org/10.37134/mrj.vol9.sp.1.2020

Received: 22 March 2020; Accepted: 21 September 2020; Published: 22 September 2020

Cite this article (APA): Mohd Razif, N. N., Misiran, M., Sapiri, H., & Md Yusof, Z. (2020). Perceived risk for acceptance of E-wallet platform in Malaysia among youth: Sem approach. *Management Research Journal*, *9*, 1-24. https://doi.org/10.37134/mrj.vol9.sp.1.2020

ABSTRACT

The payment technology such as e-wallet is important in this century for both consumers and providers. Following the trend, the e-wallet providers quickly connect with the banks to develop banking applications activities. As e-wallet is closely linked to online transaction, the trust of risk issue is prominent whereby most studies present a challenge in providing e-wallet solutions to encourage user acceptance. Therefore, this study investigates the perceived risk that reflects customer emotions on the uncertainty of possible adverse effect on the use of new technologies. 231 young adults in a range of 18 to 30 years old were involved in this study. The analysis started with distribution of the questionnaire and getting the factors involved by adopting Exploratory Factor Analysis. Structural equation modelling and existing technology acceptance model is used in order to determine the significant factors that been accepted by the users among young generation. Results found that there are several factors that have significant relationship with the acceptance of e-wallet platform, which are behavioral intention, perceived privacy risk, perceived usefulness, trust, perceived overall risk, and perceived performance risk. More respondents should be selected in the future to give their opinion on this e-wallet issue. Besides that, more factors should be investigated in order to provide in depth view of e-wallet to the providers and consumers.

Keywords: perceived risk, technology acceptance model, e-wallet, structural equation modelling

INTRODUCTION

In Malaysia, the largest segment in digital payments is a total transaction value of USD 10,533 million in 2019 (Statista, 2019). The economy of Malaysia has shown significant growth since 2018 as the Gross Domestic Product (GDP) gap along with Singapore is further narrowing. Figure 1 shows statistic of Fintech growth in Malaysia for the year 2018. From this statistic, Malaysia's economy has exposed significant growth narrows for the last year. The Financial Technology (fintech) Malaysia 2018 report (Fong, 2018) shows Malaysia is closer to achieving a high-income nation status. Furthermore, Malaysia's Fintech sector is shown to combine healthy economic principles with high penetration for the Fintech sector startups (Fong, 2018).

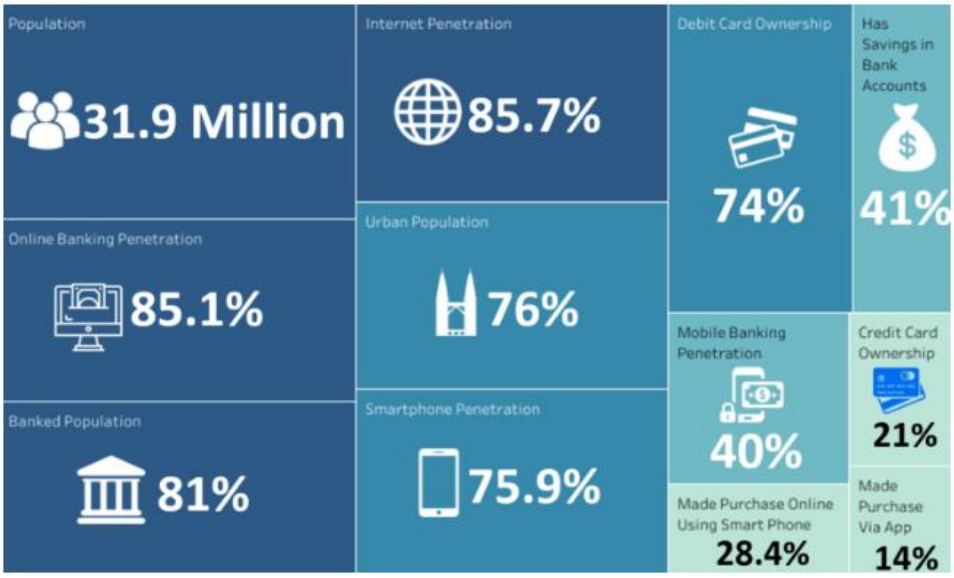


Figure 1: Fintech Malaysia Report 2018
Source: Fintech Malaysia Report 2018 (Fong, 2018).

Among mostly used platform in fintech industry is the e-wallet service (TechGenix, 2018).
The payment technology (e-wallet platform) is important in this century for both consumers and providers to begin using the e-wallet system. Following the trend, the e-wallet providers quickly connect with the banks to develop banking applications activities and also were the most popular e-wallet platform in Malaysia, such as Boost, GrabPay, Lazada Wallet, Samsung Pay, PayPal, Touch 'n Go e-wallet, vcash, WeChat Pay, MaybankPay, Razer Pay, BigPay, Setel, myNEWS Malaysia, and lastly AEON Wallet (Gazi, 2019). However, transaction process not the only things that the e-wallet are capable to handle. Although characteristics such as customer protection, loyalty card inclusion and proprietary magnetic strip technology are commonly used for transferring money between consumers (Gazi, 2019).

In current years, more study on E-Wallets as prominent digital payment methods has taken center stages (By, Santine, & Pay, 2017; Dospinescu, 2012; Mikkonen, Kuivanen, & Engineering, 2013; Ngoc Doan, 2014; Salah Uddin & Yesmin Akhi, 2014b; Trivedi, 2017). Among these study focus on the understanding of the perceived risk towards E-Wallet (Cao, 2016; Lai, 2018; Yang, Liu, Li, & Yu, 2015), consumer adoption rate through digital payment (Ngoc Doan, 2014; Pandy *et al*., 2017; Roy & Sinha, 2017), and the effect of trust on E-Wallet payment (Carlin, Olafsson, & Pagel, 2017; Mondego & Gide, 2018; Schierz, Schilke, & Wirtz, 2010). Thus, the emergence of the new technology with the payment method such as e-wallet will further enhance consumer adoption rate through mobile payment.

One of the applications for mobile wallets is a mobile payment. Mobile payment is a transfer of funds in exchange for products or services that involve a mobile device in performing and confirming payment functionally. Goods and services can include digital content, including movies, songs, mobile apps, online subscriptions or regular food shopping (Mcmillan, 2018). As e-wallet is closely linked to online transaction, the trust of risk issue is prominent in this study. Besides, Baganzi & Lau (2017) examining the trust and risk in mobile payment acceptance in Uganda. While Dospinescu (2012) focused on features, risks and electronic payment needs. All studies present a challenge in providing E-Wallet solutions to encourage user acceptance.

Technology Acceptance Model (TAM)

Technology acceptance model (TAM) was design for modelling users' acceptance of information systems or technologies or product acceptance (Davis, 2006). The TAM model was used to decide the decisions to be taken on various e-commerce activities and for the purpose of understanding behavior in terms of technology admission (Abrazhevich, 2004). Studies of perceived utility and ease of use by

Davis, Bagozzi, and Warshaw (1989) are consistent and relevant in several studies on the TAM model that are important reasons for the expansion of e-payments. Individuals see different perceived usefulness and ease of use in implementation of technology. The smallest possible effort to use a technology is individual perception of improvements in perceived usefulness while perceiving easy use (Davis, 1993).

Previous study by Venkatesh and Davis (2003) discovered perceived usefulness and perceived ease of use, influence the behavior of users' acceptance in TAM model. Therefore, to investigate the users' acceptance in using e-wallet system, the TAM model were adopted in this study. Punwatkar and Verghese (2018) using TAM model to verify the factors that affect consumers' adoption behavior of e-wallet system in Central India. Besides, the analysis found the perceived security was the biggest factor affecting the consumer's adoption of e-wallet system (Punwatkar and Verghese, 2018).

Lai (2018) explore Malaysian consumers with an extended perceived risk to TAM model using a single platform e-payment system that investigates the efficiency of perceived risk. The analysis found that the perceived risk can reduce the intention of consumers to use single platform e-payment (Lai, 2018). However, this study focuses only on consumers' intention to use the measurable with the adoption of Technology Acceptance Model (TAM), which will enhance the potential of deploying an integrated e-payment single platform system with perceived risk. In our study, we aim to construct TAM model for e-wallet platform among young adult, while simultaneously investigate the perceived risk theory posed by various uncertainties in e-wallet platform in Malaysia. It is important to identify the budget management behaviour among young adult since they are new generation being introduced to e-wallet (Abdul Jalil, Yusof, Ahmad, & Khalid, 2013).

Furthermore, e-wallet offers valuable insight into e-wallet acceptance because consumer faced e-wallet system but include differences in the way consumer perceive their value (Laukkanen, 2007; Upadhyay & Jahanyan, 2016). Factors that influence e-wallet acceptance like mobile payment have been investigated by (Kim, Ferrin, & Rao, 2008). Confidence and risk were important factors for their results. Thus, this is importance to identify the perceived risk along with consumer acceptance toward e-wallet platform. In order to explore the users' acceptance when using e-wallet platform, TAM model have better capability to verified consumer attitudes.

Perceived Risk Theory

Perceived risk reflects customer emotions on the uncertainty of possible adverse effect on the use of new technologies (Bauer, 1960). The dimension of perceived risk by Bauer (1960) was referred to in the perceived risk theory. Every time a consumer plans to buy a product, the consumers has some doubts, especially when the product is highly priced. Realizing the importance of this subject, Mitchell (1999) dedicated a 30 years extension reviews on perceived risk theory from 1960 until 1990. He noticed that, the perceived risk is attractive as it is based on intuitive view of consumers. In addition, the perceived risks affect consumption more than their usefulness in purchases because they are motivated to avoid risks (Mitchell, 1999). It is important to investigate perceived risk due to stronger influence than any perceived benefit that can be derived from the use on the decision making (Lee, 2009).

Perceived risk theory suggests the knowledge that consumers may be influenced during the E-Wallet payment process (Gia-Shie Liu & Pham Tan Tai, 2016; Lai, 2018; Mcmillan, 2018). For example, Khalilzadeh, Ozturk, and Bilgihan (2017) demonstrated perceivable performance and privacy risk related to e-wallet acceptance. This is due to mobile phone and payment terminal that is able to operate incorrectly or personal data loss caused by their use. These are situational factors that change the sense of risk in relation to circumstances that prevents a fixed definition of the structure. Cox and Rich (2006) acknowledged that perceived risk comprises of perceptions of the purchasing decision's interests and uncertainties. If the required purchase goals are not achieved, unfavourable consequences will be experienced by a consumer.

