

## **Determinants of the Usage intentions towards Mobile Wallets: An Empirical Study**

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### **ABSTRACT**

*Mobile wallet is one of the new paradigms that is transforming the payments in India. The segment is growing due to growing online transactions, rising trend towards mobile banking, and ease of usage of mobile wallet applications. The research paper is an attempt to explore this emerging trend and to investigate the factors affecting the usage of mobile wallets and aim to build an empirical model using Technology Acceptance Model. A random sample of 300 respondents is collected using non-probability sampling method. The Structural Equation Modelling puts forward three determinants of attitude towards mobile wallets namely, Perceived Usefulness, Perceived Ease of Use and Trust. Further, attitude towards mobile wallets has been found to influence usage intentions. The research will be helpful to the academicians and corporate professionals.*

**Keywords:** Mobile Wallets, M-commerce, Paytm, Consumer adoption

### **INTRODUCTION**

The digital transformation across different business and organization activities revolutionised the traditional payment methods and enabling the way towards cash-less economy. The Indian digital payment industry is set to reach \$500 billion by 2020 as per the report published by Google & Boston Consulting Group (Digital Payments, 2020). The growth in digital payment is led by the exponential growth in mobile-wallets (m-wallets). The m-wallets industry is estimated to grow at a compound annual growth rate (CAGR) of 148 percent over next five years and will be \$4.4 billion

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by 2022 (Capgemini's World Payment Report, 2018). Some of the drivers of this exponential growth can be attributed to convenience to pay, availability of lucrative offers, the increased smartphone penetration and huge internet user base with over 300 million users wherein 50 percent using internet through mobile only. Also, the increased focus of Government of India has further enabled the growth of mobile wallets in India. Among the various mobile-wallet players, Paytm continues to dominate the market with over 200 million users while, other players such as FreeCharge and Mobikwik continue to grow.

M-wallet is a subset of mobile commerce and can be defined as a payments or commercial transactions using mobile communication technologies. Mobile wallet is a digital wallet wherein a user can make payments through smartphones, tablets, phablets etc. from any location at any time towards mobile recharge, ticket booking, bill payments, utility payments, e-commerce transactions and money transfers etc. Mobile wallet is one of the most successful business concept that has already surpassed credit cards in terms of the number of users in just a fraction of time. Thus, the sector of mobile-wallets is a one of the most contemporary study areas in the area of digital transformation of business and warrants an in-depth research.

Theoretically, the acceptance of any new technology can be examined using Technology Acceptance Model (TAM) (Davis, Bagozzi & Warshaw 1989) which explains the user behaviour. It is one of the most popular model to predict both as the use of information technology and intention to use (Lu et al., 2003). TAM was based on its parsimony and predictive power thus it is easier to apply in different emerging technologies like mobile wallets (Venkatesh and Morris, 2000). Although, technology acceptance has been researched, there is comparatively lesser empirical evidence and research in the field of mobile wallets specifically (Amin, 2009). Thus current research motivates to investigate the area of mobile wallets with respect to the consumer adoption. The paper aims to develop an empirical model in terms of determinants of consumer usage intentions towards mobile wallets. The

research paper is organised into sections viz. literature review and theoretical framework, research model, research methodology, data analysis followed by discussion, conclusion and scope for further research.

