

# A Study On Drivers Influencing The Adoption Of Mobile Wallets For E-Payments Among Indian Users

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## ABSTRACT

The Internet and technological advancements have changed the way financial services are provided and used. The demand for m-wallets has continued during the last few years, particularly since the onset of the pandemic. Based on the TAM, UTAUT model, and other factors such as security issues and trust, this study attempts to develop and examine a conceptual framework for the adoption and use of m-wallet technology by end-users in India. The aim is to identify the drivers influencing user attitudes and intentions for the adoption of m-payments. The study analyzed the results of an online survey of 254 Indian citizens, showing that users' attitude and intention are influenced by all identified drivers (i.e., "perceived usefulness", "perceived ease of use", "facilitating conditions", "lifestyle compatibility", "safety issues", and "trust"). The empirical findings of this study support and extend the extant literature on the acceptance and adoption of m-payment technology and are vital to banks, merchants, service providers, and application developers to ameliorate their technical strategies and the service quality of their mobile wallets.

**Keywords:** Technology Adoption, e-payment, m-payment, m-wallet.

## INTRODUCTION

Internet and technological advancements have innovatively modified the way of providing and using financial services (Malaquias & Hwang, 2019). Financial institutions and Banks are proposing the use of alternative innovative electronic mediums to establish a competitive edge and meet customer expectations. The development of e-banking provides various opportunities and conveniences for bank customers. E-banking is becoming a popular medium of financial transaction and provides banks with important competitive advantages in terms of time, cost, and location (Haque et al., 2009). These services provide easy and simplified access to banking services (Flavian et al., 2006; Haque et al., 2009). Recently, smartphones have increasingly become tools for

customers to pay for goods and services through e-banking (Zhang et al., 2018).

An important aspect of e-banking is the establishment of the needed technological infrastructure and facilities, such as e-payment systems. Because e-payments are made digitally, the transfer of funds is much faster than with traditional payment methods such as checks. E-payments allow users to make online payments anytime anywhere in the world physically visiting bank branch or ATM (Malaquias & Hwang, 2019). E-payment systems are being globally deployed, with systems fully advanced in some countries, while progressive in others (Kim et al., 2010).

The demand for the e-payment services available in m-wallets has continued during the last few years, particularly since the onset of the pandemic. An m-wallet is "a type of virtual

wallet that stores encrypted information from a credit card, a debit card, coupons, and loyalty cards on a mobile device” (Singh et al., 2020). Customers prefer to use m-wallets for in-store payments as it is a convenient payment method in contrast to cash or physical card payments (Lew et al., 2020).

From a practical perspective, identifying the drivers that influence the adoption and use of e-payment services offered in m-wallets by users in India will support decision makers to adopt suitable, cost-effective strategies to increase the use of m-wallets by establishing and managing underlying factors. Moreover, the extant literature on adoption of m-payment emphasizes the importance of comprehending the drivers that influence behavioral intent and attitude to accelerate the adoption and use of the system (Liébana et al., 2019; Moorthy et al., 2020). Therefore, the present study attempts to answer a specific research question: "What are the key drivers influencing the adoption of e-payment services offered in m-wallets in the context of Indian users?"

## **THEORETICAL REVIEW**

The “Technology Acceptance Model” (TAM), developed by Davis (1989) and Bagozzi & Warshaw (1992), is a theory of information systems that deals with users’ adoption and implementation of a particular technology. The theory states that “perceived usefulness” and “perceived ease of use” are two external driving factors that influence behavioral usage intent of using a system. The model has been tested in multiple settings to predict the adoption of technology-enabled innovations, and the results have proven to be truly accurate in terms of human attitudes (Sahi et al., 2021).

The “Unified Theory of Acceptance and Use of Technology” (UTAUT), developed by Venkatesh et al. (2003), elucidates changes in behavioral intentions to use technology (Soomro, 2019) and postulates two key factors:

facilitating conditions and lifestyle compatibility, driving the intention and attitude to adopt the technology (Venkatesh et al., 2003).

Additionally, in line with the past studies conducted by Chawla & Joshi (2019) in the context of Indian users, two other driving factors were found appropriate – security issues and trust. The aim is to identify the driving factors that drive Indian users’ attitudes and intentions to adopt of m-payments.

