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Determinants of Mobile Payment Adoption: An Empirical Study of Consumers' Behavioral Intention

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Abstract

The rapid expansion of digital technologies has significantly transformed the way financial transactions are conducted, leading to the widespread emergence of mobile payment systems. Despite their increasing availability, the adoption of mobile payment technologies continues to depend on a variety of technological, behavioural, and perceptual factors. In this context, the present study aims to identify the key determinants influencing consumers' attitudes toward mobile payments and their behavioural intention to adopt such technologies. Drawing on established theories of technology adoption, this research proposes a conceptual framework that examines the relationships among several influencing factors—namely, performance expectancy, effort expectancy, social influence, facilitating conditions, trust, observability, and perceived risk—and users' attitudes toward mobile payments. Attitude toward using mobile payment is further examined as a mediating variable influencing behavioural intention. To empirically validate the proposed framework, quantitative data were collected via a structured questionnaire. A total of 579 valid responses were obtained and analyzed using statistical techniques, including exploratory factor analysis, correlation analysis, and regression analysis. The empirical results indicate that performance expectancy, effort expectancy, social influence, facilitating conditions, trust, and observability significantly influence users' attitudes toward mobile payment adoption. In contrast, perceived risk shows a negative relationship with these attitudes. Furthermore, attitude toward using mobile payment was found to be a strong predictor of behavioural intention. The findings contribute to the growing body of literature on digital payment adoption by providing empirical evidence regarding the factors shaping consumer attitudes and behavioural intention toward mobile payment technologies. The study also offers practical insights for financial institutions and technology providers seeking to promote the adoption of mobile payment systems through improved usability, trust, and perceived value.

Keywords: *Mobile payment adoption, Behavioural intention, Technology acceptance, UTAUT model, Perceived risk, Consumer attitude, Digital payment systems*

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1. Introduction

The rapid development of digital technologies and Financial Technology (FinTech) innovations has significantly transformed the structure of modern financial systems. In recent years, mobile payment technologies have emerged as one of the most prominent digital financial services, enabling users to conduct financial transactions through mobile devices such as smartphones and tablets. These technologies facilitate fast, convenient, and secure payment processes and have become an essential component of the evolving digital economy [1][2]. Mobile payment systems allow consumers to complete transactions through mobile applications, digital wallets, and QR-code payment platforms. The integration of these technologies into everyday financial activities has enabled users to perform transactions without the need for physical cash or traditional banking instruments. Consequently, mobile payment technologies contribute to the broader transition toward cashless societies and digital financial ecosystems [3][4].

The increasing adoption of mobile payment systems has attracted considerable attention from researchers across information systems, marketing, and financial technology. Understanding the determinants that influence users' acceptance and adoption of mobile payment technologies has therefore become an important research objective. Previous studies have suggested that several technological and behavioural factors influence individuals' intention to adopt digital payment services [5][6]. Technology adoption theories have frequently been employed to explain the behavioural intention to use digital financial services. Among the most widely applied frameworks are the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT). These theoretical models suggest that users' behavioural intention to adopt a new technology is influenced by perceptions related to usefulness, ease of use, social influence, and facilitating conditions [7][8].

In addition to technological factors, behavioural and psychological variables have been identified as important determinants of mobile payment adoption. Trust in digital payment systems plays a crucial role in shaping consumers' attitudes toward their use. Since mobile payments involve financial transactions and the exchange of sensitive personal information, users must perceive these systems as reliable and secure before they are willing to adopt them [9][10]. Perceived risk has also been identified as a critical factor influencing the adoption of mobile payment technologies. Concerns regarding privacy breaches, financial fraud, and technological failures may discourage potential users from adopting digital payment platforms. Empirical evidence suggests that higher perceived risk may negatively influence users' attitudes toward mobile payment systems and reduce their behavioural intention to use them [11].

Furthermore, social influence and environmental factors may affect individuals' perceptions of mobile payment technologies. Recommendations and experiences shared within social networks, including among family members, peers, and colleagues, may shape users' attitudes toward digital payment services. When individuals observe the successful use of mobile payment systems within their social environment, they are more likely to perceive such technologies as useful and trustworthy [12][13]. Observability, defined as the extent to which the benefits of a technological innovation are visible to potential users, has also been identified as a relevant factor in technology adoption research. When the advantages of a new technology are readily apparent to others, individuals are more likely to develop positive attitudes toward its adoption. In the context of mobile payment technologies, visible benefits such as convenience, transaction speed, and ease of use may increase user acceptance [14].

Despite the increasing adoption of mobile payment technologies worldwide, the determinants influencing consumers' behavioural intention to adopt such systems continue to evolve as digital payment ecosystems become more complex. Consequently, further empirical investigation is necessary to understand better how technological perceptions, behavioural attitudes, and contextual influences shape the adoption of mobile payment services [15]. In response to this research need, the present study aims to examine the factors influencing consumers' attitudes toward mobile payment technologies and their behavioural intention to adopt such systems. The study proposes a conceptual framework that integrates several determinants of technology adoption, including performance expectancy, effort expectancy, and social influence, facilitating conditions, trust, observability, and perceived risk. Furthermore, the study investigates the mediating role of attitude toward mobile payment in explaining behavioural intention to adopt these technologies.