Forsythe and Shi (2003) classify perceived risk as the contextual assumption of potential losses when making online shopping decisions as a buyer. Consumers may reduce their perceived risk to a tolerable extent if there is uncertainty by emphasizing the amount at stake. This makes the cost or result admissible in case of a failure (Ross, 1975). Besides, Baganzi and Lau (2017) also highlighted the importance in examining risk which can help services provider, commercial banks and central banks reduce the risk perception towards consumer. Along with perceived risk in e-wallet platform, it contributes to the theoretical side of the perceived risk, trust and e-wallet adoption (Kauffman *et al.*, 2018).

Perceived risk implies that consumer thoughts such as anxiety, concern, discomfort, uncertainty and cognitive dissonance can be affected during the e-wallet transaction. The importance of risk for e-wallet was highlighted by Aransyah et al (2020) and Nizam et al (2018), in particular financial risk for the financial sector, when the e-wallet are also subject to the Bank Negara Guidelines. Consumers view banking relationships based on their trust and how the banking perceives risk as their favour (Al-alak and Alnawas, 2010). However, there is still a lack of research on the factors of perceived risk in the e-wallet platform in Malaysia. Thus, stern our interest in this subject. The subsection of the perceived risk such as behavioural intention, perceived security, perceived privacy risk, perceived usefulness, trust, perceived overall risk, and perceived performance risk that are applied in the conceptual framework model in this study are explained as below.

Behavioural Intention

Behavioural intention can be defined as the strength of intention one has towards performing a specific behaviour (Amoroso & Magnier-Watanabe, 2012). Leong et el. (2013) established that the e-wallet acceptance has a strong direct influence towards behavioural intention. Hence, it simplified procedures of e-wallet acceptance contribute to perceived usefulness which influences the behavioural intention as well (Mcmillan, 2018). The estimate variance in behavioural intention towards using new technologies such as e-wallet platform was adopted in conceptual framework model in this study.

Perceived Security

Perceived security is defined as online consumer perception of how they are protected from risk that related to security (Mekovec & Hutinski, 2012). Perceived security as a subjective consumer assessment of the safety of the electronically payment system (Linck, Pousttchi, & Wiedemann, 2006). Stroborn, Heitmann, Leibold, and Frank (2004) even supports this research that e-wallet platform fulfills the safety demands of consumer in every area.

Several researchers indicated that the significant e-wallet platform that transaction processes such as authentication, amendment and verification concentrated on technical protection information, including privacy and integrity (Linck et al., 2006). Abrazhevich (2004) also supported this findings and highlighted that security is the most critical areas of study in e-wallet platform systems. The safety issues of customers will influence the use of e-payment system recognize by Lim, Lee, and Kurnia, (2007). In addition, the respondents stated that if they encounter any violation of safety, they would refuse to use online transactions. However, important connection has been establish in a specific research (Chellappa & Pavlou, 2002; Khalilzadeh et al., 2017; Kim, Tao, Shin, & Kim, 2010; Pinchot et al (2016) between safety and the intention to use e-payment schemes. Therefore, there are the opportunity to comfort consumers to start changing into electronic payment system through improved better and safer security level in the e-wallet platform.

Perceived Privacy Risk

Perceived privacy risk is the potential loss of control over the personal information, which as invasion of privacy (Almousa, 2014). Previous literature indicated that consumer in perceived privacy risk during online purchasing influences the intention of doing so (Almousa, 2014; Featherman & Pavlou, 2003; Kim et al., 2008). One of the few research that examine the impact of perceived risk from

multidirectional point by Jarvenpaa et el. (1999). The research findings stated that the impact on online shopping behaviour is influenced by economic, social, performance, physical, and privacy risk.

Privacy risk also include the use of collected information for commercial purposes (e.g. advertising) which can be viewed as a breach of trust or exploitation of personal information (Mcmillan, 2018). Moreover, the privacy and security of the digital business environment are essential components characterized by repeated data breaches, fraud and constant surveillance (Morosan & DeFranco, 2016). It may encourage the consumer to protect their personal information or avoid behavior essential to accepting technology, in order to ignore the significance of the risk of privacy.

Perceived Usefulness

Perceived usefulness is a form of external motivation and encouragement that refers to the potential acceptance to use certain system that give benefits in e-wallet platform performance (Davis, Bagozzi, & Warshaw, 1989). Furthermore, it is more likely for individuals to embrace the technique if the general enhancement of jobs can result in effectiveness and productivity.

The usability indicates that the performance of websites from a prior research conducted in Venkatesh and Davis (2003), while Szymanski and Hise (2000) have shown that usability variables such as the layout of databases are powerful signals of fulfillment. The development of the page is connected to the ease of use of the scheme. In order for consumers to be more user-friendly and easier to navigate, providers should make the consumer ease in using the platform. Thus, on the basis of the results of Davis et al. (1989), e-payment consumers have a perceived usefulness in their choice to adopt the e-payment scheme. The purpose of user adoption of e-payment is affected by the perceived usefulness of significant research purposed. Kustono, Nanggala and Mas'ud (2020) in their study stated that the level of perceived usefulness does not affected by the quality of the e-wallet application.

Trust

Trust in online transaction clarified that the danger in economic operations was lowered by the presumed danger resulting from a confidence and would therefore encourage customers to goodwill for e-payment (Yousafzai et al., 2003). In the context of user expectations that justify the confidence of the customers (Tsiakis & Sthephanides, 2005), electronic payment operations take place. Linck et al. (2006) and Kousaridas et al. (2008) had stated that trust could achieve greater results, while suspicion could in return avoid possible failures.

The trust of consumer, according to Gefen et al (2003), is highly essential and guarantees security with little more assurance that the online vendor will not conduct any unethical or unwanted conduct, such as providing inaccurate information, unreasonable sales, issue of personal data, or buy operations without the previous consent of any user. Zhou (2011) indicate a further emphasizing the significance of trust in e-payments owing to the elevated degree of uncertainty and risk in many online transactions. Under no circumstances can e-payments achieve wider usage without trust in the scheme (Lim et al., 2007). The existing research therefore showed that trust is not the only motivator to impact the e-wallet acceptance (Bauman & Bachmann, 2017).

Perceived Overall Risk

The overall risk is different from those mentioned as it encapsulates overall sentiments of uncertainty which are not accountable for security, performance or privacy. They may contain cultural, psychological, physical, or time risks that are not critical to adoption of the e-wallet, but contribute to an individual behavior (Featherman & Pavlou, 2003). Some consumers who value social affiliation might use this as a guide for their decision-making, for example, even if social risk doesn't affect the adoption of e-wallets for the majority (Madureira, 2017).

The risk perception is therefore contextual and e-wallet acceptance is motivated mainly by these main variables, and partially by different personal risk factors (Nunkoo & Ramkissoon, 2013). An overall structure that captures the general risk is expected to catch a percentage of error not covered by the previous constructions.

Perceived Performance Risk

Khalilzadeh *et al.* (2017) defined performance risk as a chance for failure to deliver the intended outcomes to be achieved or announced. Lutz and Reilly (1974) argue that customers will probably return to choices with demonstrated competence if their experience a high degree of performance risk. For instance, if e-wallets were not working well, the consumer would probably return to payment for cards or return to money in case of account loss.

Niranjan *et al.* (2014) clarify that consumer are concern in the system breakdown, input errors and the ability to resolve fault issues. Lee (2009) notes that these issues create customers that are afraid to accept the operations failure, which also could contribute to economic failure. Consumers must therefore be certain that the infrastructure and technology are sufficiently advanced to produce perfect operations with almost no possibility of error.

METHODOLOGY

Data Collection

The collection of data used in this study is primary data, which is collected from questionnaires. Questionnaires are allocated to a sample of individuals that can conclude on the basis of the features of the population. The questionnaires were distributed through Google Form website and also self-administered questionnaire. Since, distributed through online is relatively low and simple (Harris, 2010), the data were collected by self-administered survey to respondents. Besides, it is recommended that more than 200 respondents be sampled for stabilization in factor analysis according to Thompson (2004). Therefore, there are a total of 231 datasets of questionnaire that used in this study. The development of questionnaire was adapted from existing literature review of e-wallet acceptance studies. The population of this study are young adult from aged between 18 years old until 30 years old in Malaysia.

The measurement scale used in this study is a suitable scale to measure the latent variable which applied an interval scale that a seven-point Likert scale extending from “Strongly Disagree” (1), “Disagree” (2), “Somewhat disagree” (3), “Neither agree or disagree” (4), “Somewhat agree” (5), “Agree” (6), and “Strongly Agree” (7) (Hair et al., 2014).

The questionnaires are divided into two section, namely Section A (demographic information) and section B (factors adoption). The issue is usually designed with a sequence of responses requiring participants to pick one that best describes itself. This allows the researcher to gather an accurate information. As a result of the past studies piloted by other scientists, questions are being put forward and altered. The questionnaire is used in simple English and *Bahasa Melayu* (the first language in Malaysia), which allows a better understanding of the question requirements and provides the accurate response.

This study also includes a snowball sampling by surveying young adult in e-wallet acceptance. The statistical tools present in this study are Statistical Analysis System Enterprise Guide (SAS Enterprise Guide) version 9.4 and Analysis of Moment Structure (AMOS) version 25.0.

Method of Data Analysis

This study will adopt TAM model by (Davis et al., 1989) by using variables that are relevant to perceived risk theory. This model will be used as the proposed TAM framework for this study. Thus, this model will solve the first objective of this study.