## **DEVELOPMENT OF HYPOTHESIS**

Perceived usefulness (PU) alludes to "the degree to which a user believes that using a particular technology will improve his or her job performance" (Davis, 1989). This suggests that the PU of novice technologies play a crucial role in their acceptance and adoption. Previous studies (e.g., Chawla & Joshi, 2019; Lew et al., 2020) found a positive impact of PU on user acceptance of m-payments. This study examines PU as a driving factor that influences the adoption of m-wallets and proposes the following hypothesis to examine the relationship between PU and Indian user attitudes towards the adoption of m-wallets.

**H1:** PU positively influences the attitude of Indian users towards the adoption of m-wallet services.

Perceived ease of use (PEOU) alludes to "the user's belief in how user-friendly a particular technology is" (Davis, 1989). Several research (e.g., Chawla & Joshi, 2019; Lew et al., 2020; Singh & Sinha, 2020) have determined that PEOU significantly drives user adoption of m-payments thereby influencing significantly the user intent towards m-wallet services. Hence, this study proposes the following hypothesis to examine the relationship between PEOU and Indian user attitudes towards the adoption of m-wallet services.

**H2:** PEOU positively influences the attitude of Indian users towards the adoption of m-wallet services.

Facilitating conditions (FC) allude to “conditions under which an individual believes that infrastructure can support and encourage the use of new technologies” (Alswaigh & Aloud, 2021). Several studies (e.g., Chawla & Joshi, 2019; Gupta & Arora, 2019; Moorthy et al., 2020) have identified a positive impact of FC on attitude towards using m-payments. Existing literature suggests that user attitudes towards the adoption of m-wallet services increase as the infrastructure for m-wallet usage develops. Hence, this study proposes the following hypothesis to examine the relationship between FC and Indian user attitudes towards the adoption of m-wallet services.

**H3:** FC positively influences the attitude of Indian users towards the adoption of m-wallet services.

Lifestyle Compatibility (LC) alludes to “the shopping habits and daily lifestyles that influence user technology adoption” (Alswaigh & Aloud, 2021). Therefore, LC influences the user's decision to adopt the technology. Several empirical research (e.g., Chawla & Joshi, 2019; Hussain et al., 2019) have integrated the effects of different dimensions of LC on the willingness to adopt m-payment services, indicating that LC plays a significant role in driving users' intent to adopt m-wallet. Hence, this study proposes the following hypothesis to examine the relationship between LC and Indian user attitudes towards the adoption of m-wallet services.

**H4:** LC positively influences the attitude of Indian users towards the adoption of m-wallet services.

Security Issues (SI) allude to “the degree to which users feels safe using a particular online payment channel” (Chawla & Joshi, 2019). M-wallets record sensitive information, so there are

security issues in case the device is stolen or lost. Several studies (e.g., Chawla & Joshi, 2019; Moorthy et al., 2020) raised the issue of security concerns regarding m-payments, while few studies (e.g., (Khrais & Azizi, 2020) did not raise this issue. This study argues that security issues are an important factor worth exploring. Hence, this study proposes the following hypothesis to examine the relationship between SI and Indian user attitudes towards the adoption of m-wallet services.

**H5:** SI positively influences the attitude of Indian users towards the adoption of m-wallet services.

Trust (TR) occurs when users have confidence in the integrity and reliability of the service provider. Users need to use new services with comfort and lower risk. Several studies (e.g., Chawla & Joshi, 2019; Moorthy et al., 2020; Singh & Sinha, 2020) indicated that trust has a positive influence on users' willingness to adopt m-payments. Hence, this study proposes the following hypothesis to examine the relationship between TR and Indian user attitudes towards the adoption of m-wallet services.

**H6:** TR positively influences the attitude of Indian users towards the adoption of m-wallet services.

Attitude (ATT) alludes to “an individual's positive or negative emotions and feelings about their behavior when adopting new technology” (Davis, 1989), while intention (INT) alludes to “an individual's tendency to use and accept the latest technology” (Venkatesh et al., 2003). Several studies focusing on m-payments and m-wallet adoption (e.g., Chawla & Joshi, 2019; Shin, 2009) confirm a significant relationship between ATT and INT. Hence, this study proposes the following hypothesis to examine the relationship between user attitude and Indian user intention towards the adoption of m-wallet services.

**H7:** User attitude (ATT) positively influences the intention (INT) of Indian users towards the adoption of m-wallet services.