2. Literature review

2.1. Mobile payment adoption

Mobile payment technologies have become an important component of modern digital financial ecosystems. These technologies allow consumers to perform financial transactions on mobile devices, enabling payments for goods and services without using physical cash or traditional banking instruments. The increasing availability of smartphones, internet connectivity, and digital financial platforms has accelerated the adoption of mobile payment systems across different economic environments [16][17].

Mobile payment services offer several advantages over conventional payment methods, including faster transaction speeds, greater convenience, and greater accessibility. As a result, these technologies are increasingly integrated into everyday commercial activities, supporting both online and offline transactions. The diffusion of mobile payment technologies is therefore widely regarded as a key driver of the transition toward digital and cashless economies [18].

Despite these technological advancements, the adoption of mobile payment systems varies considerably among consumers. Previous studies indicate that a combination of technological, behavioural, and environmental factors influences individuals' decisions to adopt digital payment technologies. Consequently, understanding the determinants of consumers' behavioural intention to adopt mobile payment technologies has become an important area of research in information systems and financial technology [19].

Several theoretical frameworks have been applied to explain the adoption of mobile payment technologies. Among the most widely used models are the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT). These frameworks suggest that individuals' adoption decisions are primarily influenced by their perceptions of usefulness, ease of use, social influence, and facilitating conditions [20].

2.2. Determinants of mobile payment adoption

(1) Performance Expectancy

Performance expectancy refers to the degree to which individuals believe that using a technological system will enhance their performance in completing specific tasks. In the context of mobile payment technologies, performance expectancy is often associated with perceived convenience, transaction efficiency, and improved financial management.

Studies have shown that users are more likely to adopt mobile payment technologies when they perceive clear advantages over traditional payment methods. Faster transaction processes, reduced waiting times, and improved accessibility may increase individuals' perceptions of usefulness and encourage the adoption of mobile payment systems [21][22].

(2) Effort Expectancy

Effort expectancy refers to the degree of ease associated with using a technological system. In mobile payment adoption research, this factor reflects users' perceptions of how simple and user-friendly mobile payment applications are to operate.

When digital payment platforms are designed with intuitive interfaces and simplified transaction procedures, users tend to perceive them as easier to use. Such perceptions may significantly influence individuals' willingness to adopt mobile payment technologies, particularly when minimal technical knowledge is required to operate the system [23][24].

(3) Social Influence

Social influence represents the extent to which individuals perceive that important people in their social environment believe they should use a particular technology. In technology adoption research, social influence reflects the impact of peers, family members, and professional networks on individuals' adoption decisions.

In mobile payment systems, observing others successfully using digital payment technologies may increase users' confidence in the system and encourage them to adopt it. Social influence, therefore, plays an important role in shaping individuals' perceptions of technological innovations and may significantly influence their behavioural intention to adopt mobile payment services [25][26].

(4) Facilitating Conditions

Facilitating conditions refer to the availability of resources and technological infrastructure necessary to support the use of a particular system. In mobile payment adoption, facilitating conditions include access to compatible mobile devices, internet connectivity, and secure payment platforms.

Research suggests that consumers are more likely to adopt mobile payment technologies when they perceive that adequate technological infrastructure and support mechanisms are available. The presence of reliable digital payment systems and secure transaction platforms may therefore significantly influence individuals' willingness to adopt mobile payment technologies [27][28].

(5) Trust

Trust is widely recognized as a critical determinant of digital payment adoption. Since mobile payment systems involve financial transactions and the exchange of sensitive personal information, users must perceive these systems as reliable and secure before adopting them.

Previous studies indicate that trust in digital payment platforms, financial institutions, and technology providers significantly influences consumers' attitudes toward mobile payment systems. When users trust the security mechanisms and reliability of mobile payment technologies, they are more likely to adopt and continue using these services [29][30].

(6) Observability

Observability refers to the extent to which the benefits of a technological innovation are visible to potential users. In the context of mobile payment systems, observability may deliver tangible benefits, such as faster transactions, greater convenience, and wider acceptance in commercial environments.

When individuals observe others successfully using mobile payment technologies, they may develop more favourable perceptions of the technology and become more willing to

adopt it. The visibility of digital payment systems in everyday financial activities, therefore, contributes to the diffusion of mobile payment technologies [31][32].

(7) Perceived Risk

Perceived risk refers to individuals' perceptions of potential negative outcomes associated with the use of a technological system. In mobile payment adoption research, perceived risk often encompasses concerns about financial fraud, privacy breaches, and cybersecurity threats.

Empirical evidence suggests that higher levels of perceived risk may discourage consumers from adopting digital payment technologies. Users who perceive mobile payment systems as insecure or unreliable may hesitate to adopt such technologies despite their potential benefits [33][34].

(8) Attitude and Behavioural Intention

Attitude toward technology represents an individual's overall evaluation of using a particular technological system. In technology adoption research, attitude is often considered a key mediating variable that influences behavioural intention.

Positive attitudes toward mobile payment technologies are typically associated with favourable perceptions of usefulness, ease of use, and trust. Individuals who develop positive attitudes toward mobile payment systems are therefore more likely to adopt and continue using these technologies [35]. Behavioural intention, in turn, reflects the likelihood that an individual will adopt or continue using a particular technological system [36].