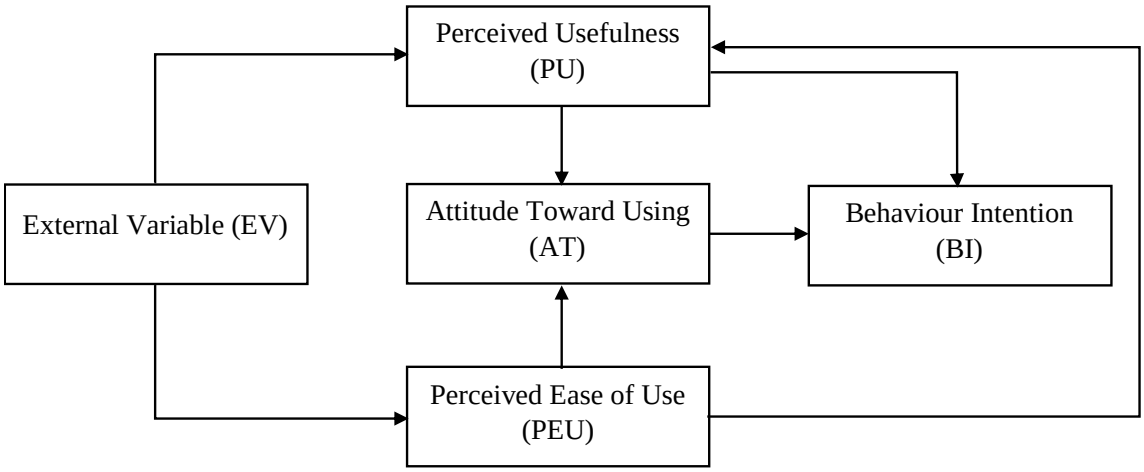


Figure 2: Technology Acceptance Model

The TAM model was employed as a means of deciding on decisions concerning various technology activities and to understand the behavior of technology acceptance (Abrazhevich, 2004). Studies on perceived usefulness and ease of use by Davis, Bagozzi, and Warshaw (1989) are consistent and relevant in numerous studies on TAM models which constitute important reasons for the expansion of e-wallet systems. Individual people will differentiate the perceived usefulness and perceived ease of use when implementing technology.

Therefore, there is other than TAM model, which is Theory of Reasoned Action (TRA) and Theory of Planned Behavior (TPB) in Information System Acceptance Model. In comparison to the TRA and TPB model, the TAM model is better suitable for explaining how an information system is used, and an accurate research framework. The TAM model was used to study the acceptability of the users of various technology on the basis of variables.

Proposed Conceptual Framework

Furthermore, the proposed model is a proxy for real use, meaning that each contributing factor is a measure of strength based on the probability to use the e-wallet platform. Based on Figure 3 it is the proposed conceptual framework.

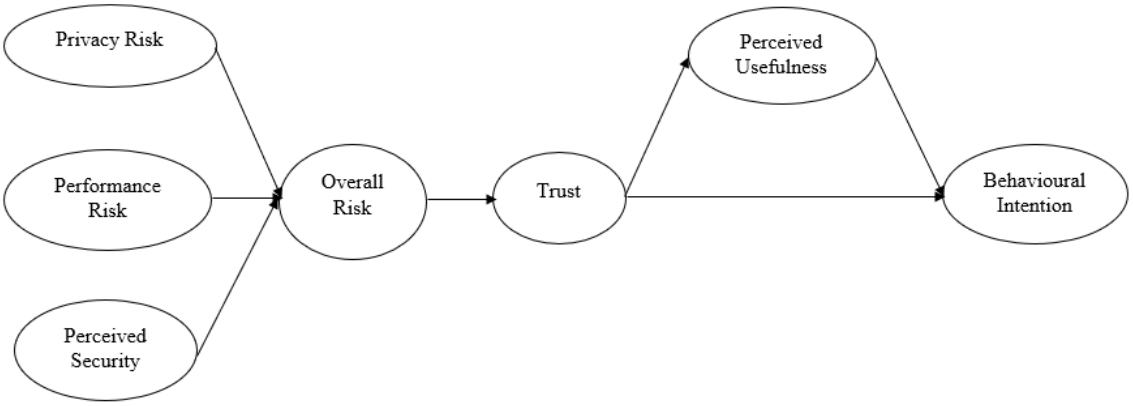


Figure 3: Proposed Conceptual Framework

Exploratory Factor Analysis (EFA)

An exploratory factor analysis (EFA) technique is used in order to determine the possible factor, construct or domain related to certain area of investigation. The process involving the data reduction and simplification of variable to explain in term of related factors (Sainani, 2014). It has been widely applied in many area such as in information system (Sappri, 2016), transportation (Yusof et al, 2014), and education (Mokhtar et al, 2012), to name a few. In this study the EFA were used to determine the appropriate perceived risk factors among young adult in e-wallet platform. The collection of data used in this method is primary data, which is collected from questionnaires to 231 of young adult and was analyze using software SAS Enterprise Guide. The finding suggested seven factor that influence the perceived risk, with the factor most explained are *Behavioural Intent, Perceived Security, Perceived Privacy Risk, Perceived Usefulness, Trust, Perceived Overall Risk and Perceived Performance Risk* as the factor influenced the perceived risk towards e-wallet platform in Malaysia.

Confirmatory Factor Analysis (CFA)

The confirmatory factor analysis (CFA) is a multivariate statistical procedure that is used to test the extent to which the measured variables account for the number of buildings. CFA can specify the number of factors required in the data and which measured variables is related to which latent variable. All evaluated factors are linked to each latent component in the exploratory factor analysis. This is because, CFA is an instrument used to verify or dismiss the measurement theory. However, the number of variables in the information needed and which tested variable are linked to what latent variable can be defined in the CFA evaluation.

Structured equation model (SEM) will be use to analyse the data for this study. SEM is a type of multivariate analysis which investigates multiple relationships (interdependence) between several dependent and independent variables and provides a most efficient estimation technique for a series of separate multiple regressions simultaneously (Hair et al., 1998). This is because, SEM is an extension of path analysis, but it is for a more elaborate set of methods. It can be used to test hypothesis of existing (confirmatory) theories or to look for patterns among information when there is limited information on the relationship of certain variables (exploratory) (Hair, Ringle, & Sarstedt, 2013). The distinction is not always clear as a study may be based on existing confirmatory theories and concepts of TAM. Thus, it is important to classify this study as it makes possible to choose between different SEM styles relevant to various fields of research.

In order to proceed with a Structured Equation Model (SEM), Confirmatory factor analysis (CFA) need to be conducted. There are more than a dozen of match statistics researcher used. A range of the most common match statistics and suggested cut-offs indicating an excellent fit is presented below. Table 1 shows the list of Goodness of Fit (fit statistics) used in this study.

Table 1: Goodness of Fit (fit statistics) for CFA

Name of category	**Name of Index**	**Description**	**Cut-off for Good Fit**
Absolute Model Fit	RMSEA	A parsimony-adjusted index, Value closer to 0 is represent a good fit.	RMSEA < 0.08
Incremental Fit	CFI	A revised from NFI, which not very sensitive to sample size. It compares the fit of a target model to the fit of an independent, or null, model.	CFI ≥ 0.90

	TLI	For TLI, 0.95 represent a good fit and indicates the model of interest improves the fit by 95% relative to the null model.	TLI > 0.95
Parsimonious Fit	CMIN/DF	A good fit for cmin/df is when the value should be less than 5.0	CMIN/DF < 5.0

Hypothesis Development

The previous section represents the endogenous constructs derived from the theory of technological acceptance (TAM) which form the dependent variables of the TAM model. This section presents the hypothesis development from the overview of perceived risk theory and the contemporary drivers influencing the core TAM model. This section also will fulfill the second objective. Therefore, it can be hypothesized as below;

- H1: Perceived privacy risk influences the overall risk associated using e-wallet platform.
- H2: Perceived performance risk influences the overall risk associated using e-wallet platform.
- H3: Perceived security influences the overall risk associated using e-wallet platform.
- H4: Perceived overall risk influences the trust associated using e-wallet platform.
- H5: Trust has a direct influence on the perceived usefulness associated using e-wallet platform.
- H6: Trust has a direct influence on the behavioural intent towards using e-wallet platform.
- H7: Perceived usefulness has a direct influence on behavioural intent towards using e-wallet platform.

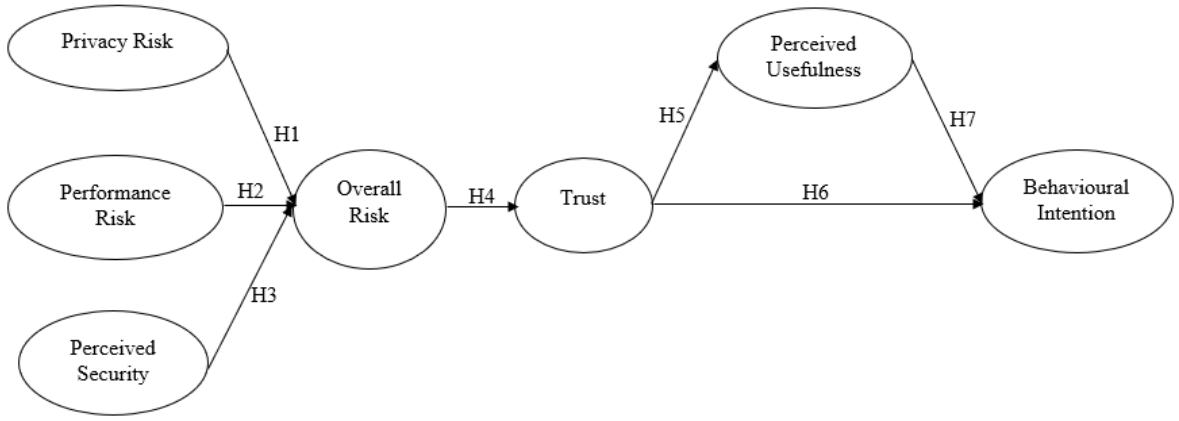


Figure 4: Conceptual framework with Hypothesis

RESULTS AND DISCUSSION

Reliability Measures

The Cronbach's α coefficient of each construct ware showed in Table 2 below. The reliability of this study was tested for seven (7) factors in e-wallet platform based on the conceptual framework model.

