

Factors Influencing the Adoption of Digital Payment Systems Among Millennials in Batu Pahat, Johor

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Abstract

Digital payments are becoming more important in Malaysia as people move toward using less cash. Even though millennials are adept with technology, semi-urban areas like Batu Pahat still have low adoption due to system issues, QR code problems, and poor app usability. Therefore, this study is conducted to investigate the factors influencing (performance expectancy, social influence, effort expectancy, perceived security) the adoption of digital payment systems among millennials in Batu Pahat, Johor. This study population consists of 172,800 millennials. Based on the population, the sample needed in this study is 384 respondents of millennials using random sampling. A quantitative method was employed and data were analyzed using SPSS software. Descriptive analysis, reliability analysis, normality test, correlation analysis, and pilot test conducted to achieve the research objective. The results indicate that performance expectancy, social influence, effort expectancy, perceived security examined factors show positive and significant relationships with adoption digital payment systems. The findings provide useful insights to assist policymakers, businesses, and financial institutions in developing strategies to promote wider use of digital payment systems.

1. Introduction

Digital payment systems make transactions faster, easier, and safer, with millennials playing a key role due to their familiarity with mobile technology (Azman Ong *et al.*, 2023). Adoption refers to the willingness, frequency, and consistency of using these systems, with about 80% of Malaysian millennials preferring digital payments (Fintech News Malaysia, 2024). However, challenges exist, System downtime, technical glitches, and QR code issues can frustrate users, cause failed transactions, and reduce trust (Jain & Jain, 2024; Zhou *et al.*, 2021). Poor app usability, including unclear instructions and difficult navigation, also lowers satisfaction, especially among less tech-savvy users (Yahya *et al.*, 2023). By improving adoption, factors such as performance expectancy, effort expectancy, social influence, and perceived security need to be studied. This study, therefore, investigates performance expectancy, social influence, effort expectancy, perceived security factors among millennials in Batu Pahat, Johor.

Digital payment systems are fundamentally altering financial landscapes by offering increased speed and security, with Malaysian millennials emerging as key adopters due to their technological fluency and innovative mindset (Azman Ong *et al.*, 2023). This transition is primarily driven by factors such as performance and effort expectancy, social influence, and the perceived security of the platforms. Within this framework, adoption is means how willing a person to use new systems, how often they use them regularly instead of just trying them once, and how consistently they make transactions, which shows trust. This change is especially seen in semi-urban areas like Batu Pahat, Johor, where fast digital growth is happening due to high smartphone and internet

use (Hutchinson, 2018; Sa'aidon & Fitriani Suhandri, 2024). As a result, 80% of Malaysian millennials now prefer digital payments in 2024, showing a clear trend that improves user experiences and strengthens the digital system (Fintech News Malaysia, 2024).

Digital payment systems have grown since the Covid-19 pandemic due to limited physical contact. However, challenges remain, particularly related to system quality and downtime, which reduce consumer satisfaction and trust (Jain & Jain, 2024). Technical problems during transactions disrupt payments, frustrate users, and discourage future adoption. Ensuring reliable technical infrastructure, including Application Programming Interface (APIs) in open banking, is essential, as poor system performance lowers competitiveness and adoption in retail settings (Ramayanti *et al.*, 2023). Although QR code payments are fast and convenient, detection issues can occur due to weak internet, damaged QR codes, poor camera quality, or system faults (Ali & Mohan, 2025; Zhou *et al.*, 2021). These problems can cause transaction delays, failed payments, and confusion for both users and sellers (Zhou *et al.*, 2021). Poor verification may also allow fake payment confirmations, leading to financial losses and reduced trust in QR payments (Sharevski *et al.*, 2022). This can lead to problems for small businesses reliant on QR systems.

When digital payment apps are not user-friendly, users may struggle to complete transactions, a concept known as interface usability (Yahya *et al.*, 2023). Issues such as unclear instructions, difficult navigation, and too many steps increase the likelihood of errors (Ma *et al.*, 2023). These problems can reduce users' trust and satisfaction, especially among less tech-savvy individuals, making the apps less popular (Beheri, 2025; Boden *et al.*, 2019).