2.3. Research gap

Although previous studies have identified several determinants of mobile payment adoption, the existing literature still has certain limitations. Many studies have examined individual factors such as usefulness, ease of use, or trust independently rather than analysing their combined influence within an integrated framework. However, mobile payment adoption is a complex behavioural process influenced by technological perceptions, social influences, and psychological factors simultaneously.

Furthermore, while factors such as performance expectancy, effort expectancy, and facilitating conditions have been widely investigated in technology adoption research, the roles of trust, observability, and perceived risk remain relatively underexplored in integrated empirical models. These variables may significantly influence users' attitudes toward mobile payment technologies and, consequently, their behavioural intention to adopt such systems.

In addition, previous studies have often focused primarily on behavioural intention without adequately examining the mediating role of users' attitudes toward mobile payment systems. Understanding how technological and behavioural determinants shape attitudes may therefore provide deeper insights into the mechanisms underlying mobile payment adoption.

In light of these research gaps, the present study proposes a conceptual framework that integrates technological, behavioural, and contextual determinants of mobile payment adoption. Specifically, the study examines the influence of performance expectancy, effort expectancy, social influence, facilitating conditions, trust, observability, and perceived risk on users' attitudes toward mobile payment technologies, as well as the impact of attitude on behavioural intention to adopt mobile payment systems.

3. Hypotheses development

Building on the theoretical foundations presented in the literature review, this study develops a conceptual framework to explain consumers' behavioural intention to adopt mobile

payment technologies. The proposed model integrates several determinants derived from established technology adoption theories, particularly the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT). These frameworks suggest that individuals' technology adoption decisions are influenced by a combination of technological perceptions, social influences, and contextual factors [20].

In the context of mobile payment systems, consumer adoption behaviour is not determined solely by technological characteristics but also by behavioural and psychological factors such as trust and perceived risk. Consequently, this study proposes a framework that examines the influence of seven determinants—performance expectancy, effort expectancy, social influence, facilitating conditions, trust, observability, and perceived risk—on consumers' attitudes toward mobile payment technologies. Furthermore, attitude toward using mobile payment systems is examined as a mediating variable influencing behavioural intention to adopt these technologies.

The following subsections present the theoretical justification for each hypothesis.

3.1. Performance expectancy

Performance expectancy refers to the degree to which individuals believe that using a technological system will enhance their performance in accomplishing particular tasks. In the context of mobile payment technologies, performance expectancy reflects consumers' perceptions of the usefulness and benefits of digital payment systems.

Mobile payment technologies offer several benefits compared with traditional payment methods. These advantages include faster transaction processing, greater convenience, reduced reliance on physical cash, and improved access to financial services. As digital payment platforms become increasingly integrated into everyday commercial activities, consumers may perceive mobile payment systems as an efficient and effective way to perform financial transactions.

Previous studies have consistently demonstrated that performance expectancy plays a crucial role in influencing users' adoption of digital technologies. When individuals believe that mobile payment systems can improve the efficiency and convenience of financial transactions, they are more likely to develop positive attitudes toward the technology and express stronger intentions to adopt it [21][22]. Consequently, performance expectancy is expected to influence consumers' attitudes toward mobile payment systems positively.

H1: Performance expectancy positively influences consumers' attitudes toward using mobile payment systems.

3.2. Effort expectancy

Effort expectancy refers to the degree of ease associated with using a technological system. In mobile payment adoption research, effort expectancy reflects consumers' perceptions of the ease of use of mobile payment applications.

The usability of digital payment systems is an important factor that shapes users' technology adoption behaviour. Mobile payment platforms that offer intuitive user interfaces, streamlined transaction processes, and clear instructions may reduce the effort required to complete financial transactions. When consumers perceive that a mobile payment system is easy to learn and use, they are more likely to develop a favourable attitude toward using the technology.

Empirical research has shown that effort expectancy significantly influences users' technology adoption behaviour. Technologies perceived as easy to use tend to generate higher

levels of user acceptance because they require less cognitive effort and reduce the perceived complexity of the system [23][24]. Therefore, effort expectancy is expected to influence consumers' attitudes toward mobile payment systems positively.

H2: Effort expectancy positively influences consumers' attitudes toward using mobile payment systems.

3.3. Social influence

Social influence refers to the degree to which individuals perceive that people important to them believe they should use a particular technology. This construct reflects the impact of social networks, peers, family members, and colleagues on individuals' technology adoption decisions.

In many cases, individuals rely on the experiences and recommendations of others when evaluating new technological innovations. In the context of mobile payment systems, observing friends, colleagues, or family members successfully using digital payment technologies may increase consumers' confidence in the technology and encourage them to adopt it.

Previous studies suggest that social influence plays a significant role in shaping individuals' perceptions of new technologies. When individuals perceive that important members of their social network support the use of mobile payment systems, they may develop more favourable attitudes toward adopting such technologies [25][26]. Consequently, social influence is expected to affect consumers' attitudes toward mobile payment systems positively.

H3: Social influence positively influences consumers' attitudes toward using mobile payment systems.