Table 2: The Cronbach's α Coefficient

Variable	**Cronbach's Alpha**	***N* of item**

Behavioural Intention	0.942	7
Perceived Security	0.926	5
Perceived Privacy Risk	0.914	5
Perceived Usefulness	0.926	5
Trust	0.913	5
Perceived Overall Risk	0.927	4
Perceived Performance Risk	0.901	4
All construct	0.970	35

Table 2 shows the reliability of all construct in this study is 0.970, which is strong positive thus, it can be concluded that the questionnaire has a high internal consistency. Moving on to each construct, the Cronbach's Alpha of e-wallet platform acceptance, behavioural intention, perceived security, perceived privacy risk, perceived usefulness, trust, perceived overall risk, and perceived performance risk are 0.942, 0.926, 0.914, 0.926, 0.913, 0.927, and 0.901 respectively. In other words, all constructs have a strong positive consistency as all the Cronbach's Alpha value fall between 0.901 to 0.942, which indicated that the reliability test is consistent and also acceptable.

Exploratory Factor Analysis (EFA)

The initial factor analysis is the coefficient of correlation. The pattern of relationship is observed. Variables with a low correlation coefficient ($r < +/- 0.30$) were considered to be removed because of absence of patterns relationship (Yong & Pearce, 2013). The above and below the main diagonal correlation coefficients are identical. If any number of factors is below 0.5, it considers separating one from the correlation evaluation matrix. All of the off-diagonal components (left and right of the diagonal values) should be incredibly small to near zero which indicate a good model. Due to the complexity of the variables used, the table is large and cannot be presented. However, the findings showed that all items have an appropriate correlation for the correlation matrix.

According to Figure 5, the result shows that value of Kaiser's-Meyer-Olkin Measures of Sampling Adequacy (MSA) to measure the proportion of variance among variables that might be caused by underlying factor. Kaiser (1974) recommend a KMO 0.5 value as a minimum, acceptable value from 0.7-0.8 and a good value is above 0.9. The KMO overall results in this study is 0.952, indicate that the result revealed that the sampling for consumers perceived risk towards e-wallet are adequate for factor analysis. Therefore, the consumers perceived risk towards e-wallet variables have a strong relationship among each other and consider applicable for this study.

Kaiser's Measure of Sampling Adequacy: Overall MSA = 0.95253243																	
Q1	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**	**Q9**	**Q10**	**Q11**	**Q12**	**Q13**	**Q14**	**Q15**	**Q16**	**Q17**	**Q18**
0.962	0.963	0.963	0.941	0.968	0.974	0.963	0.952	0.961	0.950	0.952	0.953	0.921	0.914	0.956	0.972	0.952	0.970
Q19	**Q20**	**Q21**	**Q22**	**Q23**	**Q24**	**Q25**	**Q26**	**Q27**	**Q28**	**Q29**	**Q30**	**Q31**	**Q32**	**Q33**	**Q34**	**Q35**	
0.918	0.973	0.973	0.963	0.965	0.968	0.943	0.948	0.947	0.934	0.944	0.917	0.955	0.951	0.959	0.938	0.940	

Figure 5: Kaiser's Measures of Sampling Adequacy (MSA) Result

Table 3 indicates that the eigenvalues actually reflect the number of factors which compares with the number of items subject to factor analysis. The items show all the factors that can be extracted from the analysis along with their eigenvalues. The result on eigenvalue of the correlation matrix shows there are 7 factors that were consider after conducting the extraction of data, in which the eigenvalues is greater than 1.

The scree plot in Figure 6 shows correspondingly to the eigenvalue on the y-axis and the number of factors on the x-axis. Scree plot is a graph of eigenvalue to all factors. The graph is useful for determining how many factors can be retained. The point of importance is where the curve begins to flatten and shown a cut-off an eigenvalue ≥ 1. It can be seen that the curve begins to flatten between

factors 8 and 9. From the factor 8 onward have an eigenvalue of less than 1, so there are 7 factors have been retained from the 35 items. Hence, the eigenvalue of the correlation matrix and scree plot shows the same result as the 35 items in this study will be reduce to 7 factors after running the extraction.

Table 3: The Result on Eigenvalues of the Correlation Matrix

Eigenvalues of the Correlation Matrix: Total = 35 Average = 1									
	Eigenvalue	**Difference**	**Proportion**	**Cumulative**		**Eigenvalue**	**Difference**	**Proportion**	**Cumulative**
1	17.7746	14.4998	0.5078	0.5078	**19**	0.1634	0.0044	0.0047	0.9728
2	3.2748	1.1213	0.0936	0.6014	**20**	0.1590	0.0319	0.0045	0.9774
3	2.1535	0.2474	0.0615	0.6629	**21**	0.1272	0.0120	0.0036	0.9810
4	1.9061	0.2954	0.0545	0.7174	**22**	0.1151	0.0079	0.0033	0.9843
5	1.6106	0.3656	0.0460	0.7634	**23**	0.1072	0.0228	0.0031	0.9874
6	1.2451	0.3813	0.0356	0.7990	**24**	0.0845	0.0002	0.0024	0.9898
7	1.0413	0.0740	0.0247	0.8237	**25**	0.0843	0.0182	0.0024	0.9922
8	0.7898	0.1442	0.0226	0.8462	**26**	0.0661	0.0169	0.0019	0.9941
9	0.6456	0.0194	0.0184	0.8647	**27**	0.0493	0.0050	0.0014	0.9955
10	0.6262	0.0285	0.0179	0.8826	**28**	0.0443	0.0044	0.0013	0.9967
11	0.5977	0.0609	0.0171	0.8996	**29**	0.0399	0.0158	0.0011	0.9979
12	0.5367	0.0698	0.0153	0.9150	**30**	0.0241	0.0038	0.0007	0.9986
13	0.4670	0.0730	0.0133	0.9283	**31**	0.0203	0.0098	0.0006	0.9992
14	0.3940	0.0811	0.0113	0.9396	**32**	0.0105	0.0011	0.0003	0.9995
15	0.3129	0.0696	0.0089	0.9485	**33**	0.0094	0.0038	0.0003	0.9997
16	0.2433	0.0092	0.0070	0.9555	**34**	0.0056	0.0015	0.0002	0.9999
17	0.2341	0.0240	0.0067	0.9622	**35**	0.0041		0.0001	1
18	0.2100	0.0466	0.0060	0.9682					

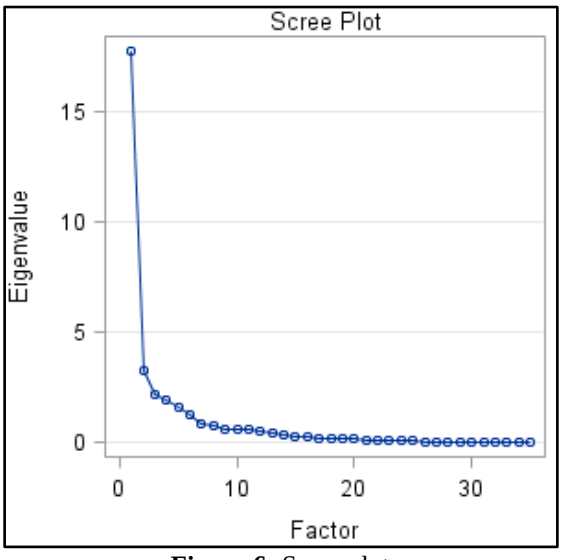


Figure 6: Scree plot

The validity of the scale construct was confirmed by a principal component analysis with Rotated Factor Pattern in Table 4. The rotated factor model is used for estimating components and to demonstrate the correspondence between each item. With all loads, the rotated factor pattern includes positive or negative charging. In addition, rotation does nothing but promotes the interpretation of the assessment.

On the basis of 35 items were analyses and it was decreased to 7 factors. From the Table 5, factor 1 consist of 7 items related, followed by factor 2, factor 3, factor 4, and factor 5 consist of 5 items related respectively. Lastly, factor 6 and factor 7 consist of 4 items related respectively. Each factor comprises of the variable that corresponds to each other with the greater charging factor. However, by looking at Table 5 at variance explained by each factor, the most explained variance is factor 1 with value 5.813.

By interpreting the related items that represent the variable accurately within the factor, each factor would be named accordingly. The new name for each factor is: Factor 1 (Behavioural Intent), Factor 2 (Perceived Security), Factor 3 (Perceived Privacy Risk), Factor 4 (Perceived Usefulness), Factor 5 (Trust), Factor 6 (Perceived Overall Risk) and Factor 7 (Perceived Performance Risk). Hence, these factors can be used as variables for further analysis.

Table 4: Rotated Factor Pattern

Rotated Factor Pattern							
	Factor1	**Factor2**	**Factor3**	**Factor4**	**Factor5**	**Factor6**	**Factor7**
Factor 1: Behavioural Intent							
Q19) Learning to use e-wallet platform is easy.	0.8184						
Q30) Using e-wallet platform is clear and understandable.	0.7692						
Q31) Using e-wallet transaction may be used everywhere and every time.	0.7209						
Q18) If there is opportunity, I will use e-wallet platform system again.	0.7124						
Q3) I am willing to share my experience of using e-wallet platform services with my friends and family.	0.7004						
Q15) I intend to use e-wallet platform system because I see the benefits of it.	0.6415						
Q17) If possible, I intend to increase my use of e-wallet platform system.	0.6139						
Factor 2: Perceived Security							
Q12) I feel secure using my credit/debit card information through e-wallet platform.		0.8692					
Q7) I believe my personal information is secure when using e-wallet platform system.		0.8206					
Q4) I believe e-wallet platform is secure.		0.7202					
Q10) I believe using e-wallet platform for any financial transaction is secure.		0.6893					
Q21) Security features do not affect my decision to use the e-wallet platform.		0.4658					
Factor 3: Perceived Privacy Risk							
Q33) When using e-wallet platform, it would keep my personal sensitive information from exposure.			0.8537				
Q32) When using e-wallet platform, internet hackers (criminals) unlikely to take control of my private information.			0.8445				
Q34) When using e-wallet platform, my private information is unlikely to be used for other purposes			0.8388				
Q25) There is less risk of privacy breach with payment process using e-wallet platform.			0.7240				