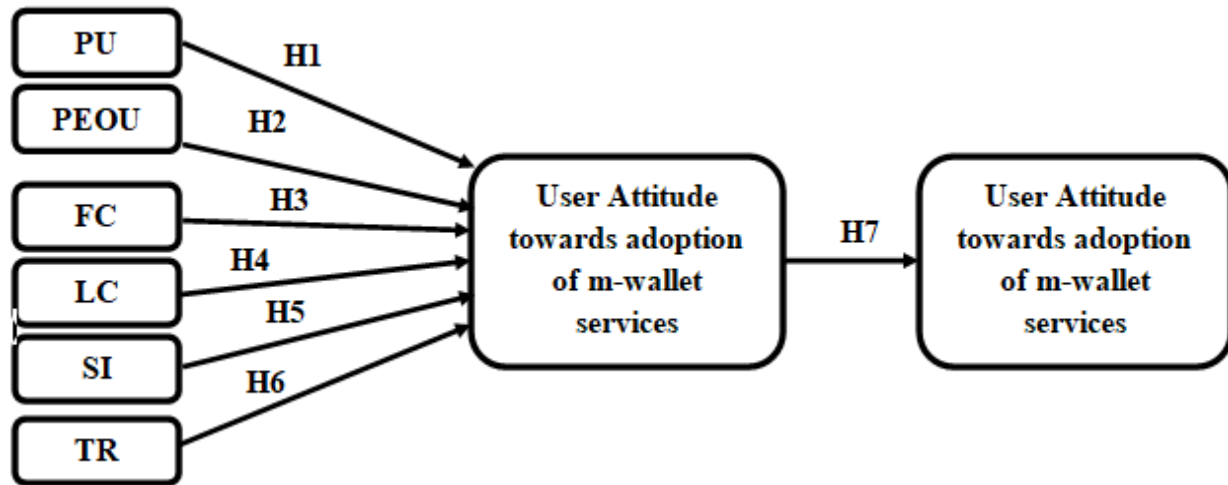


Fig. 1 – Research Model

## RESEARCH METHODOLOGY

### Development of Scale

The current study was conducted using quantitative methods by developing an online survey. The study contains 8 drivers: PU, PEOU, FC, LC, SI, TR, ATT, and INT, which influence the use and adoption of m-wallet services. The identified drivers and their items aim to measure Indian user acceptance and adoption of m-wallet services. The factor scale was taken from the study by Chawla & Joshi (2019). The survey items were measured using a 5-point Likert's scale, where 1 means "strongly disagree" and 5 means "strongly agree". The methods and measurement scales were properly reviewed by an expert in the field to ensure that the content and structure of the items were valid in the context of Indian users.

### Data Collection

The survey was distributed online to Indian citizens of different age groups between April 2022 and June 2022. The survey questionnaire contained two sections. The first section dealt with the demographic profile of the respondents, including gender, age, education, annual income (INR), type of mobile device used, and the era

Figure 1 presents the research model of the current study.

(pre- or post-pandemic) when the respondents adopted using m-wallets. The second section included 40 items related to the identified drivers. To avoid the issue of missing values, all survey items were mandatory. The study used a simple random sampling technique. The study involved 254 respondents.

### Data Analysis Procedure

The data collected were analyzed using the "Statistical Package of Social Science Software Version 23.0 for Windows" (SPSS 23.0). SPSS is frequently used to analyze data collected from surveys, especially in research related to adoption of new technologies (e.g., Alotaibi et al., 2017; Choi et al., 2020). In the present study, simple regression analysis was used to test the research hypotheses and to examine the relative influence of independent variables on dependent variables.

## RESULTS AND DISCUSSIONS

### Demographic Profile of Respondents

Table 1 below depicts the descriptive profile of the respondents. The total number of respondents participating in the study was 254, including 111 males (43.7%) and 143 females

(56.3%). Most respondents belonged to two age groups: 21-30 (29.9%) and 31-40 (35.4%). In addition, most of the respondents were graduates (46.9%). Among the respondents, 38.2% had an annual income between Rs 5,00,001 and 10,00,000, followed by 35% with an annual income of more than Rs 10,00,000 and 26.8% with an annual income of up to Rs 5,00,000. The

majority (61.8%) of respondents use Android devices. 71.3% have used m-wallet services, while 28.7% have not used m-wallet services before. Additionally, 28.3% had used m-wallet services before the COVID-19 pandemic, while 22.4% started using them during the pandemic, and 20.5% used them only after the pandemic.