Therefore, to achieve the research objectives the level of factors influencing adoption of digital payment systems among millennials in Batu Pahat, Johor is identified. Furthermore, the level of adoption of digital payment systems among millennials in Batu Pahat, Johor. Lastly, the relationship between factors influencing and adoption of digital payment systems among millennials in Batu Pahat, Johor.

2. Literature Review

2.2 Digital Payment

Digital payment systems are changing how people handle money by making transactions faster, easier, and safer (Calderon, 2024). Digital payments are online resources and payment techniques used to exchange value over the Internet (Ramayanti *et al.*, 2023). In Malaysia, the adoption of digital payments, such as e-wallets, has seen significant growth, supported by government initiatives and technological advancements (Azman Ong *et al.*, 2023). Millennials are identified as a main subject in this transition due to their familiarity with mobile technology and their openness to adopting new digital platforms (Kaifi *et al.*, 2012).

While digital payments are becoming more common, especially among millennials, challenges continuous in semi-urban areas like Batu Pahat. These challenges include limited awareness, concerns about security, and the complexity of having many competing digital payment providers. These barriers can slow down the adoption rate, despite the rapid development of the digital economy in such areas (Azman Ong *et al.*, 2023).

2.3 Millennials

Millennials, born between 1980 and 2000, are a key group in adopting digital financial solutions due to their familiarity with mobile technology and openness to new systems (Kaifi *et al.*, 2012; Mahavidyalaya Reshimbagh, 2024). Their use of digital payments is driven by convenience, speed, and comfort, with about 80% of Malaysian millennials, including those in Batu Pahat, preferring digital payments (Fintech News Malaysia, 2024). However, adoption challenges exist in semi-urban areas due to lower awareness, security concerns, and complex payment options (Azman Ong *et al.*, 2023). Understanding millennials' attitudes, frequency, and consistency in using these platforms is crucial to promoting wider adoption.

To conclude the various perspectives discussed from the past study and to be applied in this study, the researcher defines millennials as individuals born between the years 1980 and 2000. Due to the characteristics of millennials, millennials are highly educated demographic with high levels of self-confidence and independence. They are also the most recent generation to join the workforce (Nichols, 2015). This definition is essential to ensure the accuracy of the target respondents and the consistency of data analysis throughout the research.

2.4 Adoption of Digital Payments Systems

Adoption refers to the willingness, frequency, and consistency of using digital payments, including a preference over cash (Usman *et al.*, 2025). Digital payment systems, such as e-wallets, are making transactions faster, more convenient, and secure (Calderon, 2024). In Malaysia, adoption has grown rapidly among millennials due to government support and technological advancements (Siddharta, 2025).

2.5 Factors Influencing Adoption of Digital Payment Systems

2.5.1 Performance Expectancy

Performance expectancy is defined to how much an individual believes that using a digital payment system will improve their daily tasks (Cimperman *et al.*, 2016). For millennials, it is a key factor in adoption, as they are more likely to use systems that are efficient, fast, and simplify transactions (Islam *et al.*, 2024; Calderon, 2024). Studies show that when users expect digital payments to enhance productivity and convenience, their willingness to adopt increases (Calderon, 2024; Islam *et al.*, 2024; Cimperman *et al.*, 2016).

2.5.2 Social Influence

Social influence refers to the impact of important people like family, friends, or peers on an individual's behaviour, encouraging the use of digital payment systems (Belmonte *et al.*, 2024). Among millennials in Batu Pahat, observing positive opinions or encouragement from their social circle increases the likelihood of adopting and consistently using digital payments. This influence is particularly strong in semi-urban areas, enhancing trust and reducing hesitation (Sundararaj & Meera, 2024).

2.5.2 Effort Expectancy

Effort expectancy is defined to how easy or difficult users perceive a digital payment system to be (Venkatesh *et al.*, 2003). For millennials in Batu Pahat, user-friendly systems that are simple, intuitive, and quick to learn increase adoption (Edu, 2024; Tripathi, 2024). Conversely, complicated or time-consuming systems can discourage use, even among tech-savvy users (Behera *et al.*, 2023). Ensuring ease of use is therefore key to promoting adoption in semi-urban areas.