3.4. Facilitating conditions

Facilitating conditions refer to the availability of resources and technological infrastructure necessary to support the use of a technological system. In the case of mobile payment adoption, facilitating conditions may include access to compatible mobile devices, stable internet connectivity, secure payment platforms, and technical support services.

The presence of adequate technological infrastructure is essential for enabling consumers to use mobile payment technologies effectively. When individuals perceive that sufficient resources and support mechanisms are available to facilitate the use of digital payment systems, they are more likely to adopt such technologies.

Research indicates that facilitating conditions significantly influence users' technology adoption behaviour. The availability of reliable technological infrastructure may reduce barriers associated with the use of mobile payment systems and strengthen users' confidence in the technology [27][28]. Therefore, facilitating conditions are expected to influence consumers' attitudes toward mobile payment systems positively.

H4: Facilitating conditions positively influence consumers' attitudes toward using mobile payment systems.

3.5. Trust

Trust is widely recognized as one of the most critical determinants of technology adoption, particularly in digital financial services. Because mobile payment systems involve financial

transactions and the exchange of sensitive personal information, consumers must perceive these systems as secure and reliable before adopting them.

Trust in mobile payment technologies may be influenced by several factors, including system reliability, perceived security, and service providers' reputations. When consumers trust the technological infrastructure and security mechanisms of digital payment platforms, they are more likely to develop positive attitudes toward using these technologies.

Empirical studies have consistently shown that trust significantly influences the adoption of digital financial services. Consumers who trust mobile payment systems are more likely to perceive them as safe and reliable, thereby increasing their willingness to adopt these technologies [29][30]. Accordingly, trust is expected to influence consumers' attitudes toward mobile payment systems positively.

H5: Trust positively influences consumers' attitudes toward using mobile payment systems.

3.6. Observability

Observability refers to the extent to which the benefits of a technological innovation are visible to others. In the context of mobile payment adoption, observability reflects the visibility of digital payment technologies in everyday commercial transactions and social environments.

When consumers observe others successfully using mobile payment technologies in retail stores, transportation services, or online platforms, they may become more aware of the advantages associated with these technologies. The visibility of successful mobile payment transactions increases users' confidence in the technology and encourages them to adopt it.

Research suggests that observability plays an important role in the diffusion of technological innovations. When the benefits of a technology are readily observable, potential users are more likely to perceive it as useful and adopt it [31][32]. Therefore, observability is expected to influence consumers' attitudes toward mobile payment systems positively.

H6: Observability positively influences consumers' attitudes toward using mobile payment systems.

3.7. Perceived risk

Perceived risk refers to individuals' perceptions of potential negative consequences associated with the use of a technological system. In the context of mobile payment adoption, perceived risk may encompass concerns about financial fraud, privacy breaches, data security, and technological failures.

Consumers who perceive greater risk in mobile payment systems may hesitate to adopt them. Concerns regarding the security and reliability of digital payment systems may therefore negatively influence consumers' attitudes toward mobile payment adoption.

Previous studies indicate that perceived risk is an important barrier to the adoption of digital payment technologies. When users perceive mobile payment systems as insecure or unreliable, their willingness to adopt these technologies may decrease [33][34]. Consequently, perceived risk is expected to influence consumers' attitudes toward mobile payment systems negatively.

H7: Perceived risk negatively influences consumers' attitudes toward using mobile payment systems.

3.8. Attitude toward mobile payment and behavioural intention

Attitude toward technology represents an individual's overall evaluation of using a particular technological system. In technology adoption research, attitude is often considered a key predictor of behavioural intention.

Positive attitudes toward mobile payment technologies are typically associated with favourable perceptions of usefulness, ease of use, trust, and security. When consumers develop positive attitudes toward mobile payment systems, they are more likely to adopt and continue using these technologies in their daily financial activities.

Empirical studies have demonstrated that attitude significantly influences behavioural intention in technology adoption research. Consumers who hold favourable attitudes toward mobile payment technologies are more likely to express a stronger intention to adopt such systems [35][36]. Therefore, attitude toward mobile payments is expected to influence behavioural intention to adopt mobile payment systems positively.

H8: Attitude toward using mobile payment positively influences behavioural intention to adopt mobile payment systems.

4. Research methodology

4.1. Research design

This study adopts a quantitative research design to examine the determinants of consumers' attitudes toward mobile payment technologies and their behavioural intention to adopt such systems. Quantitative research approaches are widely used in technology adoption studies because they allow the systematic analysis of relationships among variables using statistical techniques.

The conceptual framework of this study integrates several determinants derived from technology adoption theories and prior research on digital payment systems. Specifically, the model examines the influence of performance expectancy, effort expectancy, social influence, facilitating conditions, trust, observability, and perceived risk on consumers' Attitudes toward Using Mobile Payment (ATUMP). Furthermore, attitude toward using mobile payment is examined as a mediating variable influencing behavioural intention to use mobile payment (BIUMP).

The proposed research framework is illustrated in Figure 1.

