International Journal of Innovative Research and Scientific Studies, 8(5) 2025, pages: 294-306

IJIRSS
International Journal of Innovative Research & Scientific Studies

ISSN: 2617-6548

URL: www.ijirss.com

Factors influencing intention towards adoption of E-wallet in Malaysia

Lim Zhi Qi[1], Ganesh Ramasamy[2], Ramzia Albakri[3], Abdul Rahman Bin S Senathirajah[4*], Rasheedul Haque[5]

[1]*INTI International University, Malaysia.*
[2,4]*Faculty of Business and Communication, INTI International University, Malaysia.*
[3]*University of Business and Technology, Jeddah, Saudi Arabia.*
[4]*Faculty of Management,Shinawatra University, Thailand.*
[4]*Wekerle Business School, Budapest, Hungary.*
[5]*FOBAFLH, MAHSA University, Malaysia.*

Corresponding author: Abdul Rahman Bin S Senathirajah (*Email: arahman.senathirajah@newinti.edu.my*)

Abstract

This study investigates the factors influencing the intention to adopt e-wallets in Malaysia, focusing on perceived usefulness, perceived ease of use, perceived security, and social influence. The underpinning theories of this study are the Technology Acceptance Model and the Unified Theory of Acceptance and Use of Technology. Furthermore, this study adopted a quantitative research method by distributing self-administered questionnaires to Malaysians aged between 18 and 60 years. The empirical data were collected from 155 respondents using purposive sampling, and the research model was analyzed through SPSS. The results indicate that perceived usefulness and perceived ease of use significantly influence the intention to adopt e-wallets in Malaysia. Perceived security and social influence, however, show no significant relationship with the intention to adopt e-wallets. The key value of these findings is to enhance understanding of the factors that influence Malaysians' adoption of e-wallets, contributing to the goal of achieving a cashless society.

Keywords: Intention towards adoption of e-wallet, Perceived ease of use, Perceived security, Perceived usefulness, Social influence, Sustainable development, Sustainable growth.

DOI: 10.53894/ijirss.v8i5.8661
Funding: This study received no specific financial support.
History: Received: 20 May 2025 / **Revised:** 25 June 2025 / **Accepted:** 27 June 2025 / **Published:** 18 July 2025

Competing Interests: The authors declare that they have no competing interests.
Authors' Contributions: All authors contributed equally to the conception and design of the study. All authors have read and agreed to the published version of the manuscript.
Transparency: The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.
Publisher: Innovative Research Publishing

1. Introduction

21st century represents the widespread availability of mobile services capable of providing continuous connectivity to smartphone users through mobile technology [1]. People are able to make payments easily and quickly through mobile payments, which has led to consumers being able to make bulk payments without having to use cash. As a result, the rise of mobile devices for payments has made e-wallets the upcoming wave of transactions [2]. E-wallets are digital alternatives to physical wallets, storing digitized variables such as personal payment method details, quick response (QR) codes, facial images, and passwords to facilitate transactions [3].

E-wallets offer a simple top-up system that enables users to choose between cash top-ups at convenience stores, credit cards, debit cards, and banking transfers. Making and tracking transactions through the e-wallet is straightforward and allows users to monitor all their expenses [4]. People are able to simplify purchase and sales transactions by using e-wallet applications (apps) for their smartphones, which can make it quicker and easier to complete online purchases [5]. In Malaysia, there are approximately 53 e-wallets, representing 19% of the fintech industry. E-wallet service providers include Boost, GrabPay, Touch'n Go, AirAsia's Big Pay, Razer Pay, Fave, Vcash, and KipplePay [2]. Growing interest and investment in the e-wallet industry have revealed an overcrowded mobile payments ecosystem. This has also fueled intense competition to attract and retain customers [6].

E-wallet was officially launched in Malaysia in 2015, where e-wallet usage was still in the early stages. Nonetheless, as the outbreak of the 2019 coronavirus disease (COVID-19) persisted, e-wallet usage increased from the fourth quarter of 2019 to the first quarter of 2020 [7]. This is because the Covid-19 pandemic has led the global community to face a stringent new normal, with Malaysia also not being an exception, implementing several measures to curb the virus's spread as well as taking a number of measures to prevent the spread of the virus [8]. Hence, Malaysia has recognized the potential of digital payments and has taken significant steps to facilitate and encourage cashless transactions to create a cashless society. According to Bank Negara Malaysia (BNM), in Malaysia's financial blueprint for 2020 to 2026, the country's long-term goal is to establish an inclusive digital society and create a safe and ethical digital environment. Malaysia is poised to thrive in a cashless society [9]. Moreover, the Malaysian government is encouraging the public to use e-wallets through the RM30 e-Tunai Rakyat programme, whereby Malaysians who qualify for the programme will be able to receive RM30 in their e-wallets [2]. E-wallet service providers have also introduced different incentive programmes to encourage consumer usage [10].

Hence, the degree of user acceptance of technology implementation is crucial in influencing success. The use of financial technology (fintech), such as e-wallets, is a current and future trend. The increase in electronic payment (e-payment) systems is encouraging consumers to transition from a cash economy to a cashless economy. However, traditional business practices still rely heavily on cash, which makes the shift to a cashless economy challenging [11]. Furthermore, the study shows that the majority of Malaysian consumers still prefer to use cash, which makes them feel comfortable [12]. After the pandemic, many users do not use e-wallets as frequently as before. Despite the large number of e-wallet service providers in Malaysia, e-wallets have not become the preferred payment method for Malaysian consumers. This indicates a significant difference in the demand for the e-wallet ecosystem in Malaysia [13]. Hence, despite many efforts by the government, the adoption and volume growth of e-wallets in Malaysia remains slow [9, 14-16].

2. Literature Review

2.1. Theoretical Foundation

Technology Acceptance Model (TAM) was created by Davis [17]. It is based on the Theory of Reasoned Action (TRA) to describe user acceptance in terms of information systems for modification. It defines users' acceptance of a specific technology and the implementation of that technology. Therefore, it provides a fundamental framework for the relationship among external variables that influence perceived usefulness, perceived ease of use, and people's acceptance of that particular technology [18]. Furthermore, the correlation between individual views and the implementation of new technologies is advised by TAM. Much of the research applied to the TAM model, especially in the area of e-wallets. As TAM can cover the adaptation to new e-wallet technologies in the context of practical research [4]. According to some meta-analyses, TAM is reliable and effective in accurately predicting the extent to which consumers adopt new technologies in the past. Moreover, TAM has been used in many early studies for the payments industry [11, 19].

The Unified Theory of Acceptance and Use of Technology (UTAUT) was created by Venkatesh et al. [20]. UTAUT assists in acknowledging people's acceptance and implementation of information technology (IT) [21]. Also, UTAUT can explain 70% of the variance in users' intentions. Various researchers have acknowledged that UTAUT is a reliable model for studying and understanding technology use, which also describes consumers' behavior when using a new system. A person's plan to use a system is based on the actions they intend to take in the future [11]. Furthermore, in the previous study, perceived security was expanded to be an additional variable in the UTAUT model and indicated that perceived security has a significant impact on the factors influencing e-wallets [22]. Hence, this study selected TAM and UTAUT as the underpinning theories to investigate factors influencing the intention to adopt e-wallets in Malaysia.

2.2. Intention Towards Adoption of E-Wallet

Intention is framed as the amount of effort or the effort with regard to which someone is inclined to attempt their behavior [23]. Behavioral intention is the strength of intent that a person is perceived to have in performing a specific behavior. One study found that e-wallet acceptance has a strong positive direct effect on behavioral intentions. It was shown that e-wallet platforms have a positive, meaningful relationship with behavioral intentions [24]. Besides, the intention of people to use e-wallets refers to an indicator of the strength of the individual's desire to purchase a product.

This has led to the fact that perceived ease of use, perceived usefulness, and social influence influence the consumer's measurement of e-wallet adoption to a certain extent. One study explained that understanding people's intentions is crucial to ensuring the long-term success of any business, including e-wallet providers [23]. New technological advancements in e-wallets have a significant impact on consumers, especially in managing their transactions and purchases. Therefore, the impact of this growing trend has led to the discovery that behavioral intentions have an optimal influence on e-wallet adoption [8].