2.5.3 Perceived Security

Perceived security is users' belief in the safety of their financial and personal information on digital payment platforms (Hartono *et al.*, 2014). Concerns about fraud and data breaches can discourage adoption, even if the system is convenient (Laxman *et al.*, 2025). Millennials are more likely to adopt digital payments if they trust the security of their transactions (Sundararaj & Meera, 2024). Enhancing security features, providing clear information on data protection, and building trust are key strategies to increase adoption, especially in semi-urban areas with lower awareness (Jain & Jain, 2024).

2.6 Past Studies Between Factors Influencing Adoption of Digital Payment Systems and Adoption of Digital Payment Systems

2.6.1 Relationship Between Performance Expectancy and Adoption of Digital Payment Systems

Ding *et al.* (2025) found that performance expectancy significantly impacts digital payments, with a positive relationship between performance expectancy and digital payments, which is aligned with the past studies (Azman Ong *et al.*, 2023; Shah & Bhatt, 2023). Islam *et al.* (2024) found a significant positive relationship between performance expectancy and digital payment, which is aligned with (Gao *et al.*, 2018; Angusamy *et al.*, 2023). Therefore, it is hypothesized:

H1: Performance expectancy has a positive influence on the adoption of digital payment systems.

2.6.2 Relationship Between Social Influence and Adoption of Digital Payment Systems

Social influence significantly positively impacts digital payment systems, which is supported by previous studies (Yang *et al.*, 2021). However, Chaouali *et al.* (2016) found that there are positive impacts towards digital payments by encouraging acceptance through perceived acceptance in society, peer support, and social norms. Furthermore, the study conducted by Angusamy *et al.* (2023) in Malaysia on digital payment systems is positive and significant. The hypothesis is developed as:

H2: Social influence has a positive influence on the adoption of digital payment systems.

2.6.3 Relationship Between Effort Expectancy and Adoption of Digital Payment Systems

Study by Srivastava *et al.* (2023) in India among the millennials, they found that effort expectancy has a significant positive relationship with digital payment systems in the study. Another past study, which was conducted in Malaysia among millennials by using the UTAUT model also has a positive relationship with digital payment (Leong *et al.*, 2021). Therefore, it is hypothesized:

H3: Effort expectancy has a positive influence on the adoption of digital payment systems.

2.6.4 Relationship Between Perceived Security and Adoption of Digital Payment Systems

The study by Al-Qudah *et al.* (2024) found that perceived security significantly positive impact digital payment adoption. This study finds that millennials believe digital payment can secure and protect their personal information. PS and Doshi (2025) found that perceived security positively influence adoption digital payment systems among millennials in various Indian universities. The hypothesis is developed as:

H4: Perceived security has a positive influence on the adoption of digital payment systems.

2.7 Conceptual Framework

Figure 1 presents the conceptual framework, based on previous findings and hypotheses, showing the factors driving adoption. The independent variables are performance expectancy, social influence, effort expectancy, and perceived security, while the dependent variable is the adoption of digital payment systems among millennials in Batu Pahat, Johor.