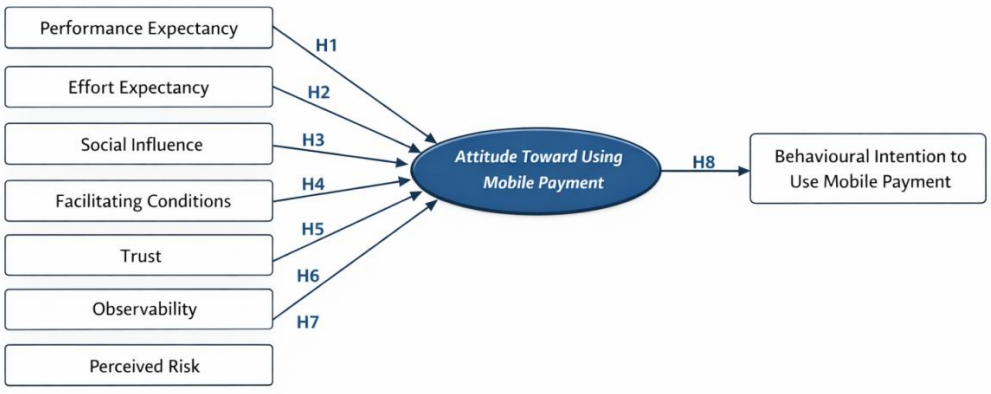

Figure 1. Conceptual framework of factors influencing consumers' attitude and behavioural intention toward mobile payment adoption

4.2. Research procedure

To ensure a systematic investigation of the proposed research model, this study followed a structured research procedure consisting of several stages. These stages include conceptual framework development, questionnaire design, data collection, data preparation, and statistical analysis. The overall research process adopted in this study is presented in Figure 2.

As illustrated in Figure 2, the research process began with the development of the conceptual framework based on an extensive literature review and the formulation of research hypotheses. Subsequently, a structured questionnaire was designed to measure the constructs included in the research model. Data were then collected through a survey of respondents familiar with mobile payment technologies. After data collection, the dataset was screened and prepared for analysis, and statistical tests were conducted using SPSS.

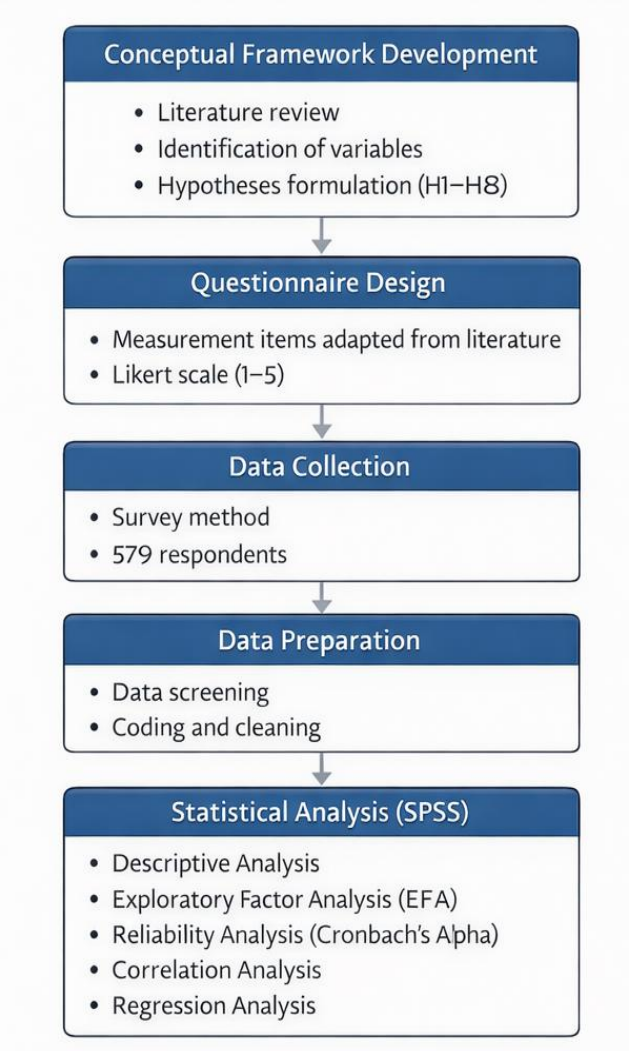

Figure 2. Research methodology flow of the study

4.3. Data collection and sample

Primary data for this study were collected through a structured questionnaire administered to individuals familiar with digital payment services and mobile payment technologies. The survey approach was selected because it enables researchers to collect large amounts of quantitative data on individuals' perceptions, attitudes, and behavioural intentions.

The questionnaire consisted of two sections. The first section collected demographic information, including gender, age group, and educational background. The second section contained measurement items designed to capture respondents' perceptions regarding the determinants of mobile payment adoption.

A total of 579 valid responses were obtained and included in the empirical analysis. The demographic profile of respondents indicates that 340 respondents (58.7%) were male and 239 respondents (41.3%) were female. In terms of age distribution, the majority of respondents were between 31 and 40 years old, followed by respondents in other age categories, including 20–30, 41–50, 51–60, and 60+ years.

Regarding educational background, a significant proportion of respondents reported professional education or postgraduate qualifications, indicating that the sample consisted largely of individuals with relatively high levels of educational attainment. Before analysis, the collected data were screened to ensure completeness and accuracy.