## **LITERATURE REVIEW AND THEORETICAL FRAMEWORK**

A study of consumer adoption of Mobile wallets (M-wallets) / mobile payments can be examined from the theoretical foundation of technology adoption viz. adoption of mobile technology, m-commerce, and information technology at large. Thus, the current study of consumer usage intentions towards mobile wallets is constructed using TAM as a base model. TAM is an adaptation of Theory of Reasoned Action (TRA) which was proposed by Fishben & Ajzen (1980). TRA puts forward the factors impacting behavioural intentions in general while TAM is specific with respect to behavioural intentions towards use of information technology (Davis et al. 1989, Cheong and Park, 2005; Chiu et al., 2005; Ramayah et al., 2003; Venkatesh & Morris, 2000) thus, can be best suitable for the adoption of mobile wallets (Amin, 2009; Cheong and Park, 2005). TAM is formulated to analyse the effect of external factors on the attitude formation and behavioural intentions with regards to computer technology. As the new technologies like mobile wallets are complex and uncertain in terms of adoption, people form attitudes and intentions towards trying to use before actual usage. The Technology Acceptance Model puts forward four constructs namely, perceived ease of use (PEOU), perceived usefulness (PU), attitude (Att) and usage intentions (UI) (Davis et. al, 1989). The current paper has hypothesized the research model using these constructs.

### **Perceived Ease of Use (PEOU)**

Perceived Ease of Use (PEOU) refers to the degree to which the prospective user believes that a particular technology would be easy to use and therefore free of physical and mental efforts thus influencing usage intentions (Chau, 1996; Venkatesh & Davis, 2000). Mobile wallets help the consumer become more independent by giving them the liberty to

roam around cashless thus also boosting reduction in thefts. (Dennehy & Sammon, 2015). Likewise, if potential users perceive m-wallets easy to use, they would evaluate m-wallets positively which in turn would enhance their usage intentions. Thus,

H1: Perceived Ease of Use will influence attitude towards mobile wallets

### **Perceived Usefulness (PU)**

Perceived Usefulness (PU) refers to the degree to which an individual believes the adoption of the new system (m-wallet in this case) will enhance his/ her productivity and help him in attain his performance related goals. PU is determinant usage intentions (BI) with respect to the technology (Chau and Hu, 2001). PU in this context, can be termed as the extent to which people consider m-wallets being useful as payment gateway as compared to other modes of payment. Such perceived usefulness will would influence users' evaluation of the technology and thus, would lead to enhanced usage intentions. Thus,

H2: Perceived Usefulness will influence attitude towards mobile wallets

### **Trust (T)**

Trust is an “indicator of a positive belief about the perceived reliability of, dependability of and confidence in a person, object or process” (Fogg and Tseng, 1999). One of the major concerns of accepting e-commerce, m-commerce and mobile payment has been the security and privacy of the people's personal data. As m-wallet uses mobile service networks which are sensitive to hacking and viruses; people might be apprehensive about sharing their bank details or credit card details on mobile phones. Also they tend to be sceptical about location based services that collect data and provide location based discounts, coupons and offers. Security and privacy concerns of the people would be some of the major hindering factors for behaviour intentions. If the user trusts the services of the mobile payments in terms of the reliability and dependability that their information is safe and secure and will not be shared then the chances of users adopting the technology will be high. Trust has been presented as inclusive of security and privacy and has been found to have a positive impact on behavioural

intentions with respect to mobile services (Kaasinen, 2005, Amoroso D. and Magnier-Watanabe R, 2012).

H3: Trust influences attitude towards mobile wallets

### **Attitude (Att)**

Attitude refers to the feelings, evaluation of a product/ brand/ individual. Attitude is a predictor of one's behaviour intentions (Fishbein & Ajzen, 1981). Hence, in context mobile wallets, a positive evaluation of mobile wallets would lead to users' intentions to adopt the technology

H4: Attitude towards mobile wallets would influence usage intentions

### **Usage Intentions (UI)**

UI refers to the degree to which a person forms conscious intentions to perform a specified behaviour. The research aims to explore the behavioural intentions in terms of potential usage intentions towards mobile wallets which in turn would predict actual usage. (Davis et al., 1989, Venkatesh and Davis, 2000). Ajzen & Fishbein (1980) states have identified that for a consumer to practically use a product or service is influenced by behavioural intention.

### **Hypothesized Research Model**

Proposed model for the current research includes four constructs Perceived Usefulness (PU), Perceived Ease of Use (PEOU), and Trust which determines the attitude (Att) towards Mobile Wallets which mediates the effect on Usage Intentions (UI).