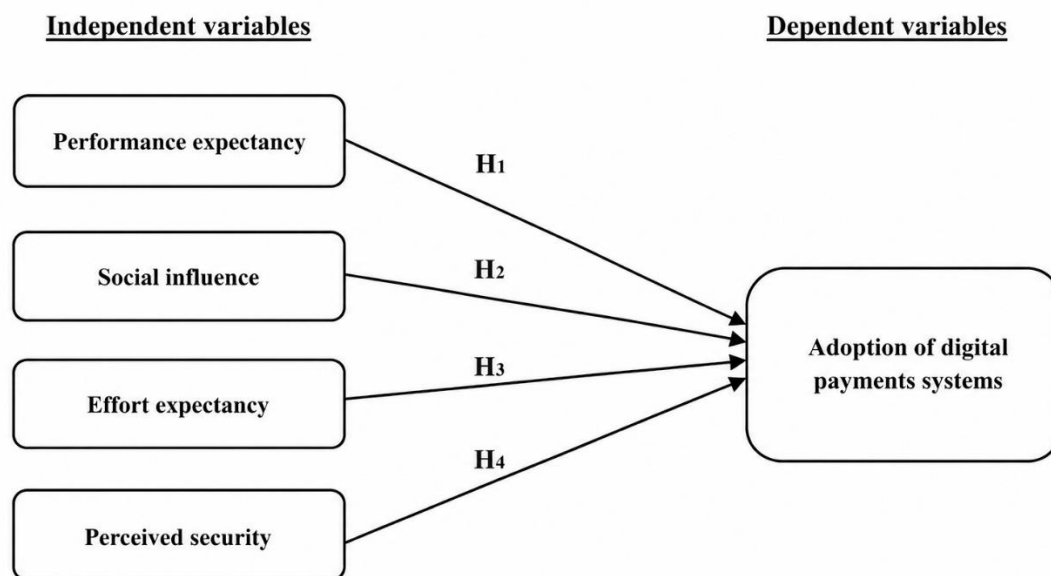


Fig. 1 Conceptual Framework

3. Research Methodology

3.1 Research Design

This study uses a quantitative survey approach to collect data from millennials in Batu Pahat, Johor, at a single point in time. A structured questionnaire serves as the main tool, enabling standardized data collection and analysis of how independent variables influence the adoption of digital payment systems.

3.2 Research Population and Sample

In this study, the target population in this study was millennials in Batu Pahat, Johor, defined as those born between 1980 and 2000. There are approximately 172,800 millennials in the area (Department of Statistics Malaysia, 2020). From a population of 172,800, a sample of 384 respondents was determined using the Krejcie and Morgan table.

3.3 Sampling Method

This study uses simple random sampling (Fricker, 2015). To give every millennial in Batu Pahat, Johor an equal chance of selection. From a population of 172,800, a sample of 384 respondents was determined using the Krejcie and Morgan table.

3.4 Data Collection

The procedure of collecting, measuring, and evaluating correct insights for study using established approved procedures is known as data collection. On the basis of the evidence gathered, a researcher might evaluate their hypothesis. Regardless of the subject of study, data collecting is usually the first and most significant phase in the research process. Depending on the information needed, different approaches to data gathering are used in different disciplines of study. One type of data used in this study is primary data.

3.4.1 Primary Data

Primary data refers to information gathered by the researcher, such as surveys, interviews, and experiments, and is intended to help the researcher understand and solve the study topic at hand. The researcher collects primary data via a questionnaire in this study. Millennials who are residing in Batu Pahat were given the questionnaire. The purpose of the questionnaire is to identify the relationship between factors influencing and adoption of digital payment systems among millennials in Batu Pahat, Johor.

3.5 Pilot Study

A pilot test was conducted in August with at least 20 millennials in Batu Pahat to check the reliability and validity of the questionnaire (Whitehead *et al.*, 2015). The questionnaire was distributed online, and feedback was used to fix unclear or ambiguous items. Cronbach's alpha was applied to ensure internal consistency, refining the instrument for the main study. A total of 21 questionnaires were employed in the pilot test.

3.6 Research Instrument

The study uses a questionnaire to collect quantitative data from millennials in Batu Pahat, Johor. It has six sections from A to F, starting with demographic questions, and includes independent variables (performance expectancy, social influence, effort expectancy, and perceived security) and the dependent variable, adoption of digital payment systems. All 20 items use a Likert scale from 1 (strongly disagree) to 5 (strongly agree).

3.7 Data Analysis

The researcher must arrange and analyse all data received through the data collection process so that the researcher can understand it. Data analysis to determine research findings and determine whether research will achieve its objectives. Data will be collected from primary sources through the distribution of questionnaires.

3.7.1 Descriptive Analysis

Statistical Package for Social Sciences (SPSS) Version 27 was used to analyse the data collected from the survey in this study. Descriptive analysis summarizes and interprets data from millennials in Batu Pahat, Johor. Using frequencies, percentages, means, and standard deviations. It provides an overview of respondents' demographics and digital payment adoption behaviours, highlighting trends and patterns in the target population. According to Wiersma (2000), the mean values between 1.00 to 2.33 represent low, 2.34 to 3.67 represent moderate, and 3.68 to 5.0 represent high.