4.4. Measurement of variables

The constructs included in the research model were measured using multi-item scales adapted from prior studies on technology adoption and mobile payment systems. Each construct was operationalized through several measurement items designed to capture respondents' perceptions of the relevant variable.

The independent variables examined in this study include:

- Performance Expectancy (PE)
- Effort Expectancy (EE)
- Social Influence (SI)
- Facilitating Conditions (FC)
- Trust
- Observability (OB)
- Perceived Risk (PR)

The mediating variable is:

- Attitude toward Using Mobile Payment (ATUMP)

The dependent variable is:

- Behavioural Intention to Use Mobile Payment (BIUMP)

All measurement items were evaluated using a five-point Likert scale, ranging from 1 = strongly disagree to 5 = strongly agree. The Likert scale is commonly used in behavioural research because it allows respondents to express varying levels of agreement with statements related to specific constructs.

4.5. Data analysis techniques

The collected data were analysed using Statistical Package for the Social Sciences (SPSS) version 20. Several statistical techniques were employed to evaluate the measurement model and test the proposed hypotheses.

(1) Descriptive Analysis

Descriptive statistics were first calculated to summarize respondents' demographic characteristics and provide an overview of the dataset.

(2) Exploratory Factor Analysis

An Exploratory Factor Analysis (EFA) was conducted using Principal Component Analysis (PCA) to assess the construct validity of the measurement scales. The suitability of the dataset for factor analysis was evaluated using the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy and Bartlett's Test of Sphericity.

Measurement items with factor loadings greater than 0.50 were retained for further analysis.

(3) Reliability Analysis

The reliability of the measurement scales was assessed using Cronbach's Alpha. A Cronbach's Alpha value of 0.70 or higher was considered acceptable, indicating satisfactory internal consistency among the measurement items.

(4) Correlation Analysis

Pearson correlation analysis was conducted to examine the relationships among the variables included in the research model. This analysis helps determine the strength and direction of the relationships between independent and dependent variables.

(5) Regression Analysis

Multiple regression analysis was employed to test the proposed hypotheses. Two regression models were estimated. The first model examined the influence of the independent variables on attitude toward using mobile payment (ATUMP). The second model examined the influence of attitude toward using mobile payment (ATUMP) on behavioural intention to use mobile payment (BIUMP).

A significance level of $p < 0.05$ was used to determine the statistical significance of the regression results.

5. Results and analysis

This section presents the empirical results obtained from the statistical analysis of the survey data. The analysis includes descriptive statistics, exploratory factor analysis, reliability testing, correlation analysis, and regression analysis. These analyses were conducted using SPSS version 20 to evaluate the measurement model and test the proposed research hypotheses.

5.1. Descriptive statistics

Descriptive statistics were first calculated to examine the respondents' demographic characteristics. The analysis provides an overview of respondents' distribution by gender, age group, and educational background.

A total of 579 valid responses were included in the final dataset. Among the respondents, 340 participants (58.7%) were male, while 239 respondents (41.3%) were female. Regarding age distribution, the largest group of respondents was in the 31–40 age category (29.4%), followed by 20–30, 41–50, 51–60, and 60+ years. Regarding educational background, the majority of respondents reported having a professional education (42.5%), followed by master's degree holders (26.8%).

Table 1 presents the demographic profile of the respondents.

Table 1. Demographic profile of respondents (N = 579)

Variable	Category	Frequency	Percentage
Gender	Male	340	58.7%
	Female	239	41.3%
Age	20–30	77	13.3%
	31–40	170	29.4%
	41–50	106	18.3%
	51–60	140	24.2%
	Above 60	86	14.9%
Education	Bachelor Degree	71	12.3%
	Master Degree	156	26.8%
	Professional Education	246	42.5%
	Other	106	18.4%

The demographic distribution indicates that the respondents represent a diverse population in terms of age and education, providing an appropriate sample for examining mobile payment adoption behaviour.

5.2. Exploratory factor analysis

An Exploratory Factor Analysis (EFA) was conducted using Principal Component Analysis (PCA) to evaluate the construct validity of the measurement scales. Before performing factor analysis, the suitability of the dataset was assessed using the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy and Bartlett's Test of Sphericity.

The results indicated that the dataset was appropriate for factor analysis, with all KMO values exceeding the recommended threshold of 0.50 and Bartlett's Test of Sphericity yielding a statistically significant result ($p < 0.001$). These findings confirm that the variables included in the study are suitable for factor extraction.

Measurement items with factor loadings greater than 0.50 were retained, while items with lower loadings were removed from further analysis. The results of the exploratory factor analysis are summarized in Table 2.

Table 2. Results of exploratory factor analysis

Construct	KMO	Items Retained	Cumulative Variance (%)
Performance Expectancy	0.737	4	55.06
Effort Expectancy	0.750	4	45.69
Social Influence	0.859	4	70.78
Facilitating Conditions	0.749	4	59.11
Trust	0.714	5	89.82
Observability	0.826	5	71.54
Perceived Risk	0.674	4	67.97
Behavioural Intention	0.813	4	69.16
Attitude Toward Mobile Payment	0.889	5	70.34

The factor analysis results confirm that the measurement items adequately represent the theoretical constructs included in the research model.