2.3. Perceived Usefulness

Perceived usefulness is the total value that users believe they gain when they choose to use new technology in order to learn more and achieve their goals [13]. Perceived usefulness includes consumers' belief that using a specific new system can help them work more efficiently, as well as the extent of their roles and responsibilities [17]. Perceived usefulness is the user's expectation of a better life by adopting an e-wallet [25]. As demonstrated in previous studies, perceived usefulness had a statistically significant impact on fintech payment services during the COVID-19 pandemic in India. The usefulness of the concept of the new technology service was able to attract user support. Through transactions via e-wallets, users were able to make payments easily and efficiently, primarily because using an e-wallet takes less time to complete the payment [18]. Hence, perceived usefulness has a notable effect on people's behavioral intentions, along with other noteworthy factors in predicting individuals' choices to apply a system. Therefore, perceived usefulness and individual behavior have a direct relationship with the intention of using the technology [26]. However, according to Aji et al. [27] the results indicate that perceived usefulness and the intention to adopt e-wallet are not significantly correlated.

H_1: Perceived usefulness has a positive and significant influence on intention towards adoption of e-wallet.

2.4. Perceived Ease of Use

Davis [17] states that the ease of use factor is the degree to which consumers perceive the adoption of a new technology to be straightforward, easy, and smooth [28]. The research results of Yang et al. [5] prove that perceived ease of use has a positive influence. When users perceive e-wallet services as user-friendly and comprehensible, they are more inclined to adopt them. Additionally, consumers will experience less time and stress when setting up the system. Users are able to accept new systems quickly when they are less complex. In other words, if the system is difficult to operate and the user interface is confusing, consumers will not have a positive perception of it. Perceived ease of use positively and significantly influences the intention to use the technology [23]. Furthermore, Tan et al. [29] noted that consumers believe that perceived ease of use has a positive association with behavioral intentions. However, Paramasivam et al. [30], Sehat et al. [16] and Chew et al. [31] results showed that the perceived ease of use had no significant relationship with behavioral intentions of e-wallet.

H_2: Perceived ease of use has a positive and significant influence on intention towards adoption of e-wallet.

2.5. Perceived Security

Perceived security is regarded as people's beliefs regarding the security of a particular procedure, and these beliefs can directly affect the willingness of many people to use the specific technology [3]. Also, perceived security refers to online consumers' perceptions of how to protect against security-related risks, and it is their subjective assessment of the security of e-payment systems [24]. E-wallets have become popular due to the convenience of transactions, but consumers may still lack understanding of e-wallets, and they might be unwilling to conduct transactions due to security concerns. Some people may refuse to use e-wallets for payments because they do not trust the information system provider, unless it involves privacy and security features. Therefore, users who lack experience in the field of technology will be concerned about security and privacy issues. As technology advances rapidly, users will become more conscious and worried about privacy and security issues arising from the use of smart technology for transactions, which leads to resistance to disclose any information about their financial data, including debit or credit card credentials, across the Internet and e-commerce sites [26]. Hence, several researchers have stated that the technology for e-wallet platforms needs to focus on protecting information such as integrity, privacy, authentication, amendments, and verification. A study also supports this finding by highlighting the importance of security as a key area of research in e-wallet platform systems, and security can influence the acceptance of e-payment systems [24]. However, according to Ismail and Gani [32], Vasudevan et al. [33] and Shafie et al. [34] of these studies showed no significant relationship between perceived security and e-wallet adoption intention.

H_3: Perceived security has a positive and significant influence on intention towards the adoption of e-wallet.

2.6. Social Influence

Social influence is the perceived social pressure on an individual to participate in decision-making regarding a particular event. Social influence also includes the extent to which individuals perceive that others are shaping their tendency to adopt new systems [35]. Social influence is also a major factor that can motivate individuals to adopt new technologies [14, 36]. Social influence was defined in one study as an individual's perception of importance, which leads others to believe that they must use the new system [36]. For instance, advertisements, public figures, celebrities, media representations, family members, friends, partners, and teachers, as well as the support of any of the influencers for a particular initiative, will likely have some impact on people's attitudes and decisions [3, 14, 35]. The social contagion theory, a cornerstone of social influence research, states that people within the same social group tend to behave similarly, and consumers often follow the choices made by their friends and family [37].

The results of Leong et al. [38] indicated that the intention to adopt e-wallets is significantly affected by social influence and revealed that peer influence serves as a factor in e-wallet users' intention to embrace e-wallets in Malaysia. Research indicated that social influence within the Chinese setting positively influences the initial phases of adopting e-wallets. Therefore, social influence greatly affects both current and prospective users. The research demonstrates that social influence positively influences Brazilian users' inclination to adopt e-wallet services [39]. According to previous research, the use of social influence decreases over time compared to when people first utilize the tools [40]. Therefore, in some studies results such as Chew et al. [31], Liew and Poh [41] and Shane et al. [39] indicated that social influence was not significant with the intention of consumers to adopt e-wallet.

H_4: Social influence has a positive and significant influence on intention towards the adoption of e-wallet.

2.7. Conceptual Framework

Based on the literature review, Figure 1, illustrates that the conceptual framework of this study consists of four independent variables, namely perceived usefulness, perceived ease of use, perceived security, and social influence. The intention to adopt e-wallets is the dependent variable. Based on this framework below, the intention to adopt e-wallets is influenced by perceived usefulness, perceived ease of use, perceived security, and social influence.
Proposed conceptual framework in Figure 1.

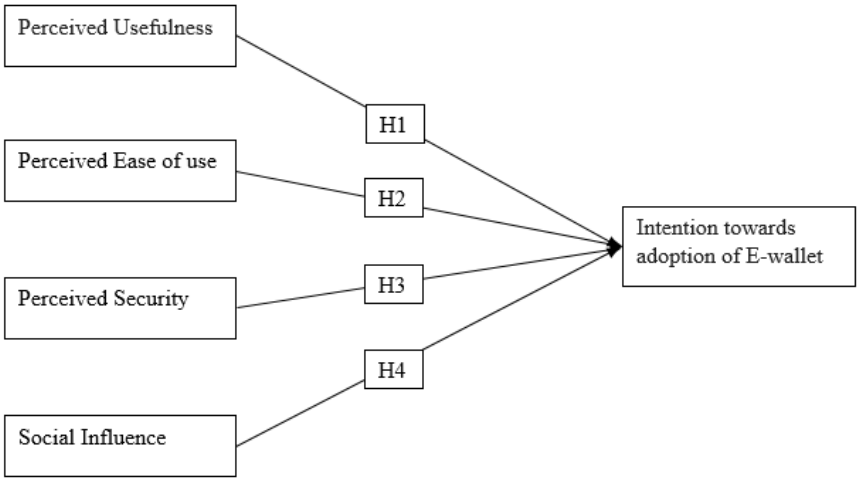

Figure 1.
Research Framework.

Formulation of a good hypothesis is important in order to ensure the quality of the study's results. The hypotheses are developed using prior evidence-based research as a basis [42]. As a result, it stands to reason that the factors of perceived usefulness, perceived ease of use, perceived security, and social influence would influence consumer behavioral intention towards e-wallets.

3. Methodology

Quantitative research is applied to analyze the relationship between perceived usefulness, perceived ease of use, perceived security, and social influence, along with the intention to adopt e-wallets. The study of quantitative research provides results from diverse perspectives among a substantial number of people, offering a deeper understanding of the impact of one variable on another [43]. Besides, it also provides precision in data collection and analysis along with a high degree of objectivity [44]. Cross-sectional design is useful for exploratory research because it provides a snapshot of variables and their relationships at a specific point in time [45]. This design is feasible for carrying out studies swiftly and cost-effectively [46]. It is competent to gather data from broad samples along with a substantial amount of data swiftly and cost-effectively [47]. Purposive sampling was employed in this study to identify the extreme views in the population and enable the collection of data directly from the source to reduce the margin of error [48].