## **OBJECTIVES OF THE STUDY**

The present study is undertaken to assess the determinants of the usage intentions towards mobile wallets in India. The objective of the study is hypothesize theoretically grounded model and empirically validating the same.

## **RESEARCH METHODOLOGY**

The present research is a quantitative study to build a model with reference to usage intentions towards mobile wallets in India. The study has used Survey design, thus the primary data is collected using a structured questionnaire. The constructs used in the questionnaire have been grounded in the literature and the item statements are adapted to suit the Indian context and mobile wallets. All five constructs are measured on Likert Scale (1-5 wherein 1=strongly disagree to 5= strongly agree). The item statements were adapted from prior studies (Amin, 2009) which are described as follows: perceived usefulness (Pikkarainen et al., 2004; Wang et al., 2003; and Davis, 1989), perceived ease of use (Nysveen et al., 2005; Wang et al., 2003), Trust and attitude (Wang et al., 2003) and usage intentions (Shimp and Kavas,1984). The research instrument is pretested to establish content validity using a focus group discussion among the learned faculty colleagues. Based on the results, the questionnaire was then utilised to collect primary data. The questionnaire is prepared using Google Forms and has been shared via emails, messages and through social media platforms such as Whatsapp, Facebook etc. to the respondents. Thus, the study has deployed a non-probability sampling technique, with all individuals residing in the city of Mumbai can be a sampling unit. Total 300 responses have been collected and analysed for the study.

## **DATA ANALYSIS & DISCUSSION**

The primary data is analysed using SPSS 21.0 & AMOS 23.0. The demographic composition of the data as represented in the Table No. 1. The data has been analysed using Confirmatory Factor Analysis (CFA) as a precursor to the path analysis and to assess the reliability and validity of the constructs. The reliability is assessed using Composite Reliability. The Table No. 2 demonstrates the reliability of all constructs as the values are well above the accepted norms of 0.70 (Nunnally, 1978). The construct validity including convergent and discriminant validity is examined using Fornell & Lacker (1981). As all the factor loading as shown in Table No. 3

is above the 0.6 and the Average Variance Extracted (AVE) of all constructs is above 0.5, the constructs demonstrate convergent validity. Further, the square-root of AVE (diagonal elements) is higher than the inter-construct correlations (off-diagonal values in the Table no.4), the discriminant validity is effectively established. Thus, the results of Confirmatory Factor Analysis is good enough to proceed for the path analysis.

The results of path analysis show that all directional hypotheses are significant 99% confidence level except the effect of PU to PEOU which is significant at 95% confidence level. Hence, it can be postulated that all the directional hypotheses are accepted at 95% confidence level. Further, the regression coefficients (as shown in Table No.5) explain the effect of each variable on the usage intentions. The p-value ( $<0.05$ ) of the regression coefficients as shown in Table No 5 show significance of all directional hypotheses. It has been found that PEOU, PU and Trust determine attitude which in turn influences UI. It can also be observed that attitude has the highest impact on the usage intentions with robust t-value. Similarly, Trust has come out as the most significant determinant of attitude towards mobile wallets. The Goodness-of-fit indices as shown in Table No. 6 also validate the empirical validation of the hypothesized model. The Goodness of Fit indices such as CMIN/DF is 2.888, RMR is 0.044, GFI is 0.907, AGFI is 0.866, CFI is 0.956 and RMSEA is 0.079. All the indices are well-above the accepted norms (Hair et al, 2010; Hu & Bentler, 1999).

Thus, the present study puts forward an empirical model in context of usage intentions of mobile wallets in India. Perceived Ease of Use, Perceived Usefulness and Trust in the technology influence the attitude towards mobile wallets which in turn impacts the usage intentions of the consumers.