**Table 1 – Descriptive Profile of Respondents (N=254)**

Characteristics	Variables	Count	Percent
Gender	Male	111	43.7%
	Female	143	56.3%
Age	Up to 20 years	17	6.7%
	21-30 years	76	29.9%
	31-40 years	90	35.4%
	41-50 years	42	16.5%
	Over 50 years	29	11.4%
Education	Senior Secondary or Below	17	6.7%
	Graduate	119	46.9%
	Post graduate	32	12.6%
	Doctorate	21	8.3%
	Professional Course	35	13.8%
	Others	30	11.8%
Annual Income	Up to Rs.5,00,000	68	26.8%
	5,00,001-10,00,000	97	38.2%
	Over Rs.10,00,000	89	35.0%
Type of Mobile Device	Android	157	61.8%
	IOS	88	34.6%
	Others	9	3.5%
Are you using m-wallet services?	Yes	181	71.3%
	No	73	28.7%
Since when you started using m-wallet services?	Pre-pandemic	72	28.3%
	During pandemic	57	22.4%
	Post-pandemic	52	20.5%
	Not Yet	73	28.7%

### Reliability and Validity Tests

The consistency of the instrument were assessed using criteria of convergent validity and reliability to ensure that the survey correctly measured the identified drivers. Each driver was tested for content validity and reliability.

Instrument reliability was measured using Cronbach's alpha. Cronbach's alpha coefficients for all drivers exceeded 0.70 (Table 2), which is acceptable (Lin & Huang, 2008). The drivers identified in this study showed strong content validity.

**Table 2 – Alpha Coefficients**

Drivers	PU	PEOU	FC	LC	SI	TR	ATT	INT	Overall Reliability
<b>Alpha Coefficient</b>	0.893	0.884	0.837	0.901	0.856	0.895	0.917	0.920	0.944
<b>Items Count</b>	6	5	4	5	5	6	5	4	40

Table 3 depicts the correlation coefficients among the eight drivers. The discriminant results for all drivers were found to have a valid value.

**Table 3 – Correlation Analysis**

Drivers	PU	PEOU	FC	LC	SI	TR	ATT	INT
<b>PU</b>	1.000							
<b>PEOU</b>	0.761	1.000						
<b>FC</b>	0.656	0.711	1.000					
<b>LC</b>	0.663	0.705	0.773	1.000				
<b>SI</b>	0.637	0.722	0.684	0.703	1.000			
<b>TR</b>	0.625	0.733	0.756	0.694	0.805	1.000		
<b>ATT</b>	0.767	0.748	0.789	0.856	0.691	0.702	1.000	
<b>INT</b>	0.744	0.693	0.684	0.708	0.680	0.693	0.893	1.000

In addition, a simple regression analysis technique was applied to test the formulated hypotheses. Table 4 depicts the individual

frameworks, along with the statistical outcomes showing the strength of the influence of the relationships between the drivers.

**Table 4 – Regression Analysis to evaluate the Research Model**

Research Hypothesis	Frameworks	R <sup>2</sup>	$\beta$	t-value	p-value	Test Result
H1	PU → ATT	0.588	0.771	25.11	.000	Confirmed
H2	PEOU → ATT	0.560	0.724	22.56	.000	Confirmed
H3	FC → ATT	0.623	0.768	24.28	.000	Confirmed
H4	LC → ATT	0.733	0.877	26.03	.000	Confirmed
H5	SI → ATT	0.477	0.583	21.78	.000	Confirmed
H6	TR → ATT	0.493	0.570	21.44	.000	Confirmed
H7	ATT → INT	0.797	0.912	41.78	.000	Confirmed

First, with regard to PU, the results (PU→ATT:  $\beta=0.771$ ;  $p=.000$ ) demonstrate that PU has a significant positive influence on users' attitudes towards adopting m-wallet services. Therefore, H1 is supported. Several other studies have confirmed similar results (e.g., Alaeddin et al., 2018; Chawla & Joshi, 2019; Lew et al., 2020). Furthermore, some studies (e.g., Davis, 1989; Shin, 2009) agree that PU is a major predictor of attitude. Therefore, the usefulness of m-wallet

technology in improving user performance and speeding up the payment process influences the attitudes and intentions of users to adopt m-wallet services.