Moreover, G*Power was used in this research to determine the sample size. It is an influential and easily accessible tool for evaluating sizes for a broad range of tests and designs [49]. As the Malaysian consumers' behavioral intention towards e-wallet in this study involves only four predictors, the minimum sample size calculated by G*Power software requires at least 129 participants. Considering that 20% of the data may be invalid, the sample size was increased to 155 to ensure the accuracy of the sample size and to minimize bias, thereby ensuring data quality. Furthermore, this study used Cronbach's alpha to statistically analyze the data from the questionnaire [50]. It provides a range from 0 to 1, which means that the closer the alpha value is to 1, the greater the internal consistency. Hence, the application of Cronbach's alpha can ensure data reliability and accuracy [51]. Pearson's correlation coefficient can describe the strength and direction of the relationship between the independent variable and the dependent variable in data analysis [52]. Multiple linear regression can estimate the relationship between variables with causal relationships and identify outliers [53, 54].

4. Results Analysis

4.1. Pilot Test Results

This study's initial small-scale survey was conducted before the main research project to ensure the questionnaire's consistency and reliability. Thirty Malaysian consumers participated in a pilot study for this survey. According to previous literature, a sample size of 30 respondents for the pilot test is adequate to evaluate the questionnaire's reliability [55]. Moreover, according to Taber [50] values of 0.70 and above for Cronbach's alpha are regarded as reliable and acceptable. Consequently, the pilot test results based on Table 1 demonstrated that all variables in the questionnaire had Cronbach's alpha values greater than 0.7, indicating the questionnaire's consistency and reliability for the corresponding constructs in order to carry out larger-scale data collection [56].

Table 1.
Pilot Test Results.

Variable	Cronbach's Alpha
Intention Towards Adoption Of E-wallet	0.936
Perceived Usefulness	0.838
Perceived Ease of Use	0.909
Perceived Security	0.896
Social Influence	0.953

4.2. Demographic Analysis

155 respondents in Malaysia completed the online survey. Therefore, the population's detailed demographics are displayed in Table 1. According to the table, it shows that 68 respondents were male, accounting for 43.9%, followed by 87 female respondents, representing 56.1%. In terms of age groups, 62 respondents (40%) were between the ages of 18 and 30, which is also the highest percentage, followed by 43 respondents (27.7%) from 31 to 40 years old, 20 respondents (12.9%) from 41 to 50 years old, and 30 respondents (19.4%) from 51 to 60 years old. Moreover, there were 33 Malay respondents (21.3%), 92 Chinese respondents (59.4%), 25 Indian respondents (16.1%), and 5 respondents (3.2%) from other races. Regarding the highest level of education, secondary education (SPM and below) had 28 respondents (18.1%), STPM/Foundation/Diploma had 19 respondents (12.3%), Bachelor's Degree had 73 respondents (47.1%), which was the highest percentage of respondents, Master's had 25 respondents (16.1%), and PhD had 10 respondents (6.5%). In terms of occupation, students accounted for 36 respondents (23.2%), self-employed respondents numbered 16 (10.3%), private sector employees 96 (61.9%), and government sector employees 7 (4.5%). Furthermore, regarding income level, 45 respondents (29%) had an income below RM2,000, 35 respondents (22.6%) had an income between RM2,001 and RM4,000, 31 respondents (20%) earned between RM4,001 and RM6,000, 12 respondents (7.7%) earned between RM6,001 and RM8,000, and 32 respondents (20.6%) had an income above RM8,000. Additionally, 46 respondents (29.7%) indicated that their primary purpose for using e-wallets was for spending in physical shops, online shopping, bill payments, ordering food, and transferring money.

Table 2.
Respondent Demographic Profile.

Measures	Items	Frequencies (N)	Percentages (%)
Gender	Male	68	43.9
	Female	87	56.1
Highest Education Level	Secondary Education (SPM and below)	28	18.1
	STPM/ Foundation/ Diploma	19	12.3
	Bachelor Degree	73	47.1
	Master	25	16.1
	PhD	10	6.5
Age Group (Years Old)	18-30	62	40.0
	31-40	43	27.7
	41-50	20	12.9
	51-60	30	19.4
Race	Malay	33	21.3
	Chinese	92	59.4
	Indian	25	16.1
	Others	5	3.2
Occupation	Student	36	23.2
	Self-employed	16	10.3
	Private Sector	96	61.9
	Government Sector	7	4.5
Income Level	RM2,000 and Below	45	29.0
	RM2,001 to RM4,000	35	22.6
	RM4,001 to RM6,000	31	20.0

Measures	Items	Frequencies (N)	Percentages (%)
	RM6,001 to RM8,000	12	7.7
	RM8,000 and Above	32	20.6
The purpose of using the e-wallet	Bill payment	4	2.6
	Bill payment, Transfer money	5	3.2
	None of the above	5	3.2
	Online shopping	3	1.9
	Online shopping, Bill payment	1	0.6
	Online shopping, Bill payment, Order food, Transfer money	1	0.6
	Online shopping, Bill payment, Transfer money	2	1.3
	Online shopping, Order food	2	1.3
	Online shopping, Order food, Transfer money	4	2.6
	Online shopping, Transfer money	2	1.3
	Order food	2	1.3
	Order food, Transfer money	2	1.3
	Spending in physical shops	9	5.8
	Spending in physical shops, Bill payment	4	2.6
	Spending in physical shops, Bill payment, ordering food, and transferring money	7	4.5
	Spending in physical shops, Bill payment, and transferring money	4	2.6
	Spending in physical shops, Online shopping, and Bill payment	3	1.9
	Spending in physical shops, Online shopping, Bill payment, and ordering food	3	1.9
	Spending in physical shops, Online shopping, Bill payment, ordering food, and transferring money	46	29.7
	Spending in physical shops, Online shopping, Bill payment, and transferring money	6	3.9
	Spending in physical shops, Online shopping, and ordering food	6	3.9
	Spending in physical shops, Online shopping, ordering food, and transferring money	14	9.0
	Spending in physical shops, Online shopping, and transferring money	4	2.6
	Spending in physical shops, ordering food	1	0.6
	Spending in physical shops, ordering food, and transferring money	5	3.2
	Spending in physical shops, transferring money	7	4.5
	Transfer money	3	1.9

4.3. Reliability Analysis

Reliability analysis is the assessment of the consistency of measurement in order to ensure high-quality data [51]. It can be known from Table 2 that Cronbach's alpha value for the dependent variable is 0.917. Among the four independent variables, Cronbach's alpha values are as follows: perceived usefulness, 0.894; perceived ease of use, 0.931; perceived security, 0.934; and social influence, 0.840. All variables demonstrate good to excellent internal consistency. This indicates that the research instrument used in this study is reliable. Numerous studies have shown that a Cronbach's alpha value greater than 0.7 is a criterion for sufficient reliability [57].

Table 3.
Reliability Analysis Results.

Variable	Cronbach's Alpha	Decision
Intention Towards Adoption Of E-wallet	0.917	Excellent
Perceived Usefulness	0.894	Good
Perceived Ease of Use	0.931	Excellent
Perceived Security	0.934	Excellent
Social Influence	0.840	Good

4.4. Descriptive Analysis

Normal data need to have a skewness between -2 and +2 and a kurtosis between -7 and +7 [57, 58]. The mean for the intention towards the adoption of e-wallet is 3.95. The standard deviation for this variable is 1.03, indicating that most scores differ from the average by approximately 1.03. The skewness value is -1.13, and the kurtosis value is 0.66. Additionally, the mean for perceived usefulness is 4.07, with a standard deviation of 0.85. The skewness value is -1.43, and the kurtosis value is 2.66. Moreover, the mean for perceived ease of use is 4.01, with a standard deviation of 0.96. The skewness value is -1.26, and the kurtosis value is 1.09. In addition, the mean for perceived security is 3.36, with a standard deviation of 1.07. The skewness value is -0.36, and the kurtosis value is -0.77. Furthermore, the mean for social influence is 3.76, with a standard deviation of 0.85. The skewness value is -0.79, and the kurtosis value is 0.80. Therefore, the data for this variable conform to a normal distribution [59].

Table 4.
Descriptive Statistics Results.