3.7.2 Correlation Analysis

Correlation analysis is a tool that examines the relationship between a dependent variable and multiple independent variables. Correlation analyses normally used in research include Pearson and Spearman correlations. In this study, the Spearman correlation was used to measure the strength and direction of relationships between factors influencing (performance expectancy, social influence, effort expectancy, and perceived security) and digital payment adoption, identifying which factors significantly influence adoption among the target population. Spearman rank correlation requires that the data be sorted and values are assigned a specific rank, with 1 being assigned the lowest value. According to Meghanathan (2016), he stated that the range of correlation coefficient from 0.80 to 1 is very strong. While 0.60 to 0.79 is strong. 0.40 to 0.59 is moderate. 0.20 to 0.39 is weak. Lastly, 0.00 to 0.19 is very weak. The closer the coefficient is to zero, the weaker the association between the ranks. Table 1 shows the level strength of the Spearman's rho coefficient.

Table 1 Nominal degree of relationship

Range	Level of Strength
0.80 – 1.00	Very Strong
0.60 – 0.79	Strong
0.40 – 0.59	Moderate
0.20 – 0.39	Weak
0.00 – 0.19	Very Weak

4. Results and Discussion

4.1 Survey Response Rate

The respondents in this study were those residing in Batu Pahat. Table 2 shows that population of this study was 172,800. Based on Krejcie and Morgan (1970), the sample size of the population was 384 sample size. The response rate was 94.8%, which was 384 of 405, and all the questionnaires collected were usable. The survey return rate had been summarized in Table 2.

Table 2 Survey return rate

Population	Sample Size	Questionnaire Distribute	Valid Questionnaire Returned	Percentage (%)
172,800	384	405	384	94.8

4.2 Reliability and Validity Analysis

The reliability analysis using Cronbach's alpha was conducted to ensure the questionnaire items consistently and dependably measure the intended variables. The test was conducted for the pilot study and the actual study. A high alpha value confirms that the data is reliable and suitable for further analysis. The coefficient value of 1.00 indicates perfect reliability, a value of 0.00 or less indicates that the questionnaire is unreliable and a range between 0.70 to 0.90 is the range that is usually used in most studies (Tavakol & Dennick, 2011). Table 3 shows the reliability coefficient value.

Table 3 Reliability coefficient value

Cronbach's Alpha (α)	Internal Consistency
$\alpha \geq 0.90$	Excellent
$0.80 \geq \alpha \geq 0.89$	Good
$0.70 \geq \alpha \geq 0.79$	Acceptable
$0.60 \geq \alpha \geq 0.69$	Questionable
$0.50 \geq \alpha \geq 0.59$	Poor
$0.5 \geq \alpha$	Unacceptable

4.2.1 Reliability and Validity of Pilot Study

A pilot test has been conducted in this study to examine that the questionnaire is reliable and valid before the actual study has been carried out. The pilot test was conducted in August with at least 20 millennials in Batu Pahat to check the reliability and validity of the questionnaire (Whitehead *et al.*, 2015). The questionnaire was distributed online, and feedback was used to fix unclear or ambiguous items. Cronbach's alpha was applied to ensure internal consistency, refining the instrument for the main study. Table 4 shows the value of Cronbach's Alpha (α) for the pilot test for 21 respondents.

Table 4 Reliability test for pilot study

Variable	Cronbach's Alpha	N- Item in Scale	N- Respondents
Adoption of Digital Payment Systems	0.739	3	21
Performance Expectancy	0.723	6	21
Social Influence	0.654	3	21
Effort Expectancy	0.914	5	21
Perceived Security	0.838	3	21

4.2.2 Reliability and Validity for Actual Study

After the pilot test has been done, a reliability test of the questionnaire for actual study was continued. Total of 384 respondents, which is millennials who reside in Batu Pahat have been selected for the actual study. The reliability test for the actual study had been summarized in Table 5.

Table 5 Reliability test for actual study

Variable	Cronbach's Alpha	N- Item in Scale	N- Respondents
Adoption of Digital Payment Systems	0.934	3	384
Performance Expectancy	0.869	6	384
Social Influence	0.880	3	384
Effort Expectancy	0.924	5	384
Perceived Security	0.916	3	384

4.3 Descriptive Analysis (Demographic Analysis)

Table 6 showed that the question designed in part A related to the demographic information of the respondents. The question included screening questions, town, age, gender, employment status, education, and the frequency of use of types of digital payment. All data from the answered questionnaires are analyzed and the results are summarized in tables and pie charts with frequencies and percentages.