Second, with regard to PEOU, the results (PEOU→ATT:  $\beta=0.724$ ;  $p=.000$ ) demonstrate that PEOU has a significant positive influence on users' attitudes towards adopting m-wallet services. Therefore, H2 is supported. Several

other studies have confirmed similar results (e.g., Alaeddin et al., 2018; Davis, 1989; Lew et al., 2020). However, Chawla & Joshi (2019) asserted that users might consider PU to be more significant than PEOU and thus, PEOU exhibits a positive but insignificant influence on user attitude towards the adoption of m-wallets. This might be due to the fact that their study mainly focused on professionals and students who were reluctant to focus on the ease of use factor. However, the present study claims that PEOU significantly influences end-user attitudes. Therefore, the ease of usefulness of m-wallet technology influences the attitudes and intentions of users to adopt m-wallet services.

Third, with regard to FC, the study found a significant positive impact of FC on the user attitude towards adopting m-wallets (FC→ATT:  $\beta=0.768$ ;  $p=0.000$ ). Therefore, H3 is confirmed. Results from several other studies (e.g., Chawla & Joshi, 2019; Gupta & Arora, 2019; Moorthy et al., 2020) are consistent with this finding. The user attitudes toward the adoption of m-wallet services increase when they believe that there exists an infrastructure such as equipment, cost, and necessary support for use of m-wallets.

Fourth, regarding LC, the study found a significant positive association between LC and attitudes toward adopting m-wallets (LC→ATT:  $\beta=0.877$ ;  $p=0.000$ ). Therefore, H4 is supported. The findings of several other research (e.g., Chawla & Joshi, 2019; Hussain & Rahman, 2017) are consistent with this finding. Furthermore, LC is a key predictor of user attitudes towards m-wallet service adoption in India (Singh & Sinha, 2020). In fact, the lockdown restrictions imposed during the pandemic changed the shopping habits and daily lifestyles of users, leading them to adopt new technologies such as m-wallets that fit their lifestyle.

H5 is established and confirmed by the empirical results of this study (SI→ATT:  $\beta=0.583$ ;

$p=.000$ ), and several other studies have also reported similar results (e.g., Chawla & Joshi, 2019; Moorthy et al., 2020; Shin, 2009). Thus, security issues significantly and positively drives the user attitudes towards the adoption of m-wallet services.

H6 is also established and confirmed by the empirical results of this study (TR→ATT:  $\beta=0.570$ ;  $p=.000$ ), and several other studies have also reported similar results (e.g., Chawla & Joshi, 2019; Shaw, 2014; Shin, 2009). Thus, trust significantly and positively drives the user attitudes towards the adoption of m-wallet services.

Finally, users' attitudes have a positive impact on their intention to adopt and use m-wallet services (ATT→INT:  $\beta=0.912$ ;  $p=.000$ ). Therefore, H7 is confirmed. Previous research conducted in the Indian context (e.g., Chawla & Joshi, 2019; Singh et al., 2020) have established that attitudes significantly and positively influence the user intent to adopt m-wallet technology.

## CONCLUSION

The present study attempts to examine the factors driving the adoption and acceptance of m-wallet technology by end-users in India. The “Technology Acceptance Model” (TAM) and the “Unified Theory of Acceptance and Use of Technology Model” (UTAUT) were used to develop a conceptual framework for m-wallet technology adoption. Furthermore, the study complements past research studies by examining the influence of different behavioral drivers on the intentions of users to adopt m-wallet technology.

The empirical findings of this study support and extend the extant literature on the acceptance and adoption of m-payment technology and it can be concluded that PU, PEOU, FC, LC, SI, and TR have a significant positive influence on user attitudes and intentions toward adoption and use of m-wallet services. Thus, user

attitudes significantly influence the intention of Indian users toward the adoption of m-wallet services.

The drivers identified in the current study are vital to banks, merchants, service providers, and application developers as users continue to adopting and using m-wallet services. The findings of the study will prove helpful to practitioners in improving their adoption strategies and the quality of their m-wallet services.

Several other drivers, such as network cost, service benefit, service quality, perceived enjoyment, and perceived risk, can also be considered for future research. Future research could also focus on the moderating effects of user age and gender on the adoption of m-wallet services.

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