Variable	Mean	Std Deviation	Skewness	Kurtosis	Distribution
Intention Towards Adoption Of E-wallet	3.95	1.03	-1.13	0.66	Normal
Perceived Usefulness	4.07	0.85	-1.43	2.66	Normal
Perceived Ease of Use	4.01	0.96	-1.26	1.09	Normal
Perceived Security	3.36	1.07	-0.36	-0.77	Normal
Social Influence	3.76	0.85	-0.79	0.80	Normal

4.5. Pearson's Correlation Analysis

The results of Pearson's correlation analysis indicated that there was a significant relationship between each independent variable and the dependent variable in this study. Table 5 shows that the correlation coefficient between the intention to adopt e-wallets and perceived usefulness is 0.798, and the p-value is less than 0.001, which is below the common threshold of 0.05, thus regarded as a highly positive correlation. Moreover, the correlation coefficient between the intention to adopt e-wallets and perceived ease of use is 0.866, with a p-value less than 0.001, also below the threshold of 0.05, indicating a very highly positive correlation. Furthermore, the correlation coefficient between the intention to adopt e-wallets and perceived security is 0.642, with a p-value less than 0.001, below the threshold of 0.05, and is regarded as a highly positive correlation. In addition, the correlation coefficient between the intention to use the e-wallet and social influence is 0.502, with a p-value of 0.001, below the threshold of 0.05, indicating a moderate positive correlation [60].

Table 5.
Pearson's Correlation Analysis.

Variables	Intention Towards Adoption Of E-wallet	Perceived Usefulness	Perceived Ease of Use	Perceived Security	Social Influence
Intention Towards Adoption of E-wallet	1	0.798	0.866	0.642	0.502
		<0.001	<0.001	<0.001	<0.001
Perceived Usefulness	0.798	1	0.843	0.559	0.578
	<0.001		<0.001	<0.001	<0.001
Perceived Ease of Use	0.866	0.843	1	0.668	0.476
	<0.001	<0.001		<0.001	<0.001
Perceived Security	0.642	0.559	0.668	1	0.572
	<0.001	<0.001	<0.001		<0.001
Social Influence	0.502	0.578	0.476	0.572	1
	<0.001	<0.001	<0.001	<0.001	<0.001

4.6. Multicollinearity Statistics

According to the studies, when the tolerance is less than 0.1 to 0.2 and the VIF is greater than 5 to 10, multicollinearity is an issue [60, 61]. Based on Table 5, tolerance values for perceived usefulness (0.240), perceived ease of use (0.221), perceived security (0.455), and social influence (0.546) are all greater than 0.2. Additionally, the VIF values for all independent variables are not greater than 5, with perceived usefulness at 4.158, perceived ease of use at 4.523, perceived security at 2.199, and social influence at 1.831. Therefore, multicollinearity is not a significant concern. This supports the accuracy of the findings.

Table 6.
Multicollinearity Statistics.

Model	Collinearity Statistics	
	Tolerance	VIF
Perceived Usefulness	0.240	4.158
Perceived Ease of Use	0.221	4.523
Perceived Security	0.455	2.199
Social Influence	0.546	1.831
Dependent Variable: Intention Towards Adoption Of E-wallet		

4.7. Multiple Regression Analysis

Table 7 indicates that there is a strong correlation between the predictors of perceived usefulness, perceived ease of use, perceived security, and social influence and intentions towards the adoption of e-wallets. This is because there is a strong correlation between the variables in this model, as shown by the correlation coefficient R of 0.880. Moreover, the variation in the dependent variable is explained by the independent variables to an unusually high degree, with an R^2 of 0.774 or 77.4%, and an adjusted R^2 value of 0.768 or 76.8%. Therefore, according to the R-squared coefficient of determination guidelines provided by Sarjana et al. [62] showed that 0.774 or 77.4% R-squared in this study is a strong criterion. However, since other factors may not have been included in this study, the model was unable to explain the variation in the dependent variable, which ranges between 22.6% and 23.2%.

Table 7.
Model Summary of Regression.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.880	0.774	0.768	0.49415

Note: a. Predictors: (Constant), Perceived Usefulness, Perceived Ease of Use, Perceived Security, Social Influence.
b. Dependent Variable: Intention Towards Adoption of E-wallet.

ANOVA results of the regression model in Table 8, the regression sum of squares, which is the variance considered by the model, and the residual sum of squares, which is the variance not considered, are 125.619 and 36.627, respectively. In addition, the model has 4 degrees of freedom, and the residual degrees of freedom are 150. The regression's mean squared value is 31.405, and the residuals are 0.244. The F-value (128.613) is the ratio of the explained variance to the unexplained variability, and it has a p-value of less than 0.001 ($p<0.05$). Thus, this shows that the model is valid in explaining the variance in intention to use e-wallets.

Table 8.
ANOVA Results.

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	125.619	4	31.405	128.613	<0.001
Residual	36.627	150	0.244		
Total	162.247	154			

Note: a. Dependent Variable: Intention Towards Adoption Of E-wallet
b. Predictors (Constant), Perceived Usefulness, Perceived Ease of Use, Perceived Security, Social Influence.

According to the results of regression analysis in Table 9, perceived usefulness and perceived ease of use are the independent variables that have a significant influence on the intention to adopt e-wallets. As perceived usefulness increases by each unit, the dependent variable increases by 0.258 units. (ß = 0.213, $p < 0.05$). Moreover, perceived ease of use significantly influences the intention to adopt e-wallets (ß = 0.603, $p < 0.05$). On the other hand, perceived security is not significantly influenced by intention towards adoption of e-wallet (ß=0.101, $p >0.05$). In addition, social influence is also not significantly influenced by the intention towards adoption of e-wallet (ß=0.034, $p >0.05$) [53].

Table 9.
Coefficients of Multiple Regression.

Model		Unstandardized B	Coefficient Std. Error	Standardized Coefficients Beta	t	Sig. (p- p-value)
1	(Constant)	-0.149	0.212		-0.706	0.481
	Perceived Usefulness	0.258	0.096	0.213	2.691	0.008
	Perceived Ease of Use	0.642	0.088	0.603	7.309	<0.001
	Perceived Security	0.097	0.055	0.101	1.757	0.081
	Social Influence	0.041	0.063	0.034	0.653	0.515

Note: a. Dependent Variable: Intention Towards Adoption of E-wallet.

4.8. Hypothesis Testing

The findings of the hypothesis indicate varying levels of support for the hypothesis in this study. The perceived usefulness proposed in Hypothesis 1 (H1) was supported; it has a significant influence on the intention to adopt e-wallets. The standardized coefficient beta (ß) value is 0.213, and the p-value (0.008), which is less than the significance level

($p<0.05$), Thus, the relationship of Hypothesis 1 in this study is supported. In Hypothesis 2 (H2), perceived ease of use has a significant influence on the intention to adopt e-wallets and was supported. The p-value in Hypothesis 2 is less than 0.001, which is below the significance threshold ($p<0.05$). This indicates that perceived ease of use has a highly significant relationship and influence on the intention to adopt e-wallets. The ß-value is 0.603, which shows a significant positive correlation. In Hypothesis 3 (H3), the proposed significant influence of perceived security on the intention to adopt e-wallets was not supported. The ß-value is 0.101, and the p-value (0.081) is higher than the significance level ($p<0.05$), which has no statistically significant influence. Furthermore, Hypothesis 4 (H4), which proposed a significant influence of social influence on the intention to adopt e-wallets, was not supported. There is no statistically significant influence because the ß-value is 0.034 and the p-value (0.515) is greater than the significance level ($p<0.05$).

Table 10.
Summary of hypothesis testing results.