Table 6 Summary of demographic analysis

Demographic	Classification	Frequency (N)	Percentage (%)
Are you currently residing in Batu Pahat?	Yes	384	94.8
	No	21	5.2
Town	Ayer Hitam	16	4.2
	Parit Raja	126	32.8
	Parit Sulong	24	6.3
	Penggeram	42	10.9
	Peserai	19	4.9
	Rengit	46	12.0
	Semerah	40	10.4
	Senggarang	11	2.9
	Seri Medan	8	2.1
	Sri Gading	27	7.0
	Tongkang Pechah	20	5.2
	Yong Peng	5	1.3
Age	25 – 29 years	162	42.2
	30 – 34 years	84	21.9
	35 – 39 years	58	15.1
	40 – 44 years	80	20.8
Gender	Male	136	35.4
	Female	248	64.6
Employment Status	Private sector	110	28.6
	Public sector	89	23.2
	Self-employed	78	20.3
	Student	70	18.2
	Unemployed	5	1.3
	Housewife	32	8.3
Education	Postgraduate's degree	37	9.6
	Bachelor's degree	172	44.8
	Malaysian Higher School Certificate	4	1.0
	Diploma	144	37.5
	Pre Diploma	1	0.3
	Malaysian Skills Certificate & lower	26	6.8

Frequently used types of digital payment systems	Buy Now, Pay Later	7	1.8
	Contactless payment	7	1.8
	Credit & Debit cards	57	14.8
	Mobile wallets /	31	8.1
	E-wallets		
	Online banking transfers	74	19.3
	QR code payments	203	52.9
	All types	5	1.3

4.4 Analysis of the Level Factors Influencing the Adoption of Digital Payment Systems

This section is to identify the level of factors influencing the adoption digital payment systems. The research focuses on the millennials who reside in Batu Pahat. There are 4 sections from B to E for variables questions, starting with performance expectancy, social influence, effort expectancy, and perceived security. The score rated by respondents are converted into mean thus the values are used to identify the factors influencing the adoption digital payment.

4.4.1 Descriptive Analysis by Variables

Table 7 below shows the mean and standard deviation of the 4 factors influencing which are performance expectancy, social influence, effort expectancy, and perceived security.

Table 7 Summary analysis of each average of mean

Variable	N	Mean	Std. Deviation
Performance Expectancy	384	4.3038	0.65757
Social Influence	384	3.9661	0.86867
Effort Expectancy	384	4.3380	0.69764
Perceived Security	384	3.8299	0.92038

4.5 Analysis of the Level of Adoption Digital Payment Systems

This section is to identify the level of adoption digital payment systems among millennials in Batu Pahat. Section F consists of 5 Likert Scale questions and the method used to analyze the results would be descriptive analysis. The objective of descriptive analysis is to summarize and organize the huge amount of data and it comprised into two types which is measure of central tendency and measure of variability.

4.5.1 Descriptive Analysis Data for Level of Adoption of Digital Payment Systems

The table below the score rated by respondents are converted into mean thus the values are used to identify the level of adoption digital payment.

Table 8 Descriptive analysis

	N	Mean	Std. Deviation
I plan to use digital payment systems for my future transactions.	384	4.31	0.827
I intend to increase my usage of digital payment systems in the future.	384	4.26	0.854
I will recommend digital payment systems to others.	384	4.29	0.854

4.6 Correlation Analysis

The purpose of a correlation analysis is to describe the strength of the relationship between two or more variables. It was evaluated using data collected from respondents. Therefore, researchers can investigate the correlation between the factors influencing and the level of adoption of digital payment systems among millennials in Batu Pahat. On the other hand, correlation coefficients such as Spearman's and Pearson's predict a linear relationship between the variables. Even if the correlation coefficient is zero, a non-linear relationship may exist. Table 9 shows the strength of the Spearman's rho coefficient.

Table 9 Spearman rho Coefficient Strength

Range	Strength
0.80 – 1.00	Very Strong
0.60 – 0.79	Strong
0.40 – 0.59	Moderate
0.20 – 0.39	Weak
0.00 – 0.19	Very Weak

In this study, the researcher uses Spearman's Correlation Coefficient to establish a relationship between the two variables. Table 10 shows the results of the highest Spearman's Correlation Coefficient, r is 0.673, which indicates a strong relationship between social influence and adoption of digital payment systems. The lowest Spearman's Correlation Coefficient, r is 0.654 which was a strong relationship. The second highest Spearman's Correlation Coefficient, r is 0.672 which was a strong. The last variable, which is effort expectancy, was 0.671, which is a strong correlation. As a result, all hypotheses are supported as shown in Table 11.