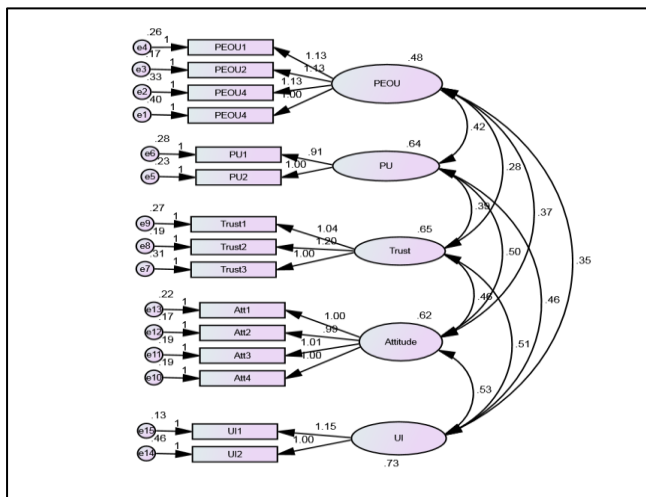
**Table no. 1: Demographic Details**

	Details	Frequencies	Percentage
<b>Gender</b>	Male	156	52
	Female	144	48
<b>Age Group</b>	Below 18 years	8	2.7
	18-25 years	143	47.7
	25 – 40 years	117	39
	Above 40 years	32	10.7
<b>Income</b>	Below 5 Lacs	84	28
	5 Lacs & Above - Below 10 Lacs	86	28.7
	10 Lacs & Above - Below 15 Lacs	66	22
	15 Lacs & Above	64	21.3

**Table No 2: Reliability coefficients for each construct**

Construct	No. of Items	Cronbach Alpha
Perceived Usefulness (PU)	2	0.819
Perceived Ease of Use (PEOU)	4	0.888
Trust	2	0.895
Attitude	4	0.927
Usage Intentions	3	0.847

**Figure 1: Confirmatory Factor Analysis**





**Table No. 3: - Factor Loadings**

<b>Item</b>	<b>Item Statements</b>	<b>Factor Loadings</b>
PEOU4	It would be easy for me to become skilful at using mobile wallets	0.74
PEOU3	I find mobile payment flexible to interact with	0.806
PEOU2	Interface of mobile wallets is easy to operate	0.886
PEOU1	Learning mobile wallets is easy for me	0.839
PU2	Using mobile wallets would enhance my effectiveness in conducting payment transactions	0.857
PU1	M-wallet enable to pay quickly	0.81
TRUST3	Mobile wallets is secure to use	0.824
TRUST2	I trust ability of mobile wallets to protect my privacy	0.912
TRUST1	I believe mobile wallets system to be trustworthy	0.852
ATT4	My overall evaluation of mobile wallets is positive	0.873
ATT3	I enjoy the hassle free way of payment through m-wallets	0.877
ATT2	I liked the concept of m-wallets	0.884
ATT1	Using mobile wallets is beneficial	0.858
UI2	If at merchant's place, I intend to use mobile wallets	0.783
UI1	My general intention to use mobile wallets is very high	0.938