Hypotheses	Std Beta (ß)	t-value	p-value	Decision	R^2	VIF
Hypothesis 1 (H1): Perceived usefulness has a positive and significant influence on intention towards adoption of e-wallet.	0.213	2.691	0.008	Supported	0.774	4.158
Hypothesis 2 (H2): Perceived ease of use has a positive and significant influence on intention towards adoption of e-wallet.	0.603	7.309	<0.001	Supported		4.523
Hypothesis 3 (H3): Perceived security has a positive and significant influence on intention towards adoption of e-wallet.	0.101	1.757	0.081	Not Supported		2.199
Hypothesis 4 (H4): Social influence has a positive and significant influence on intention towards adoption of e-wallet	0.034	0.653	0.515	Not Supported		1.831

5. Discussion and Conclusion

The findings of this study support the claim of Azmee and Azami [19], Bakar et al. [8], Mangalam et al. [63] and Tan et al. [18] in previous studies, that perceived usefulness has a significant influence on the intention to adopt e-wallets. Hence, the data demonstrates that consumers' adoption of new technologies, including the extent of benefits, value, and efficiency that they believe e-wallets can offer, is correlated with perceived usefulness. The results are consistent with Mohd Razif et al. [24], consumers making decisions regarding the use of e-wallets are influenced by perceived usefulness. Furthermore, perceived ease of use is regarded as the ability to avoid complexity and hassle when dealing with e-payment services [3]. The research results are consistent with those of Bakar et al. [8], Yang et al. [5] and Osman et al. [64], which means that perceived ease of use has a significant influence on the intention to adopt e-wallets. Furthermore, a study by Sehat et al. [16] indicates that consumers use new technologies, which are highly dependent on their trust in the security of e-wallet providers. However, the study's results did not prove that perceived security has a significant influence on the intention to adopt e-wallets. According to the research of Wong et al. [11] and Ismail and Gani [32], there is no direct relationship between security and the intention to adopt e-wallets. This is based on differences in social structure, economic development, lifestyle, and culture, which may lead to different views on e-wallets in Malaysia and other countries [11]. One of the studies also indicates that security has an insignificant influence [33]. Previous studies have shown that people are more likely to listen to the insights from their social circles in order to reduce their worries [65]. When most of the people in a social group accept the use of e-wallets, this may have a great impact on increasing the group's willingness to use e-wallets [66]. Furthermore, a study by Jamaludin et al. [35] indicates that social impact enables people, before starting to use the e-wallet, to have a better understanding and trust of the e-wallet service. However, the results of this study show that the relationship between social influence and the willingness to use e-wallets is not significant. In the research of Liew and Poh [41] it was mentioned that the findings regarding social influence have remained controversial in past studies, but it also explains the complexity of human behavior. The research results of Liew and Poh [41], Chew et al. [31] and Shane et al. [39] indicate that there is no significant correlation between social influence and consumers' intention to use e-wallets. Furthermore, in some studies, researchers found that people who were close to consumers in terms of environmental and social influence had no significant impact on their intention to use e-wallets, which might result in different outcomes from various cultural perspectives [39]. Hence, this study discovered that perceived usefulness and perceived ease of use significantly influence the intention to adopt e-wallets. Perceived ease of use had the strongest correlation with the intention to adopt e-wallets (ß = 0.603, $p<0.001$), followed by perceived usefulness (ß = 0.213, $p=0.008$). To ascertain the intentions regarding how to influence the adoption of e-wallets, perceived security (ß = 0.101, $p=0.081$) and social influence (ß = 0.034, $p=0.515$) must be further identified [67].

6. Practical Implications

The results of this study show that perceived usefulness and perceived ease of use have a strong influence on the intention to use e-wallets. Firstly, perceived usefulness is significantly correlated with the dependent variable (ß = 0.213,

p=0.008), indicating that there is a significant relationship [68]. The results of this study show that fast payment, convenience, improved quality of transactions, and better tracking of expenses that e-wallets can provide are able to increase consumers' intention to adopt them [69]. This indicates that today people are looking for efficiency and time saving lifestyle. Moreover, perceived ease of use is highly correlated with the dependent variable (ß = 0.603, p<0.001) [70]. The results of perceived ease of use indicate that an e-wallet's ability to provide clear and understandable pages, easy download processes, and simple top-up methods are factors that increase consumers' intention to adopt the technology [71].

However, the results of this study showed that perceived security has no significant influence on the intention to adopt e-wallets (ß = 0.101, p = 0.081). Since the p-value is higher than the predetermined threshold of 0.05, this indicates that there is no significant relationship between perceived security and the intention to adopt e-wallets [72]. Even though the study's findings indicate that there is no significant association between them, this does not imply that perceived security has no impact on other particular areas [73]. Furthermore, the results of this study showed that social influence has an insignificant effect on the intention to adopt e-wallets (ß = 0.034, p = 0.515), with a p-value higher than 0.05, indicating that there is no significant correlation between social influence and the intention to adopt e-wallets [74]. This could be because different cultural backgrounds and viewpoints generate different study results [75].

7. Limitations and Future Research Direction

Despite the fact that this study provides some value and insights into factors influencing the intention to adopt e-wallets in Malaysia, the researcher is also aware of some limitations [76]. Therefore, some of these limitations may affect the study's scope and the interpretation of the findings [77]. This study was only conducted in a specific country, which is Malaysia to examine the intention of consumers to adopt e-wallet [78]. This may not be fully applicable to other countries and geographical areas. This may limit the generalizability of the study's findings [79]. This is because consumers in different geographical areas may have varying perceptions, cultural norms, and economic conditions that can influence the results of the survey [80]. Secondly, the constraints in terms of resources and time may affect the depth of the study, and thereby important findings may be missed [81]. This is because this study was conducted through a cross-sectional design, and the sample size was not large; thus, more time and a larger sample size may be needed to conduct in-depth research and investigation on this topic [82]. In addition, a longitudinal study may be better able to provide deeper and valuable insights into the study, as it is an observational study and thus may be better able to explore the intentions of the population [83]. Third, the questionnaire was distributed online via Google Forms, which may limit the quality of the data and response bias [84]. For example, this included whether consumers followed their hearts as well as answered the questions in the questionnaire honestly. Hence, the data's accuracy and reliability may be affected [85]. Finally, this research topic may not be sufficiently reflected by quantitative research methods, nor may it adequately provide a better exploration of the relationships among the variables [86]. The mixed qualitative and quantitative research approach can be conducted for future research [87].

Therefore, considering the limitations of the study, it is necessary to provide some recommendations for future research to gain a deeper understanding and exploration of factors influencing the intention towards the adoption of e-wallets in Malaysia. Hence, the researcher suggests that future studies can build on previous research and improve on areas that have not been thoroughly examined. Firstly, future research can be conducted using a mixed-methods approach, combining both quantitative and qualitative methods, to investigate more in-depth the factors that may influence consumers' intention to use e-wallets. Qualitative research can provide a deeper understanding of consumer perceptions and insights to further explore consumer intention factors in more detail [88]. Secondly, a longitudinal study can be considered to better observe consumers' intention to use e-wallets [45]. Observing and tracking over a longer period of time can provide a better understanding of consumers' intentions towards using e-wallets [89]. This can provide more valuable insights and findings for the study [90]. Finally, future research could explore factors other than perceived usefulness, perceived ease of use, perceived security, and social influence that may influence the intention to adopt e-wallets [84]. For example, the independent variables of convenience, rewards, perceived trust, and perceived enjoyment are factors that may influence the intention to adopt e-wallets [91]. In addition, the study could be explored in more depth for different localities and state affiliations [92]. This may help in comparing consumer intentions towards the use of e-wallets in different localities and state affiliations [93]. Addressing the limitations of the existing study will enable future research to assist academics, e-wallet service providers, and technology developers in gaining a deeper understanding of this research topic, thereby realizing the ambition of cashless payments. Future research can also adopt best practices from earlier studies that used a quantitative methodology [94, 95].

References

[1] B. Ovčjak, M. Heričko, and G. Polančič, "Factors impacting the acceptance of mobile data services–A systematic literature review," *Computers in Human Behavior*, vol. 53, pp. 24-47, 2015. http://dx.doi.org/10.1016/j.chb.2015.06.013

[2] N. Che Nawi, A. A. Mamun, N. Hayat, and L. Seduram, "Promoting sustainable financial services through the adoption of eWallet among Malaysian working adults," *Sage Open*, vol. 12, no. 1, p. 21582440211071107, 2022.

[3] S. C. Teo, P. L. Law, and A. C. Koo, "Factors affecting adoption of e-wallets among youths in Malaysia," *Journal of Information System and Technology Management*, vol. 5, no. 19, pp. 39-50, 2020.