Q35) When using e-wallet platform, the changes of losing control over my private information is low			0.6815				
Factor 4: Perceived Usefulness							
Q8) I believe payment transaction would be difficult to perform without e-wallet payment system.				0.8170			
Q9) I believe using e-wallet payment system enhance the effectiveness of the payment process.				0.7392			
Q11) I believe using e-wallet platform system saves me time, especially in transaction process.				0.6662			
Q14) I found using e-wallet makes it easier to buy products or services.				0.6156			
Q13) I found using e-wallet is useful in pay bills, shopping, online shopping, and others.				0.4679			
Factor 5: Trust							
Q24) The state of existing e-wallet transaction services, I believe that technology related errors are quite rare.					0.6502		
Q5) I believe e-wallet platform services providers will do everything to secure the transactions for users.					0.5760		
Q6) I believe e-wallet platform system are trustworthy.					0.5502		
Q16) If my card is stolen, I am protected against fraudulent transactions.					0.5172		
Q20) Overall, e-wallet platform services are reliable way to pay.					0.4862		
Factor 6: Perceived Overall Risk							
Q27) There may not cause an error in the online transaction process when using e-wallet platform.						0.8479	
Q28) There may not cause fraud or lost money when using e-wallet platform.						0.7982	
Q29) There may not leaked information online transactions when using e-wallet platform.						0.7872	
Q26) There may not be accessed into unauthorized personal data by hackers when using e-wallet platform.						0.7646	
Factor 7: Perceived Performance Risk							
Q2) E-wallet might tend to perform well which will not create any problems during transactions process.							0.7158
Q23) The security systems built into the e-wallet platform are strong enough to protect my checking account.							0.6080
Q1) Considering their high level of performance, using e-wallet platform service is relatively risk-free.							0.6041
Q22) The probability of e-wallet platform services failing to perform properly is low.							0.5783

Table 5: Variance Explained by Each Factor

Variance Explained by Each Factor						
Factor 1	**Factor 2**	**Factor 3**	**Factor 4**	**Factor 5**	**Factor 6**	**Factor 7**

5.813	4.372	4.229	4.034	3.888	2.781	2.179

Confirmatory Factor Analysis (CFA)

The Confirmatory Factory Analysis, according to Bagozzi & Foxall (1996) is the best way to quantify the validity and reliability of measures. The CFA's goodness-of-fit is used to further assess the uni-dimensionality and convergence of the structures. To find the best model in the overall model, a goodness-of-fit is firstly determine in each construct. If the model is not in a good fit, further examination should be done to improve the fit. In this case, we need to examine the modification indices to show some potential way to improve the model empirically suggested by AMOS. However, the changes made in the model should fit with theoretical sense.

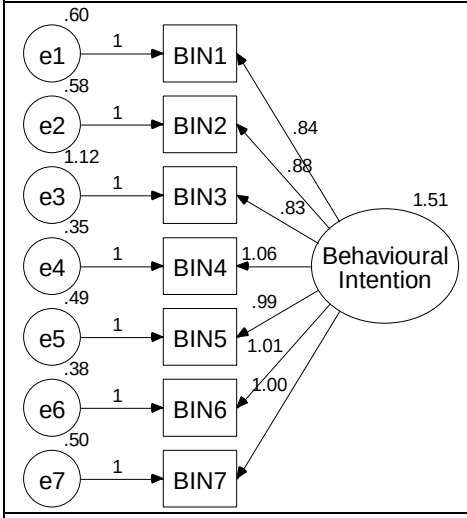
In this study, CFA is applied with the following indexes which is root mean square error approximation (RMSEA), comparative fit index (CFI), Tucker & Lewis index (TLI) and chi-square/df (CMIN/DF). All factors are acceptable if TLI and CFI are equal or above 0.95 and 0.90 respectively (Bentler & Bonett, 1980), CMIN/DF is equal to or less than 5 (Carmines & McIver, 1981) and RMSEA is equal to or less than 0.08 (RMSEA $\leq$ 0.05 is excellent) (Steiger, 1990).

Behavioural Intention

As stated in Table 6, before modification, the value of RMSEA, CFI, TLI and CMIN/DF values are not fulfill the condition of Goodness of Fit. To fit the model, modification indices should be run. For Behavioural Intention model, e1 is correlated with e2 in the after modification. After run the modification indices, the RMSEA (0.063), CFI (0.992), TLI (0.987) and CMIN/DF (1.926) are changes and accepted. Since all the index value is fulfilled the condition, the Behavioural Intention model after run the modification indices can be used.

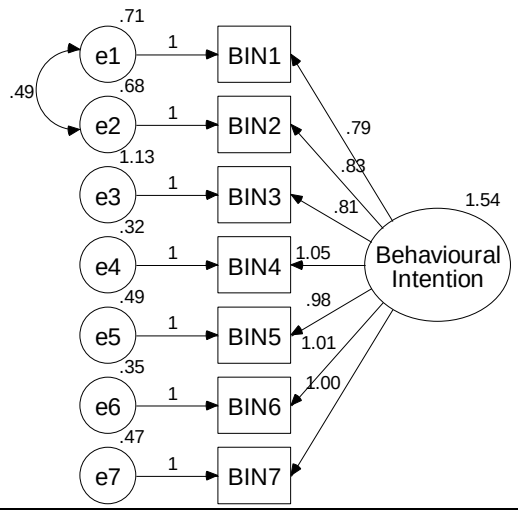
Table 6: Before and after modification in Behavioural Intention model

Before Modification



Name of Category	Name of Index	Value of Index
Absolute Fit	RMSEA	0.217
Incremental Fit	CFI	0.899
	TLI	0.848
Parsimonious Fit	CMIN/DF	11.842

After Modification

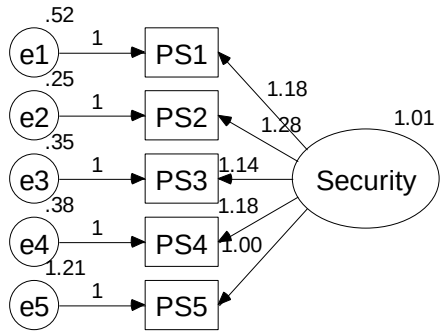


Name of Category	Name of Index	Value of Index
Absolute Fit	RMSEA	0.063
Incremental Fit	CFI	0.992
	TLI	0.987
Parsimonious Fit	CMIN/DF	1.926

Perceived Security

Table 7: Before and after modification in Perceived Security model

Before Modification



Name of Category	Name of Index	Value of Index
Absolute Fit	RMSEA	0.071
Incremental Fit	CFI	0.994
	TLI	0.988
Parsimonious Fit	CMIN/DF	2.172

After Modification

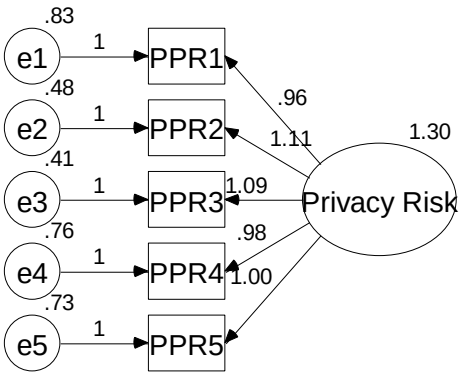
No modification, because the model is already fit.

As stated in Table 7, all the index value is acceptable due to fulfilled the condition of Goodness of Fit value which RMSEA (0.071), CFI (0.994), TLI (0.988) and CMIN/DF (2.172). For Perceived Security model, there is no need modification indices as the model is already fit. Since all the index value is fulfilled the condition, the Perceived Security model before run the modification indices can be used.

Perceived Privacy Risk

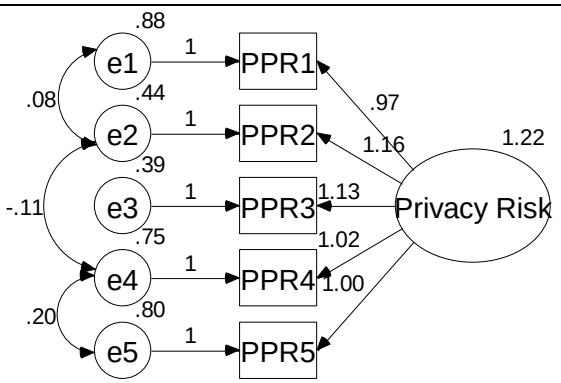
Table 8: Before and after modification in Privacy Risk model

Before Modification



Name of Category	Name of Index	Value of Index
Absolute Fit	RMSEA	0.138
Incremental Fit	CFI	0.972
	TLI	0.944
Parsimonious Fit	CMIN/DF	5.388

After Modification



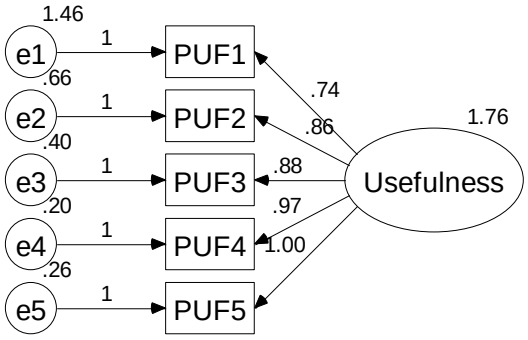
Name of Category	Name of Index	Value of Index
Absolute Fit	RMSEA	0.060
Incremental Fit	CFI	0.998
	TLI	0.989
Parsimonious Fit	CMIN/DF	1.835

As stated in Table 8, before modification, the value of RMSEA, TLI and CMIN/DF values are not fulfill the condition of Goodness of Fit. To fit the model, modification indices should be run. For Perceived Risk model, e1 ↔ e2, e2 ↔ e4 and e4 ↔e5 in the after modification. After run the modification indices, the RMSEA (0.060), CFI (0.998), TLI (0.989) and CMIN/DF (1.835) are changes and accepted. Since all the index value is fulfilled the condition, the Perceived Risk model after run the modification indices can be used.