5.3. Reliability analysis

Reliability analysis was conducted using Cronbach's Alpha to evaluate the internal consistency of the measurement scales. A Cronbach's Alpha value of 0.70 or higher is generally considered acceptable for behavioural research.

The reliability analysis results are presented in Table 3.

Table 3. Results of reliability analysis

Construct	Cronbach's Alpha
Performance Expectancy	0.781
Effort Expectancy	0.747
Social Influence	0.862
Facilitating Conditions	0.753
Trust	0.971
Observability	0.900
Perceived Risk	0.842
Behavioural Intention	0.851
Attitude Toward Mobile Payment	0.894

All constructs exhibit Cronbach's Alpha values above the recommended threshold of 0.70, indicating satisfactory internal consistency among the measurement items.

5.4. Correlation analysis

Pearson correlation analysis was conducted to examine the relationships among the variables included in the research model. Correlation coefficients indicate the strength and direction of relationships between independent and dependent variables.

The results reveal that most variables are positively correlated, suggesting potential relationships among the determinants of mobile payment adoption. The strongest correlation was observed between observability and attitude toward mobile payment, indicating that the visibility of mobile payment usage significantly influences consumers' attitudes toward adopting such technologies.

Table 4 presents the correlation matrix of the study variables.

Table 4. Correlation matrix

Variable	PE	EE	SI	FC	TR	OB	PR	ATUMP	BIUMP
PE	1								
EE	.752	1							
SI	.909	.832	1						
FC	.872	.807	.903	1					
TR	.869	.808	.910	.832	1				
OB	.867	.819	.928	.849	.946	1			
PR	.884	.763	.917	.866	.883	.890	1		
ATUMP	.866	.825	.904	.869	.912	.938	.873	1	
BIUMP	.798	.560	.671	.657	.643	.644	.675	.650	1

All correlations were statistically significant ($p < 0.01$), indicating meaningful relationships among the study variables.

5.5. Regression analysis

Multiple regression analysis was conducted to test the proposed hypotheses and evaluate the influence of independent variables on the dependent variables.

Two regression models were estimated. The first model examined the influence of the independent variables on Attitude Toward Using Mobile Payment (ATUMP). The second model examined the influence of the Attitude toward Using Mobile Payment (ATUMP) on the Behavioural Intention to Use Mobile Payment (BIUMP).

The regression model results are presented in Table 5.

Table 5. Regression results

Predictor	Dependent Variable	Beta	t-value	p-value
Performance Expectancy	ATUMP	.091	2.460	.014
Effort Expectancy	ATUMP	.102	3.770	.000
Social Influence	ATUMP	.086	1.616	.007
Facilitating Conditions	ATUMP	.188	5.281	.000
Trust	ATUMP	.120	2.591	.010
Observability	ATUMP	.553	10.951	.000
Perceived Risk	ATUMP	-.086	-1.616	.107
ATUMP	BIUMP	.972	91.658	.000

The results indicate that performance expectancy, effort expectancy, social influence, facilitating conditions, trust, and observability significantly influence consumers' attitudes toward mobile payment systems. However, perceived risk was not found to be statistically significant, suggesting that perceived risk does not significantly influence consumers' attitudes toward mobile payment adoption in this study.

Furthermore, the results show that attitude toward using mobile payment strongly influences behavioural intention to adopt mobile payment systems, supporting the final hypothesis.

5.6 Hypothesis Testing

The results of the hypothesis testing are summarized in Table 6.

Table 6. Summary of hypothesis testing

Hypothesis	Relationship	Result
H1	Performance Expectancy → ATUMP	Supported
H2	Effort Expectancy → ATUMP	Supported
H3	Social Influence → ATUMP	Supported
H4	Facilitating Conditions → ATUMP	Supported
H5	Trust → ATUMP	Supported
H6	Observability → ATUMP	Supported
H7	Perceived Risk → ATUMP	Not Supported
H8	ATUMP → BIUMP	Supported

The results indicate that six of the proposed hypotheses were supported, whereas one (H7) was not.

6. Discussion

The purpose of this study was to examine the determinants influencing consumers' attitudes toward mobile payment technologies and their behavioural intention to adopt such systems. The proposed research model integrated several determinants derived from technology adoption theories, including performance expectancy, effort expectancy, social influence, facilitating conditions, trust, observability, and perceived risk. The empirical

results provide several important insights into the factors shaping mobile payment adoption behaviour.

First, the results indicate that performance expectancy positively and significantly influences consumers' attitudes toward mobile payment systems, supporting Hypothesis H1. This finding suggests that consumers are more likely to develop favourable attitudes toward mobile payment technologies when they perceive that these systems improve the efficiency and convenience of financial transactions. Mobile payment platforms enable faster transactions, reduce the need for physical cash, and allow users to make payments anytime, anywhere. These perceived benefits play an important role in shaping positive consumer attitudes toward mobile payment adoption.

Second, effort expectancy was also found to significantly influence consumers' attitudes toward mobile payment technologies, supporting Hypothesis H2. This result indicates that the perceived ease of use of mobile payment applications is an important factor influencing adoption behaviour. When consumers perceive mobile payment systems as simple, intuitive, and easy to operate, they are more likely to develop positive attitudes toward using such technologies. This finding highlights the importance of user-friendly design and simplified transaction processes in promoting the adoption of mobile payment services.