[4] N. L. A. Rahman, H. Abd Mutalib, S. M. Sabri, N. Annuar, S. Mutalib, and Z. S. A. Rahman, "Factors influencing E-wallet adoption among adults during Covid-19 pandemic in Malaysia: Extending the tam model," *International Journal of Academic Research in Buiness & Social Sciences*, vol. 12, no. 7, pp. 983-994, 2022.

[5] M. Yang, A. A. Mamun, M. Mohiuddin, N. C. Nawi, and N. R. Zainol, "Cashless transactions: A study on intention and adoption of e-wallets," *Sustainability*, vol. 13, no. 2, p. 831, 2021. https://doi.org/10.3390/su13020831

[6] W. Q. Seng and O. C. Hee, "Factors influencing the intention to use E-wallet: an extended hedonic-motivation system adoption model," *International Journal of Academic Research in Business and Social Sciences*, vol. 11, no. 11, pp. 2265-2278, 2021.

[7] S. Nair, N. Jayabalan, and I. Perumal, "E-wallet usage intention in selangor, Malaysia," *Journal of Hunan University Natural Sciences*, vol. 50, no. 4, p. 13, 2023.

[8] A. R. A. Bakar, W. N. A. i. W. Muhd, S. A. A. Tarmazi, and F. A. Fudzali, "Malaysian intention to use e-wallet: forthcoming expectation in cashless transactions," *Malaysian Journal of Social Sciences and Humanities*, vol. 7, no. 6, pp. e001537-e001537, 2022.

[9] S. K. B. Mohamood, S. H. Hassan, and B. Jamaluddin, "Factors affecting e-wallet adoption for cashless society in malaysia: A conceptual paper," *Jurnal Ilmiah Akuntansi*, vol. 11, no. 01, pp. 41-48, 2024.

[10] Y. M. K. Lee, M. Jais, C. C. Wen, and N. S. Zaidi, "Factor affecting adoption of e-wallet in Sarawak," *International Journal of Academic Research in Accounting, Finance and Management Sciences*, vol. 10, no. 2, pp. 244-256, 2020.

[11] C. H. Wong *et al.*, "Factors influencing the adoption of E-wallet among the general public in Malaysia," *International Journal of Academic Research In Business & Social Sciences*, vol. 1, no. 7, pp. 1221-34, 2023.

[12] M. Akib, S. Hamid, and R. A. Hamid, "Factors influencing Malaysian intention to use E-Wallets," *International Journal of Academic Research in Business and Social Sciences*, vol. 12, no. 11, pp. 1772-1782, 2022.

[13] J. Jingnan, P.-C. Teo, T. C. Ho, and C. Hooi Ling, "The behavioral intention of young Malaysians towards cashless society: Value-based adoption model," *Cogent Business & Management*, vol. 10, no. 2, p. 2244756, 2023.

[14] S. S. Abd Razak and N. S. Salim, "Factors influencing intention to adopt E-Wallet during Covid-19 Pandemic," *International Journal of Management Studies*, vol. 31, no. 2, pp. 373-394, 2024.

[15] Y. Y. Tee, M. S. Ting, and A. N. Abdul Talib, "Facilitating the influence on adopting E-wallets: An extended technology acceptance model (TAM) approach," *International Journal of Academic Research in Business and Social Sciences*, vol. 14, no. 2, p. 883, 2024.

[16] N. S. Sehat, I. L. Suhaime, J. Jogeran, S. R. Daud, and K. S. Ahmad, "Factors affecting acceptance of e-wallets among UiTM Melaka students," *International Journal of Academic Research in Business and Social Sciences*, vol. 13, no. 1, pp. 1716-1731, 2023.

[17] F. D. Davis, "Perceived usefulness, perceived ease of use, and user acceptance of information technology," *MIS Quarterly*, vol. 13, no. 3, pp. 319–340, 1989.

[18] O. K. Tan *et al.*, "E-wallet acceptance among undergraduates in Malaysia," *TEST Engineering & Management*, vol. 83, pp. 12991–12992, 2020.

[19] D. S. S. B. Azmee and N. B. Azami, "Factors influencing the intention to use e-wallet by using theory of reasoned action (TRA) & technology acceptance model (TAM): Evidence from consumer in Malaysia," *International Journal of Academic Research in Economics and Management and Sciences*, vol. 13, no. 1, pp. 346–358, 2024. http://dx.doi.org/10.6007/IJAREMS/v13-i1/20953

[20] V. Venkatesh, J. Y. L. Thong, and X. Xu, "Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology," *MIS Quarterly*, vol. 36, no. 1, pp. 157–178, 2012.

[21] F.-W. Lim, F. Ahmad, and A. Talib, "Behavioural intention towards using electronic wallet: A conceptual framework in the light of the unified theory of acceptance and use of technology (UTAUT)," *Imperial Journal of Interdisciplinary Research*, vol. 5, no. 1, pp. 79-86, 2019.

[22] M. A. Kadir Darail, N. M. Mohd Zainuddin, N. Maarop, N. A. Bani, and S. Johari, "Proposed research model for mobile digital wallet adoption among rural area consumers in Malaysia," *Open International Journal of Informatics*, vol. 11, no. 2, p. 15, 2023.

[23] T. L. Toh, J. P. Kiew, and A. H. A. Wong, "Factors influencing the intention to use e-wallet among millennials," *International Journal of Academic Research in Business and Social Sciences*, vol. 12, no. 11, pp. 345-352, 2022.

[24] N. N. Mohd Razif, M. Misiran, H. Sapiri, and Z. Md Yusof, "Perceived risk for acceptance of E-wallet platform in Malaysia among youth: Sem approach," *Management Research Journal*, vol. 9, pp. 2-21, 2020.

[25] H. A. Kadir, R. Ismail, S. Wok, and K. A. Manan, "The mediating effect of attitude on e-wallet usage among users in Malaysia," *Journal of Communication Education*, vol. 2, no. 1, pp. 58-77, 2022.

[26] M. W. Karim, A. Haque, M. A. Ulfy, M. A. Hossain, and M. Z. Anis, "Factors influencing the use of E-wallet as a payment method among Malaysian young adults," *Journal of International Business and Management*, vol. 3, no. 2, pp. 1-12, 2020.

[27] H. M. Aji, I. Berakon, and M. Md Husin, "COVID-19 and e-wallet usage intention: A multigroup analysis between Indonesia and Malaysia," *Cogent Business & Management*, vol. 7, no. 1, p. 1804181, 2020.

[28] H. binti Azman, C. S. Lih, and S. N. Yahaya, "Factors affecting adoption of E-wallet among Gen Y in Pahang," *Journal of Technology Management and Technopreneurship*, vol. 9, no. 2, pp. 47-57, 2021.

[29] K. L. Tan, Z. X. Lim, and Y. M. Kong, "Factors influencing consumer's intention to use e-wallets," *Asian Journal of Research in Business and Management*, vol. 3, no. 2, pp. 142–144, 2021.

[30] S. Paramasivam, K. Adnani, and Y. Y. Xin, "Behavioural intention of malaysians towards e-wallet adoption: Moderated by gender," *Asian Journal of Research in Business and Management*, vol. 4, no. 2, pp. 111-130, 2022.

[31] Y. J. Chew, M. Ramayah, and S. K. Sandhu, "Determinants influencing the behavioural intention in e-wallet usage of university students in Subang Jaya," *Journal of Wealth Management & Financial Planning*, vol. 11, pp. 19-35, 2024.

[32] N. Ismail and N. A. Gani, "The impact of security toward behavioural intention among local community in Klang Valley," *Jurnal Evolusi*, vol. 4, no. 3, pp. 1-11, 2023.

[33] A. Vasudevan *et al.*, "Factors affecting adaptation of E-wallet among students in private higher education," *Res Militaris*, vol. 13, no. 2, pp. 1531-1547, 2023.