Perceived Usefulness

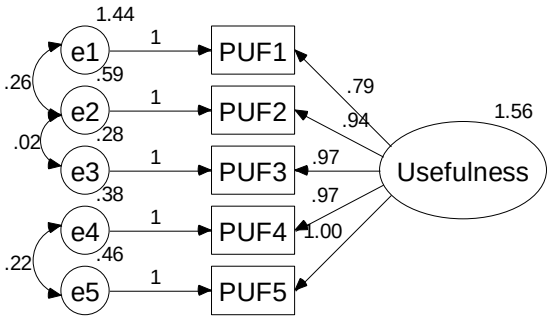
Table 9: Before and after modification in Perceived Usefulness model

Before Modification



Name of Category	Name of Index	Value of Index
Absolute Fit	RMSEA	0.200
Incremental Fit	CFI	0.955
	TLI	0.910
Parsimonious Fit	CMIN/DF	10.175

After Modification



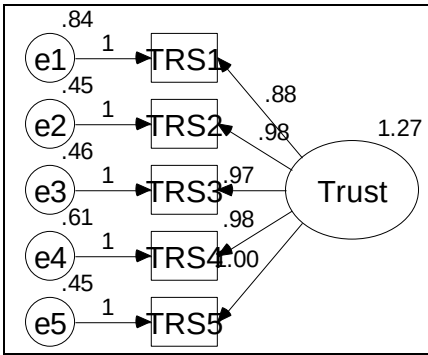
Name of Category	Name of Index	Value of Index
Absolute Fit	RMSEA	0.023
Incremental Fit	CFI	1.000
	TLI	0.999
Parsimonious Fit	CMIN/DF	1.117

As stated in Table 9 before modification, the value of RMSEA, TLI and CMIN/DF values are not fulfill the condition of Goodness of Fit. To fit the model, modification indices should be run. For Perceived Usefulness model, e1 ↔ e2, e2 ↔ e3 and e4 ↔e5 in the after modification. After run the modification indices, the RMSEA (0.023), CFI (1.000), TLI (0.999) and CMIN/DF (1.117) are changes and accepted. Since all the index value is fulfilled the condition, the Perceived Usefulness model after run the modification indices can be used.

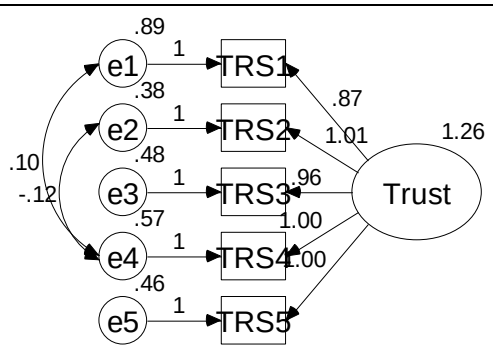
Trust

Table 10: Before and after modification in Trust model

Before Modification	After Modification



Name of Category	Name of Index	Value of Index
Absolute Fit	RMSEA	0.090
Incremental Fit	CFI	0.988
	TLI	0.976
Parsimonious Fit	CMIN/DF	2.860



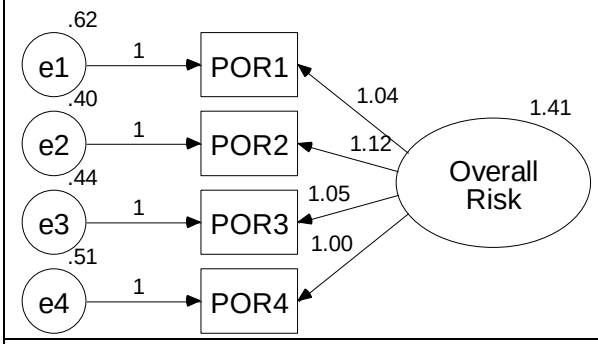
Name of Category	Name of Index	Value of Index
Absolute Fit	RMSEA	0.000
Incremental Fit	CFI	1.000
	TLI	1.002
Parsimonious Fit	CMIN/DF	0.883

As stated in Table 10, before modification, only RMSEA values are not fulfill the condition of Goodness of Fit. To fit the model, modification indices should be run. For Trust model, e1 ↔ e4 and e2 ↔ e4 in the after modification. After run the modification indices, the RMSEA (0.000), CFI (1.000), TLI (1.002) and CMIN/DF (0.883) are changes and accepted. Since all the index value is fulfilled the condition, the Trust model after run the modification indices can be used.

Overall Risk

Table 11: Before and after modification in Overall Risk model

Before Modification



Name of Category	Name of Index	Value of Index
Absolute Fit	RMSEA	0.074
Incremental Fit	CFI	0.997
	TLI	0.990
Parsimonious Fit	CMIN/DF	2.243

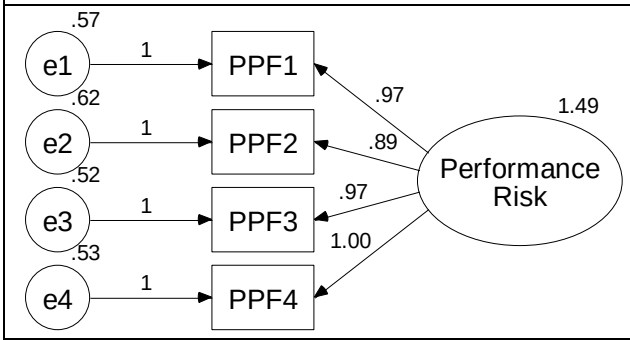
After Modification

No modification, because the model is already fit.

As stated in Table 11, all the index value is acceptable due to fulfilled the condition of Goodness of Fit value which RMSEA (0.074), CFI (0.997), TLI (0.990) and CMIN/DF (2.243). For Overall Risk model, there is no need modification indices as the model is already fit. Since all the index value is fulfilled the condition, the Overall Risk model before run the modification indices can be used.

Perceived Performance Risk

Table 12: Summary of before and after modification in Performance Risk model

<table>
<tr><th>Before Modification</th><th>After Modification</th></tr>
<tr><td> 

<table>
<tr><th>Name of Category</th><th>Name of Index</th><th>Value of Index</th></tr>
<tr><td>Absolute Fit</td><td>RMSEA</td><td>0.039</td></tr>
<tr><td>Incremental Fit</td><td>CFI</td><td>0.999</td></tr>
<tr><td></td><td>TLI</td><td>0.996</td></tr>
<tr><td>Parsimonious Fit</td><td>CMIN/DF</td><td>1.351</td></tr>
</table></td><td>No modification, because the model is already fit.</td></tr>
</table>

As stated in Table 12, all the index value is acceptable due to fulfilled the condition of Goodness of Fit value which RMSEA (0.039), CFI (0.999), TLI (0.996) and CMIN/DF (1.351). For Performance Risk model, there is no need modification as the model is already fit. Since all the index value is fulfilled the condition, the Performance Risk model before run the modification indices can be used.

Overall Model (Full Model)

In overall model, structural equation modeling is applied to test the hypothesis testing about the relationship between factors in the conceptual research model. Figure 7 shows the overall model before run the modification indices and Table 13 is the result of index value before run the modification indices. As stated in Table 13 in before recommendation the only TLI values are not fulfilled the condition of Goodness of Fit. To make the model is fit and accepted to the overall model, the modification indices should be run.

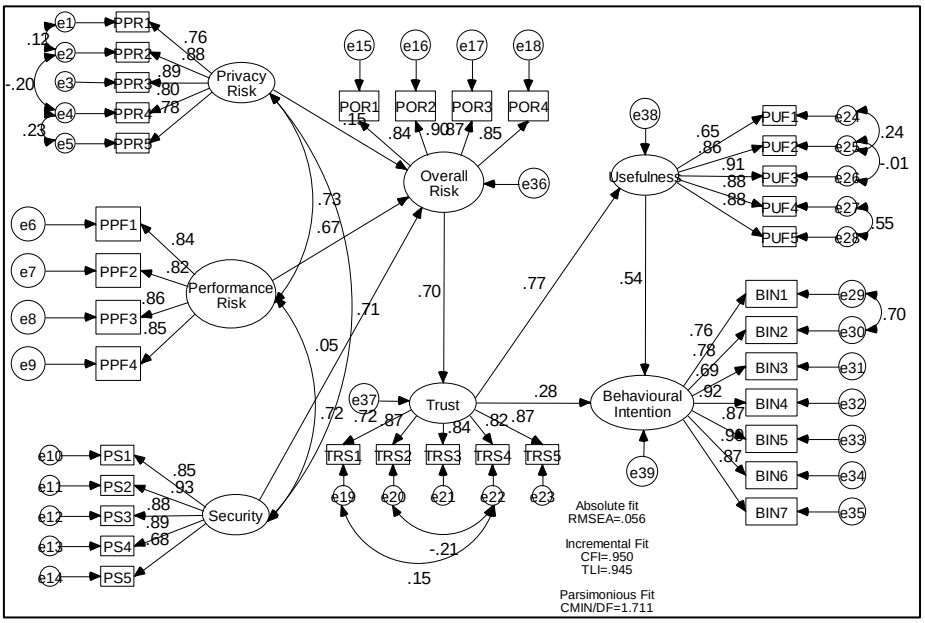


Figure 7: Overall model before run the modification indices

Table 13: The result of index value before run the modification indices

Name of Category	Name of Index	Value of Index
Absolute Fit	RMSEA	0.056
Incremental Fit	CFI	0.950
	TLI	0.945
Parsimonious Fit	CMIN/DF	1.711

Based on Table 14 the assessment on the overall model fit indicate an acceptable fit since all the fit indices under consideration are well above the modification value. Even though the TLI index is a bit low, but it is much better to improve the initial model. The TLI indices also have shown improvement above the cut-off value 0.952. Thus, the overall model fit is considered to be adequate and acceptable for further analysis to test of the hypothesis.