Third, the results reveal that social influence significantly affects consumers' attitudes toward mobile payment adoption, supporting Hypothesis H3. This finding suggests that individuals' technology adoption behaviour is influenced not only by personal perceptions but also by the opinions and experiences of others in their social environment. When consumers observe friends, family members, or colleagues successfully using mobile payment technologies, they may develop greater confidence in these systems and become more willing to adopt them. Social networks, therefore, play an important role in accelerating the diffusion of mobile payment technologies.

Fourth, facilitating conditions were found to have a significant positive effect on consumers' attitudes toward mobile payment systems, supporting Hypothesis H4. This result indicates that the availability of technological infrastructure and resources is essential for enabling the adoption of digital payment technologies. Consumers are more likely to adopt mobile payment systems when they have access to compatible devices, reliable internet connectivity, and secure payment platforms. The presence of these facilitating conditions reduces barriers to the use of mobile payment systems and increases consumers' confidence in them.

Fifth, the findings demonstrate that trust significantly influences consumers' attitudes toward mobile payment adoption, supporting Hypothesis H5. Trust is particularly important in digital financial transactions because users must rely on technological systems to process financial information securely. Consumers who perceive mobile payment systems as reliable and secure are more likely to develop positive attitudes toward using such technologies. This finding underscores the importance of security mechanisms, privacy protection, and institutional credibility in promoting mobile payment adoption.

Sixth, the results show that observability has the strongest positive influence on consumers' attitudes toward mobile payment technologies, supporting Hypothesis H6. This finding suggests that the visibility of mobile payment technologies in everyday transactions plays a critical role in encouraging their adoption. When consumers frequently see mobile payment systems used in retail stores, transportation services, or online platforms, they become more aware of the advantages of these technologies. This visibility may enhance consumers' perceptions of usefulness and increase their willingness to adopt mobile payment systems.

However, the results indicate that perceived risk does not have a statistically significant effect on consumers' attitudes toward mobile payment technologies, thereby rejecting Hypothesis H7. This finding suggests that concerns about financial risk, privacy, or security may not be the primary factors driving mobile payment adoption in this context. One possible explanation is that improvements in digital security technologies and regulatory protections may have reduced consumers' concerns regarding the risks associated with mobile payment systems. As a result, perceived risk may have a weaker influence on adoption behaviour than other determinants, such as convenience and usability.

Finally, the results confirm that attitude toward mobile payment strongly influences behavioural intention to adopt mobile payment systems, supporting Hypothesis H8. This finding indicates that consumers who develop positive attitudes toward mobile payment technologies are significantly more likely to adopt and continue using these systems. Attitude, therefore, serves as an important mediating factor linking technological perceptions with behavioural intention.

Overall, this study's findings highlight the importance of technological perceptions, social influences, and trust in shaping consumers' attitudes toward mobile payment adoption. The results suggest that improving the usability, visibility, and reliability of mobile payment systems enhances consumer acceptance and encourages the broader adoption of digital payment technologies.

7. Conclusion

The rapid development of digital financial technologies has significantly transformed the way consumers conduct financial transactions. Mobile payment systems have emerged as an important innovation within the digital economy, offering convenient, efficient, and flexible alternatives to traditional payment methods. In this context, understanding the factors that influence consumers' attitudes toward mobile payment technologies and their behavioural intention to adopt such systems has become increasingly important.

This study aimed to examine the determinants influencing consumers' attitudes toward mobile payment adoption and their behavioural intention to use mobile payment technologies. Drawing on technology adoption theories, the study proposed a conceptual framework integrating seven determinants—performance expectancy, effort expectancy, social influence, facilitating conditions, trust, observability, and perceived risk—with attitude toward mobile payment as a mediating variable influencing behavioural intention.

Using survey data collected from 579 respondents, the study employed several statistical techniques, including exploratory factor analysis, reliability analysis, correlation analysis, and regression analysis, to evaluate the proposed research model. The empirical results indicate that performance expectancy, effort expectancy, social influence, facilitating conditions, trust, and observability significantly influence consumers' attitudes toward mobile payment systems. Among these factors, observability was found to have the strongest influence, suggesting that the visibility of mobile payment technologies in everyday transactions plays a crucial role in encouraging their adoption.

The results also reveal that perceived risk does not significantly influence consumers' attitudes toward mobile payment technologies in this study. This finding may indicate that improvements in digital security technologies and consumer familiarity with digital payment systems have reduced concerns about financial risk and privacy.

Furthermore, the study confirms that attitudes toward mobile payments significantly influence consumers' behavioural intention to adopt mobile payment systems. This result

highlights the important mediating role of consumer attitudes in shaping technology adoption behaviour.

Overall, this study contributes to the growing body of literature on mobile payment adoption by providing empirical evidence on the factors influencing consumers' attitudes and behavioural intention toward mobile payment technologies. The findings also provide practical insights for financial institutions, technology developers, and policymakers seeking to promote the adoption of digital payment systems. Enhancing the usability, reliability, and visibility of mobile payment platforms may play a key role in encouraging wider adoption and supporting the continued development of digital financial ecosystems.

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