[34] I. S. M. Shafie, Y. L. M. Yusof, A. N. Mahmood, N. I. M. Ishar, H. Z. Jamal, and N. H. A. A. Kasim, "Factors influencing the adoption of e-payment: An empirical study in Malaysia," *Advances in Business Research International Journal*, vol. 4, no. 2, pp. 53-62, 2020.

[35] N. A. Jamaludin, H. O. Zaki, R. M. Ramli, and S. H. Suffarruddin, "Towards a sustainable financial future: Exploring the influence of e-wallet adoption among gen Z in Malaysia," *Institutions and Economies*, vol. 16, no. 4, pp. 114-130, 2024.

[36] M. H. Bakria, K. K. S. M. Almansoori, and N. S. M. Azlan, "Determinants intention usage of Islamic e-wallet among millennials," *Global Business & Finance Review*, vol. 28, no. 1, pp. 11-32, 2023.
[37] C. M. Yap and B. A. Ng, "Factors influencing consumers' perceived usefulness of M-Wallet in Klang valley, Malaysia," *Review of Integrative Business and Economics Research*, vol. 8, pp. 1-23, 2019.
[38] M. Y. Leong, J. H. Kwan, and L. M. Ming, "Technology readiness and UTAUT2 in e-wallet adoption in a developing country," *F1000Research*, vol. 10, p. 863, 2021.
[39] J. Shane, T. J. Chan, and Y. M. Mohan, "Factors affecting the intention to adopt e-wallet services during Covid-19 pandemic," *Journal of Arts & Social Sciences*, vol. 5, no. 2, pp. 28-40, 2022.
[40] M. Rahman, I. Ismail, and S. Bahri, "Analysing consumer adoption of cashless payment in Malaysia," *Digital Business*, vol. 1, no. 1, p. 100004, 2020.
[41] V. Liew and P. S. Poh, "Factors influencing the intention to adopt E-Wallet: A regional distribution perspective in Malaysia," *Journal of Business and Social Sciences*, vol. 2022, no. 16, pp. 1-15, 2022.
[42] D. P. Misra, A. Y. Gasparyan, O. Zimba, M. Yessirkepov, V. Agarwal, and G. D. Kitas, "Formulating hypotheses for different study designs," *Journal of Korean Medical Science*, vol. 36, no. 50, pp. e338-e338, 2021.
[43] A. Ghanad, "An overview of quantitative research methods," *International Journal of Multidisciplinary Research and Analysis*, vol. 6, no. 08, pp. 3794-3803, 2023.
[44] M. Zyoud, T. Bsharat, and K. Dweikat, "Quantitative research methods: Maximizing benefits, addressing limitations, and advancing methodological frontiers," *ISRG Journal of Multidisciplinary Studies*, vol. 2, no. 4, pp. 11-14, 2024.
[45] S. T. Lim *et al.*, "Exploring the impact of marketing mix products transformation strategies in glove manufacturing industries: A case study," *Pakistan Journal of Life & Social Sciences*, vol. 22, no. 2, pp. 1477–1792, 2024.
[46] M. S. Setia, "Methodology series module 3: Cross-sectional studies," *Indian Journal of Dermatology*, vol. 61, no. 3, pp. 261-264, 2016.
[47] P. Ranganathan and C. Caduff, "Designing and validating a research questionnaire-Part 1," *Perspectives in Clinical Research*, vol. 14, no. 3, pp. 152-155, 2023.
[48] O. P. Giri, "Choosing sampling techniques and calculating sample size," *Indonesian Journal of Teaching in Science*, vol. 4, no. 2, pp. 165-176, 2024.
[49] J. Uttley, "Power analysis, sample size, and assessment of statistical assumptions—Improving the evidential value of lighting research," *Leukos*, vol. 15, pp. 2–3, 2019.
[50] K. S. Taber, "The use of Cronbach's alpha when developing and reporting research instruments in science education," *Research in Science Education*, vol. 48, no. 6, pp. 1273-1296, 2018.
[51] S. Y. Wong, N. Ulang, and S. Husain, "Measuring the internal consistency and reliability of the hierarchy of controls in preventing infectious diseases on construction sites: The Kuder-Richardson (KR-20) and Cronbach's Alpha," *Journal of Advanced Research in Applied Sciences and Engineering Technology*, vol. 33, no. 1, pp. 392-405, 2023.
[52] F. Z. Okwonu, B. L. Asaju, and F. I. Arunaye, "Breakdown analysis of pearson correlation coefficient and robust correlation methods," in *IOP Conference Series: Materials Science and Engineering*, 2020, vol. 917, no. 1: IOP Publishing, p. 012065.
[53] N. S. M. Pazil, N. Mahmud, N. Baharom, and S. H. JAMALUDDIN, "Logistic regression in determining affecting factors student success in an introductory statistics subject," *Jurnal Intelek*, vol. 18, no. 1, pp. 9-16, 2023.
[54] G. K. Uyanık and N. Güler, "A study on multiple linear regression analysis," *Procedia - Social and Behavioral Sciences*, vol. 106, pp. 234-240, 2013. https://doi.org/10.1016/j.sbspro.2013.12.027
[55] D. Chhetri and B. Khanal, "A pilot study approach to assessing the reliability and validity of relevancy and efficacy survey scale," *Janabhawana Research Journal*, vol. 3, no. 1, pp. 38-39, 2024.
[56] M. Tavakol and R. Dennick, "Making sense of Cronbach's alpha," *International Journal of Medical Education*, vol. 2, p. 53, 2011.
[57] S. Sovey, K. Osman, and M. E. Mohd-Matore, "Exploratory and confirmatory factor analysis for disposition levels of computational thinking instrument among secondary school students," *European Journal of Educational Research*, vol. 11, no. 2, pp. 639-652, 2022.
[58] G. S. Fuey and N. Idris, "Assessing the validity of the elements for pre-service mathematics teacher education curriculum," *International Journal of Academic Research in Business and Social Sciences*, vol. 7, no. 12, pp. 284-295, 2017.
[59] C. L. Ramalingam, R. Haque, K. Jumbulingam, N. Salehhudin, L. Manickam, and S. N. Devasia, "Gender impeded: The lived experiences of transgenders at the workplace," *International Journal of Religion*, vol. 5, no. 4, pp. 150-162, 2024. https://doi.org/10.61707/afg0gr17
[60] J. H. Kim, "Multicollinearity and misleading statistical results," *Korean Journal of Anesthesiology*, vol. 72, no. 6, pp. 558-569, 2019.
[61] J. I. Daoud, "Multicollinearity and regression analysis," in *journal of Physics: Conference Series*, 2017, vol. 949, no. 1: IOP Publishing, p. 012009.
[62] K. Sarjana, E. Kurniawan, U. Lu'Luilmaknun, and N. M. I. Kertiyani, "Analysis of pre-service teacher's performance viewed by creativity and self-regulated learning," *Jurnal Kependidikan: Jurnal Hasil Penelitian dan Kajian Kepustakaan di Bidang Pendidikan, Pengajaran dan Pembelajaran*, vol. 9, no. 1, pp. 234-243, 2023.
[63] S. P. Mangalam, K. Adnani, and Y. X. Yong, "Behavioural intention of Malaysians towards E-wallet adoption: Moderated by gender," *Asian Journal of Research in Business and Management*, vol. 4, no. 2, pp. 119-123, 2022.
[64] S. Osman, N. Jabaruddin, A. S. Zon, A. A. Jifridin, and A. K. Zolkepli, "Factors influencing the use of E-wallet among millennium tourist," *Journal of Information Technology Management*, vol. 13, no. 3, pp. 71-78, 2021.
[65] R. Haque, A. Rahman, A. Pang, and A. Kow, "Factors affecting customer's satisfaction and loyalty in hospitals in China," *Asian Journal of Technology & Management Research*, vol. 10, no. 1, pp. 101-115, 2020.
[66] E. H. L. Gan, J. A. L. Yeap, C. Li, and S. K. Ooi, "Sustained interest in E-Wallet adoption among Malaysian consumers," *International Journal of Academic Research in Business and Social Sciences*, vol. 13, no. 12, pp. 1561-1562, 2023.
[67] S. Ahmed, B. Chowdhury, I. Khalil, R. Haque, and A. R. bin Senathirajah, "Analyzing key factors affecting sales performance amongst Malaysian SMES: A structural path modeling approach," *International Journal of eBusiness and eGovernment Studies*, vol. 14, no. 3, pp. 560-577, 2022.