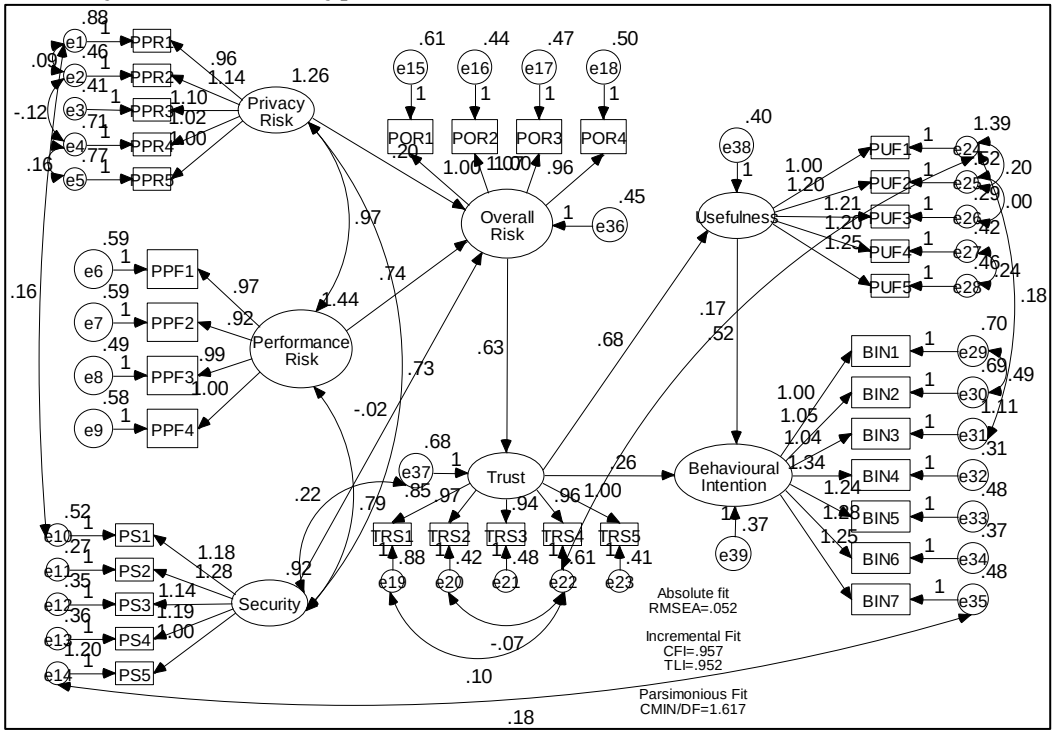


Figure 8: Overall model after run the modification indices

Table 14: The result of index value after run the modification indices

Name of Category	Name of Index	Value of Index
Absolute Fit	RMSEA	0.052
Incremental Fit	CFI	0.957
	TLI	0.952
Parsimonious Fit	CMIN/DF	1.617

Hypothesis testing

The level of statistical significance level is often expressed as the so-called p-value. Therefore, significance level of 0.05 is commonly used in academic research rather than 0.01 (LaerdStatistics, 2018). In this study, the significance value will used 0.05. According to the SEM results in Table 16, the indexes of standard error (S.E.) – standard deviation of the sampling distribution, and the critical ratio (C.R.) – dividing regression weight by the standard error were estimate in each path in the research model. After run the modification in overall model, the standardize regression weight and p-value estimation is analyze in Table 15. According to above results, interestingly all paths have the strong relationships with the acceptance of e-wallet platform. All the proposed hypothesis is supported accept for Hypothesis 3 (H3) that is not supported.

Table 15: Results of Hypothesis Testing

Hypothesis (Path analysis)	Estimate	S.E.	C.R.	P	Results
H1: Overall Risk ← Privacy Risk	0.198	0.085	2.342	0.019	Supported
H2: Overall Risk ← Performance Risk	0.737	0.091	8.098	0.000	Supported
H3: Overall Risk ← Security	-0.024	0.090	-0.269	0.788	Not Supported
H4: Trust ← Overall Risk	0.627	0.059	10.535	0.000	Supported
H5: Usefulness ← Trust	0.676	0.074	9.166	0.000	Supported
H6: Behavioural Intention ← Trust	0.257	0.072	3.557	0.000	Supported
H7: Behavioural Intention ← Usefulness	0.519	0.095	5.488	0.000	Supported

CONCLUSION

The objective of this study is to construct the technology acceptance model for e-wallet platform among young adult in Malaysia and to investigate the perceived risk posed by various uncertainties in e-wallet platform. To achieve the objective of this study, a proposed conceptual framework is built and were comprised of seven constructs which are behavioural intention, perceived security, perceived privacy risk, perceived usefulness, trust, perceived overall risk, and perceived performance risk. The findings of this study have important means for the improvement and growth of e-wallet platform system among young adult in Malaysia.

Based on the result findings, behavioural intention, perceived privacy risk, perceived usefulness, trust, perceived overall risk, and perceived performance risk have a positive significant relationship towards the acceptance in e-wallet platform among young adult consumer (Nguyen and Huynh, 2018). Moreover, only perceived security have no significant relationship of acceptance in e-wallet platform among young adult consumer. The result is supported with the findings done by Lim et al. (2007) found that consumer security issues will affect the acceptance of the e-wallet platform. Providers can ensure that the website offers consumers with a safe and secure environment to develop and maintain a long-term relationship to leave consumers with an idea of trustworthy towards e-wallet platform. This can be achieved by informing consumers about the security and the secure characteristics of their safe web-based operations with digital certificates and secure servers. Banks and financial providers should always be aware that fraud exists and also customer as well.

Trust and perceived usefulness constructs towards behavioural intention in e-wallet platform have positive significance relationship towards each other. The result is consistent with the study by Davis et al. (1989) that the consumer made decision in acceptance of e-wallet platform will influence by perceived usefulness. For consumer who can easily navigate the electronic payment system, providers should provide tutorials or guide different e-wallet outlets. The development of the website should give priority to the usability and convenience of use of the scheme. It can understand the effect on the presumed usefulness and contribute to increased consumer motivation. The use of e-wallet platform through marketing campaigns can be underlined by banks and financial institutions.

Overall risk, privacy risk and performance risk also have significance factor and therefore e-wallet providers should not oversee at it as a chance to understand what consumer needs, and want. Therefore, extra attention is given in order to expand the use of e-wallet by banking institutions or online transaction facility providers. In order to secure the flawless systems security, consumers need to have confidence and trust on the online transaction provide by e-wallet providers, policy makers and financial institutions. Based from these factors, only six constructs that have significant relationship with the acceptance of e-wallet platform, which is behavioural intention, perceived privacy risk, perceived usefulness, trust, perceived overall risk, and perceived performance risk. However, based on the reliability measures, all constructs are strong positive related.

Although there are many advantages in e-wallet platform such as convenience, cost savings, and quick response, but there also have several limitations and risks that affecting the acceptance among consumers. For this reason, there are seven factors that affecting the behavioural of acceptance among the consumers to use and also to accept the technology payment in the e-wallet platform service. Based on the results obtained from this study, the related of e-wallet company in Malaysia can conduct an appropriate strategy for the development of mobile payment services which is beneficial to the providers and also to the consumers as well.

There are few other things that can be considered in the future to enhance this study. To list a few, more respondents should be selected to be involved in giving their opinion on the e-wallet implementation. More relevant factors towards e-wallet should be considered in constructing the structural model. More factors will provide more information to the providers and consumers in helping them to make a wise decision.

REFERENCES

Abdul Jalil, N., Yusof, H., Ahmad, N., & Khalid, K. (2013). Pengurusan Pendapatan-Perbelanjaan Dalam Kalangan Pelajar-Pelajar Celik Ekonomi. *Management Research Journal, 2*, 19-30. Retrieved from https://ejournal.upsi.edu.my/index.php/MRJ/article/view/1363

Abrazhevich, D. (2004). Electronic Payment Systems : a User-Centered Perspective and Interaction Design. In *Technische Universiteit Eindhoven*.

Al-Alak, A.M., & Alnawas, A.M. (2010). Mobile marketing: Examining the impact of trust, privacy concern and consumers' attitudes on intention to purchase. International Journal of Business and Management, 3(5), 28-41.

Almousa, M. (2014). *the Influence of Risk Perception in Online Purchasing Behavior : a Multi Dimensional Perspective*. *4*(12), 373–382.

Kustono, A. S., Nanggala, A. Y. A., & Mas'ud, I (2020). Determinants of the Use of E-Wallet for Transaction Payment among College Students. *Journal of Economic, Business and Accountancy, Ventura*, 23(1).

Amoroso, D. L., & Magnier-Watanabe, R. (2012). Building a research model for mobile wallet consumer adoption: The case of mobile Suica in Japan. *Journal of Theoretical and Applied Electronic Commerce Research*.

Aransyah, M.F., Roy, J., & Aprianti, Y. (2020). Innovation resistance and perceive novelty on e-wallet services. in proceeding miceb (mulawarman international conference on economics and business)(vol 2, pp. 115-122).

Baganzi, R., & Lau, A. K. W. (2017). Examining trust and risk in mobile money acceptance in Uganda. *Sustainability (Switzerland)*, *9*(12).

Bagozzi, R. P., & Foxall, G. R. (1996). Construct validation of a measure of adaptive-innovative cognitive styles in consumption. *International Journal of Research in Marketing*.

Bauer, R. A. (1960). Consumer behavior as risk taking. *Risk Taking and Information Handling in Consumer Behavior*.

Bauman, A., & Bachmann, R. (2017). Online consumer trust: Trends in research. *Journal of technology management & innovation*, *12*(2), 68-79.

Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*.

By, T., Santine, L., & Pay, C. X. (2017). *The Rise of e-Wallets and Their Benefits in the Payments Ecosystem*. (4).

Cao, W. (2016). *FinTech Acceptance Research in Finland-Case Company Plastc*. Retrieved from https://pdfs.semanticscholar.org/e8ce/fe083ad1c5487b0fc3cf789708c0f26219a4.pdf

Carlin, B., Olafsson, A., & Pagel, M. (2017). Technology Adoption Across Generations: Financial Fitness in the Information Age. *NBER Working Paper*.

Carmines, E., & McIver, J. (1981). Analyzing models with unobserved variables: Analysis of covariance structures. In *Social measurement: Current issues*.

Chellappa, R. K., & Pavlou, P. A. (2002). Perceived information security, financial liability and consumer trust in electronic commerce transactions. *Logistics Information Management*.

Cox, D. F., & Rich, S. U. (2006). Perceived Risk and Consumer Decision-Making: The Case of Telephone Shopping. *Journal of Marketing Research*.

Davis, F. D. (2006). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*.

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User Acceptance of Computer Technology: A Comparison of Two Theoretical Models. *Management Science*.

Dospinescu, O. (2012). E-Wallet . A New Technical Approach. *Acta Universitatis Danubius*.

Mikkonen, T., Kuivanen, J., & Engineering, E. (2013). *Jagannatha Modupalli Extending Mobile Wallet That Utilizes Nfc*. (December).

Featherman, M. S., & Pavlou, P. A. (2003). Predicting e-services adoption: A perceived risk facets perspective. *International Journal of Human Computer Studies*.

Fong, V. (2018, July 18). *Fintech Malaysia Report 2018 – The State of Play for Fintech Malaysia*. Retrieved March 10, 2019, from CK Finanzpro GmbH: https://fintechnews.my/17922/editors-pick/fintech-malaysia-report-2018/

Forsythe, S. M., & Shi, B. (2003). Consumer patronage and risk perceptions in Internet shopping. *Journal of Business Research*.