**Table No. 4 - Assessing Convergent and Discriminant Validity**

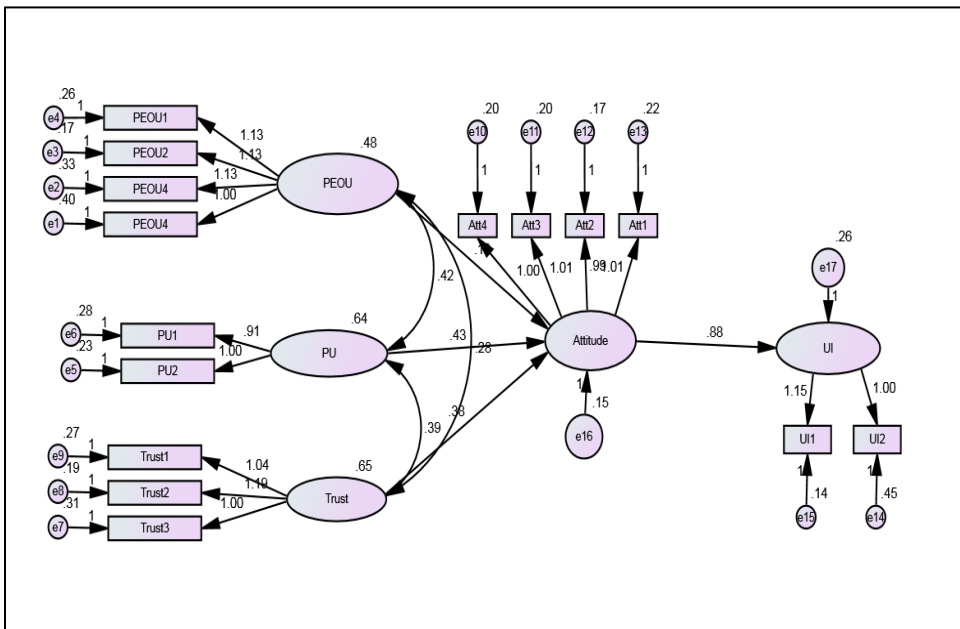
	<b>PEOU</b>	<b>PU</b>	<b>Trust</b>	<b>Attitude</b>	<b>UI</b>	<b>AVE</b>	<b>CR</b>
PEOU	<b>0.8195</b>					0.6715	0.8906
PU	0.748	<b>0.8338</b>				0.6953	0.8201
Trust	0.496	0.605	<b>0.8634</b>			0.7455	0.8977
Attitude	0.68	0.793	0.717	<b>0.8731</b>		0.7622	0.9276
UI	0.593	0.676	0.742	0.782	<b>0.8640</b>	0.7465	0.8538

Note: Diagonal values are the square-roots of AVE and off-diagonal values are inter-construct correlations

AVE: Average Variance Extracted, CR – Composite Reliability

PEOU – Perceived Ease of Use, PU – Perceived Usefulness, UI – Usage Intentions

**Figure No. 2: Path Analysis (A Model of Determinants of Usage intentions towards Mobile Wallets)**



**Table No. 5 – Regression Estimates**

Standardized Regression Estimate			T-value	P	
PEOU	→	Attitude	0.165	2.416	0.016
PU	→	Attitude	0.44	5.272	***
Trust	→	Attitude	0.392	7.207	***
Attitude	→	UI	0.807	12.367	***

**Table No. 6 – Goodness of Fit Indices**

	Chi-square (p-value)	CMIN/DF	RMR	GFI	AGFI	CFI	RMSEA
Obtained	0.000	2.888	0.044	0.907	0.866	0.956	0.079
Cut-offs		≤5	≤0.08	≥0.9	≥0.8	≥0.95	≤0.08

Note: CMIN/DF = Chi-square/degree of freedom; RMR =Root mean square residual; GFI = Goodness of fit index; AGFI – Adjusted goodness of fit index; CFI = Comparative fit index; RMSEA = Root mean square error of approximation

## CONCLUSION & IMPLICATIONS

Penetration of 4G network on smartphones have made huge change in payment methods in India. Mobile wallets are revolutionising various existing businesses and their modes of transaction. The usage intentions are dependent on how and whether users feel the mobile wallets in terms of ease of use and usefulness. Another important concern of privacy and security which is reflected through Trust has a significant influence on usage intentions via developing an attitude towards the mobile wallets. The findings of the study are in line with existing literature.

The prime objective of this paper was to explore various determinants influencing usage intentions of the mobile wallets and build an empirical model in this context. The Structural Equation Modelling has validated the

construed model with three determinants viz. Perceived Ease of Use, Perceived Usefulness, Trust influencing attitude which mediates the effect on usage intentions towards mobile wallets. The research provides insights to marketing practitioners and professionals to plan and implement their strategies.

## **LIMITATIONS AND SCOPE FOR FURTHER RESEARCH**

Each research provides many arenas of further research and so is true with the existing research. Likewise, the present study can be further researched in terms of differences across demographic variables like age, gender and income. Another study can also be conducted to assess the consumer perception across different players in the mobile wallets sector.

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