Table 10 Result of Spearman's Correlation

	PE	SI	EE	PS	ADP
	1	.638**	.694**	.600**	.672**
PE		<.001	<.001	<.001	<.001
	384	384	384	384	384
	.638**	1	.611**	.569**	.673**
SI	<.001		<.001	<.001	<.001
	384	384	384	384	384
	.694**	.611**	1	.563**	.671**
EE	<.001	<.001		<.001	<.001
	384	384	384	384	384
	.600**	.569**	.536**	1	.654**
PS	<.001	<.001	<.001		<.001
	384	384	384	384	384
	.672**	.673**	.671**	.654**	1
ADP	<.001	<.001	<.001	<.001	
	384	384	384	384	384

Table 11 Hypothesis Summary

Hypothesis	Result
H1: Performance expectancy has a positive influence on the adoption of digital payment systems.	Supported
H2: Social influence has a positive influence on the adoption of digital payment systems.	Supported
H3: Effort expectancy has a positive influence on the adoption of digital payment systems.	Supported
H4: Perceived security has a positive influence on the adoption of digital payment systems.	Supported

5. Conclusion

For effort expectancy, this finding suggests that it is a critical determinant of digital payment adoption, as users are more likely to adopt systems that require minimum time to learn and effort. According to a prior study by Roseli *et al.* (2021), if a customer feels comfortable and at ease using digital payment methods, there is a good probability they will use them frequently. Additionally, developers who created the webpage should make it as easy as possible for users to access and browse in order to satisfy their wants and requirements (Tomić *et al.*, 2025). This implies that system providers should prioritize user-friendly designs to enhance adoption, particularly among semi-urban areas.

Furthermore, performance expectancy helps user to achieve their goals in daily routine as it is was convenient. Previous studies such as Islam *et al.* (2024) and Singh *et al.* (2024), users are more likely to adopt digital payments when they believe the system can improve transaction efficiency, save time, and provide greater convenience. When digital payment systems are perceived as useful and effective in daily transactions, users are more motivated to continue using them (Ramayanti *et al.*, 2023; Usman *et al.*, 2025).

Moreover, social influence refers to the influence of important people around them, such as family, friends, and peers, in adopting digital payment systems. The findings indicate that social influence plays a role in encouraging adoption, as recommendations and positive experiences shared by others increase users' confidence and willingness to use digital payments (Belmonte *et al.*, 2024; Islam *et al.*, 2024). This suggests that social approval and peer usage can motivate millennials to adopt digital payment methods (Belmonte *et al.*, 2024).

Next, perceived security indicates that although respondents are willing to use digital payment systems, concerns related to the security and potential financial risks remain present. Earlier study by Saxena *et al.* (2019), found that there is some interest in consumers who keep away of online buying because they are afraid their money would be stolen. Therefore, enhancing security features and transparently communicating data protection measures are essential to build user trust and encourage continued use of digital payment systems.

Overall, the most important factor is effort expectancy in influencing adoption digital payment systems among millennials in Batu Pahat, Johor. High mean score indicates that the technology is easy to learn and use, which play a critical role in for users to adopt and continue using digital payment systems. When digital payment platforms are perceived as simple, user-friendly, and convenient, users are more confident and willing to integrate them into their daily transactions (Davis *et al.*, 1989). Therefore, system providers should prioritize intuitive design and usability to further enhance digital payment adoption, particularly in semi-urban areas.

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Conflict of Interest

Authors declare that there is no conflict of interests regarding the publication of the paper.

Author Contribution

The authors confirm contribution to the paper as follows: **study conception and design:** Nur Nasriah Mohd Nazri and Nor Kamariah Kamaruddin; **data collection:** Nur Nasriah Mohd Nazri and Nor Kamariah Kamaruddin; **analysis and interpretation of results:** Nur Nasriah Mohd Nazri and Nor Kamariah Kamaruddin; **draft manuscript preparation:** Nur Nasriah Mohd Nazri and Nor Kamariah Kamaruddin. All authors reviewed the results and approved the final version of the manuscript.

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