Gazi, F. (2019, July 17). *What Is An E-Wallet And How Is It Different From A Credit Card?* Retrieved from iMoney.my websites: https://www.imoney.my/articles/choosing-e-wallet

Gefen, D., Karahanna, E., & Straub, D. W. (2003). Trust and tam in online shopping: AN integrated model. *MIS Quarterly: Management Information Systems*.

Gia-Shie Liu, & Pham Tan Tai. (2016). A Study of Factors Affecting the Intention to Use Mobile Payment Services in Vietnam. *Economics World*.

Hair, J F, Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). Multivariate Data Analysis, Multivariate Data Analysis. *Multivariate Data Analysis, Multivariate Data Analysis B2 - Multivariate Data Analysis, Multivariate Data Analysis*.

Hair, Joseph F., Ringle, C. M., & Sarstedt, M. (2013). Partial Least Squares Structural Equation Modeling: Rigorous Applications, Better Results and Higher Acceptance. *Long Range Planning*.

Harris, J. (2010). Essentials of Marketing Research. *Australasian Marketing Journal (AMJ)*.

Jarvenpaa, S. L., Tractinsky, N., Vitale, M., & Saarinen, L. (1999). Consumer Trust in an Internet Store : A Cross-Cultural Validation. *Journal of Computer-Mediated Communication*.

Kaiser, H. . (1974). Factor simplicity index and transformations. *Psychometrika*.

Kauffman, R., Nguyen, C., Chinh, P. D., Danh, V. T., Pointer, L., Khai, H. V., … Khoi, P. D. (2018). *The 2018 Uhd-Ctu-Uel International Economics And Business Conference Editors : Ralph Kauffman Chu Nguyen Pham Duc Chinh Vo Thanh Danh Lucille Pointer Huynh Viet Khai Tran Thi Hong Lien Phan Dinh Khoi* (Vol. 9329).

Khalilzadeh, J., Ozturk, A. B., & Bilgihan, A. (2017). Security-related factors in extended UTAUT model for NFC based mobile payment in the restaurant industry. *Computers in Human Behavior*.

Kim, C., Tao, W., Shin, N., & Kim, K. S. (2010). An empirical study of customers' perceptions of security and trust in e-payment systems. *Electronic Commerce Research and Applications*, *9*(1), 84–95.

Kim, D. J., Ferrin, D. L., & Rao, H. R. (2008). A trust-based consumer decision-making model in electronic

commerce: The role of trust, perceived risk, and their antecedents. *Decision Support Systems*.

Kousaridas, A. Parissis, G., & Apostolopoulos, T. (2008). An open financial services architecture based on the use of intelligent mobile devices. *Electronic Commerce Research and Applications*, 7(2), 232-246.

Lai, P. C. (2018). Security as an Extension to TAM Model: Consumers' Intention to Use a Single Platform E-Payment. *Asia-Pacific Journal of Management Research and Innovation*, *13*(3–4), 110–119.

Laukkanen, T. (2007). Internet vs mobile banking: Comparing customer value perceptions. *Business Process Management Journal*.

Lee, M. C. (2009). Factors influencing the adoption of internet banking: An integration of TAM and TPB with perceived risk and perceived benefit. *Electronic Commerce Research and Applications*.

Leong, L. Y., Hew, T. S., Tan, G. W. H., & Ooi, K. B. (2013). Predicting the determinants of the NFC-enabled mobile credit card acceptance: A neural networks approach. *Expert Systems with Applications*, *40*(14), 5604–5620.

Lim, B., Lee, H., & Kurnia, S. (2007). Exploring the reasons for a failure of electronic payment systems: A case study of an Australian company. *Journal of Research and Practice in Information Technology*.

Linck, K., Pousttchi, K., & Wiedemann, D. G. (2006). Security Issues in Mobile Payment from the Customer Viewpoint. *ECIS 2006 Proceedings*.

Lutz, R.J., & Reilly, P.J. (1974). An exploration of the effects of perceived social and performance risk on consumer information acquisition. *ACR North American Advances*.

Madureira, A. (2017). Factors that hinder the success of SIM-based mobile NFC service deployments. *Telematics and Informatics*. https://doi.org/10.1016/j.tele.2016.05.003

Mcmillan, B. J. (2018). *Examining the Perceived Risks of Contactless Card Acceptance in the New Zealand Market Master of Commerce in Marketing*.

Mekovec, R., & Hutinski, Ž. (2012). The role of perceived privacy and perceived security in online market. *MIPRO, 2012 Proceedings of the 35th International Convention*.

Mitchell, V. (1999). Consumer perceived risk: conceptualisations and models. *European Journal of Marketing*, *33*(1/2), 163–195.

Mokhtar. S.F., Md Yusof, Z. & Misiran, M. (2012), Factors Affecting Students' Performance in Mathematics, Journal of Applied Sciences Research, 8(8), 4133-4137

Mondego, D., & Gide, E. (2018). the Effect of Trust on Mobile Payment Adoption: a Comprehensive Review of Literature. *International Journal of Arts & Sciences*, *11*(1), 375–390. Retrieved from https://www.researchgate.net/publication/330439207

Morosan, C., & DeFranco, A. (2016). It's about time: Revisiting UTAUT2 to examine consumers' intentions to use NFC mobile payments in hotels. *International Journal of Hospitality Management*.

Nguyen, T. D., & Huynh, P. A. (2018). The roles of perceived risk and trust on e–payment adoption. *International Econometric Conference of Vietnam*, 926-940, Springer, Cham.

Niranjan, T.T., Rao, S., Sengupta, S., & Wagner, S.M. (2014). Existence and extent of operations and supply management departmental thought worlds: an empirical study. Journal of Supply Chain Management, 50(4), 76-95.

Nizam, F., Hwang, H.J., Valaei, N. (2018, July), Measuring the effectiveness of e-wallet in Malaysia. in 3rd IEEE/ACIS International Conference on Big Data, Cloud Computing, and Data Science Engineering (pp. 59069). Springer, Cham.

Nunkoo, R., & Ramkissoon, H. (2013). Travellers' E-purchase intent of tourism products and services. *Journal of Hospitality Marketing & Management*, 22(5), 505-529.

Pandy, S. M., Ph, D., & Crowe, M. (2017). *Choosing a Mobile Wallet : The Consumer Perspective*.

Pinchot, J., Mishra, S., … K. P.-I. I. I., & 2016, undefined. (2016). Exploring Barriers To Adoption of Mobile Payments for University Students: Lack of Awareness, Lack of Availability, and. *Pdfs.Semanticscholar.Org*, *17*(Iii), 20–30. Retrieved from https://pdfs.semanticscholar.org/b487/57f4bbf4f78464632094bd0d2cc22facb634.pdf

Punwatkar, S., & Verghese, M. (n.d.). Adaptation of e-Wallet Payment: An Empirical Study on Consumers' Adoption Behavior in Central India. *Ijamtes.Org*, *8*(Iii), 1147–1156. Retrieved from http://www.ijamtes.org/gallery/154 conf-mba.pdf

Ross, I. (1975). Perceived Risk and Consumer Behaviour: A Critical Review. *Advances in Consumer Research*.

Roy, S., & Sinha, I. (2017). *Factors affecting Customers' adoption of Electronic Payment : an Empirical Analysis*. *19*(12), 76–90.

Sainani, K. L. (2014). Introduction to Principal Components and Factor Analysis. *PM & R : The Journal of Injury, Function, and Rehabilitation*.

Salah Uddin, M., & Yesmin Akhi, A. (2014). E-Wallet System for Bangladesh an Electronic Payment System. *International Journal of Modeling and Optimization*.

Sappri, M.M., Baharudin, A.S., Raman, S. (2016). The moderating effect of user involvement and self-readiness

and factors that influence information system net benefits among Malaysian public sector employees. *International Journal of Applied Engineering Research*, 11(18), 9659-9673.

Schierz, P. G., Schilke, O., & Wirtz, B. W. (2010). Understanding consumer acceptance of mobile payment services: An empirical analysis. *Electronic Commerce Research and Applications*.

Statista. (2019). *FinTech (Malaysia)*. Retrieved from Statista Website: https://www.statista.com/outlook/295/122/fintech/malaysia

Steiger, J. H. (1990). Structural Model Evaluation and Modification: An Interval Estimation Approach. *Multivariate Behavioral Research*.

Stroborn, K., Heitmann, A., Leibold, K., & Frank, G. (2004). Internet payments in Germany: A classificatory framework and empirical evidence. *Journal of Business Research*.

Szymanski, D.M., & Hise, R.T. (2000). E-satisfaction: an initial examination. Journal of retailing, 76(3), 309-322.

TechGenix. (2018, August 31). *Rise of Digital Wallets and what they mean for the Fintech Industry*. Retrieved from TechGenix Website: http://techgenix.com/digital-wallets-fintech/

Thompson, B. (2004). Exploratory and confirmatory factor analysis: Understanding concepts and applications. [References]. In *(2004)*.

Trivedi, J. (2017). *Factors Determining the Acceptance of E-Wallet*. *1*(December 2016).

Tsiakis, T., & Sthephanides, G. (2005). The concept of security and trust in electronic payments. Computers & Security, 24(1), 10-15.

Upadhyay, P., & Jahanyan, S. (2016). Analyzing user perspective on the factors affecting use intention of mobile based transfer payment. *Internet Research*.

Venkatesh, V., & Davis, F. D. (2003). A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies. *Management Science*.

Yang, Y., Liu, Y., Li, H., & Yu, B. (2015). Understanding perceived risks in mobile payment acceptance. *Industrial Management and Data Systems*.

Yousafzai, S.Y., Pallister, J.G., and Foxall, G.R. (2003), A proposed model of e-trust for electronic banking, *Technovation*, 23, 847-860.

Yusof, Z.M., Misiran, M., Lee, P.P., Ho, T.T. (2014), Factors affecting students' satisfaction towards bus services in university, *Research Journal of Applied Sciences, Engineering and Technology*, 8(4), 664-667.

Zhou, T. (2011). The effect of initial trust on user adoption of mobile payment. *Information Development*, 27(4), 290-300.