[68] S. Ahmed, R. Haque, A. R. bin S Senathirajah, B. Chowdhury, and M. I. Khalil, "Examining the mediation effect of organizational response towards covid-19 on employee satisfaction in SMEs," *International Journal of Operations and Quantitative Management*, vol. 28, no. 2, pp. 461-485, 2022.

[69] L. Q. Ying *et al.*, "Strategic human resource management factors influencing job satisfaction in Malaysian audit firms: Towards improving employment policy," *International Journal of Operations and Quantitative Management*, vol. 29, no. 2, pp. 316-339, 2023.

[70] R. A. Aziz *et al.*, "A study of the relationship between leadership styles and project success," *Res Militaris: European Journal of Military Studies*, vol. 12, no. 4, pp. 1900–1907, 2022.

[71] M. Josephine *et al.*, "Tax evasion–black economy of India: A study on the factors influencing tax evasion," *Science International Journal*, vol. 30, no. 3, pp. 387-392, 2018.

[72] L. Wang, R. Haque, N. Hakimi, and C. Guanyu, "Examining digital talent acquisition and recruitment strategies to enhance economic sustainable development goals (SDGS) Of SME'S in China's internet industry," *Journal of Lifestyle and SDGs Review*, vol. 4, no. 3, p. e02306, 2024. https://doi.org/10.47172/2965-730X.SDGsReview.v4.n03.pe02306

[73] J. O. H. Liaw, N. Ibrahim, I. Singh, A. Tajudin, A. Isa, and R. Haque, "Integration model of human dimensions, military minds and patriostism," *International Journal of Religion*, vol. 5, no. 11, pp. 2581 – 2597, 2024. https://doi.org/10.61707/jakg9797

[74] K. M. Umesh, A. R. S. Senathirajah, G. Connie, and R. Haque, "Examining factors influencing blockchain technology adoption in air pollution monitoring," *International Journal of Intelligent Systems and Applications in Engineering*, vol. 11, no. 4s, pp. 334 - 344, 2023.

[75] B. Chawdhury, R. Haque, A. Senathirajah, M. Khalil, and S. Ahmed, "A structural path study modelling factors influencing social entrepreneurship intention: A Bangladeshi youth case study," *International Journal of Operations and Quantitative Management*, vol. 28, no. 2, pp. 418-440, 2022.

[76] M. I. Khalil and R. Haque, "Social entrepreneurial leadership on SMEs' performance," *MAHSA International Journal of Business and Social Sciences*, vol. 2, no. 2, pp. 93–110, 2022.

[77] R. Haque, T. A. Siddiqui, L. H. San, and F. M. B. O. Din, "Data visualization: A study of tools and challenges," *MAHSA International Journal of Business and Social Sciences*, vol. 2, no. 1, pp. 71–78, 2022.

[78] R. Haque, A. R. B. S. Senathirajah, M. I. Khalil, S. Z. Qazi, and S. Ahmed, "A structural path analysis Bangladeshi SMEs' sustainability through social media marketing," *Sustainability*, vol. 16, no. 13, p. 5433, 2024. https://doi.org/10.3390/su16135433

[79] A. K. Rajendran and R. Haque, "The motivation and performance efficiency among the contract of service and permanent medical employees at hospital teluk intan during the Covid-19 pandemic," *MAHSA International Journal of Business and Social Sciences*, vol. 2, no. 2, pp. 191-218, 2022.

[80] P. Haibin, A. Senathirajah, G. Connie, and R. Haque, "Investigating pull factors in international tourist travel motivation: An empirical analysis on the Malaysian tourism industry," *Baltic Journal of Law & Politics*, vol. 15, no. 2, pp. 564-576, 2022.

[81] O. A. Almuhatresh, A. R. bin S Senathirajah, and R. Haque, "Factors influencing online purchase intention of smartphones in Bahrain," *International Journal of Operations and Quantitative Management*, vol. 28, no. 2, pp. 617-629, 2022.

[82] R. Haque and R. K. Srivastava, "Consumer shopping behavior in rural and urban areas of India: A study report," *Asian Journal of Technology & Management Research*, vol. 4, no. 02, pp. 1-7, 2014.

[83] C. K. Tsamwa, A. R. S. Senathirajah, R. Haque, A. Adetayo, G. Connie, and A. R. S. Batcha, "Modelling consumer perception of internet retail service quality (IRSQ) using structural equation analysis: An empirical study on Africa's e-marketplace," *Journal of Positive School Psychology*, vol. 6, no. 6, pp. 10297–10310, 2022.

[84] A. R. S. Senathirajah, R. Haque, and P. Malnaad, "A systematic literature review on the determinants of service quality and e-service quality and its relationship with patient satisfaction in the health care industry," *Journal of Pharmaceutical Negative Results*, vol. 13, no. 9, pp. 10357–10362, 2022.

[85] K. Kaur, C. S. Keong, J. Singh, S. K. Sandhu, A. R. bin S Senathirajah, and R. Haque, "Examining factors influencing fashion apparel purchases in omni-channel retailing: A post-covid-19 study," *Transnational Marketing Journal*, vol. 11, no. 1, pp. 44-58, 2023.

[86] L. K. Leong, L. Manickam, R. Haque, K. Jumbulingam, and N. B. M. Noordin, "Embracing digital transformation for sustainable business in the construction industry," *Pakistan Journal of Life & Social Sciences*, vol. 22, no. 2, pp. 1621-1640, 2024.

[87] S. Narayanan *et al.*, "Workplace romance and organisational performance: A case study of Malaysian organizations," *International Journal of Instructional Cases*, vol. 8, no. 1, pp. 121-134, 2024.

[88] N. A. Aziz, S. Ahmed, R. Haque, S. Z. Qazi, and A. R. B. S. Senathirajah, "Deciphering international students' choices: Push-pull dynamics and necessary condition analysis in Malaysian university selection," *International Journal of Knowledge Management* vol. 21, no. 1, pp. 1-34, 2025. https://doi.org/10.4018/IJKM.372675

[89] M. N. Ahmed *et al.*, "Library services provision during the Covid-19 pandemic: A comparative study between developing countries," *International Journal of Religion*, vol. 5, no. 5, pp. 816-831, 2024. https://doi.org/10.61707/16dyrm70

[90] C. Ifedi, R. Haque, A. R. B. S. Senathirajah, and S. Z. Qazi, "Service quality influence on consumer satisfaction in the banking sector aimed at sustainable growth," *Revista de Gestão Social e Ambiental*, vol. 18, no. 7, p. e06025, 2024. https://doi.org/10.24857/rgsa.v18n7-032

[91] W. Haibao and R. Haque, "Digital transformation and sustainable development of automobile insurance claims departments," *MAHSA International Journal of Business and Social Sciences*, vol. 3, no. 1, pp. 42-47, 2023.

[92] B. Chowdhury *et al.*, "Mediation of customer satisfaction and customer loyalty in fast-food restaurants aimed at sustainable growth," *International Journal of Operations and Quantitative Management*, vol. 29, no. 3, pp. 114-128, 2023.

[93] C. Z. Yang *et al.*, "Generation Z's smartphone purchase intentions and behaviors: A study amongst Malaysian higher education students," *Journal of Posthumanism*, vol. 5, no. 4, pp. 45–70, 2025. https://doi.org/10.63332/joph.v5i4.977

[94] Y. Jiang, S. I. N. W. Abdullah, B. H. J. Lim, R. Wang, and K. T. Phuah, "The role of marketing stimuli and attitude in determining post-COVID buying decisions toward organic food products: evidence from retail consumers in Beijing, China," *Frontiers in Sustainable Food Systems*, vol. 7, p. 1051696, 2023. https://doi.org/10.3389/fsufs.2023.1051696

[95] W. Wider, "Effects of metacognitive skills on physics problem-solving skills among Form Four secondary school students," *Journal of Baltic Science Education*, vol. 22, no. 2, pp. 357–369, 2023.