Determinants of Continuance Intention to Use Mobile Wallet Services : Light Users vs Heavy Users

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Abstract

Mobile technologies and rapid popularity & usage among the businesses and consumers have led to revolutionary changes in the way the goods and services are marketed and consumed. The impact of mobile based communication strategies among modern marketers are more commonly witnessed with the revolutionary growth of mobile applications and their usage. One of the significant developments of mobile technologies that prove to be beneficial to both businesses and customers is the introduction of mobile payment systems, otherwise known as mobile wallet applications. Despite many mobile wallet users in India, it is highly challenging for service providers to understand the motivations behind customers to be loyal because of divergent customer segments and their needs. Hence, this study aimed at identifying the factors that determine the mobile wallet users' intentions to continue using a specific service provider and how this behaviour would be different across the customer groups based on their usage. This paper proposed a theoretical research framework and validated the same with empirical data with the help of multivariate data analysis techniques, including exploratory factor analysis, *t*-test, and MANOVA. Perceived usefulness, perceived ease of use, perceived enjoyment, and satisfaction were found to be the significant factors influencing users' intention to continue using mobile wallet applications. Finally, the results revealed that light users and heavy users differed significantly in terms of their overall post-adoption behaviour on mobile wallet applications.

Keywords : **mobile wallet, perceived usefulness, perceived ease of use, perceived enjoyment, satisfaction, loyalty**

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The advent of mobile technologies and their rapid popularity and usage among businesses and consumers has led to revolutionary changes in the way the goods and services are marketed and consumed. Businesses have been provided with enormous opportunities to understand their target market as well as create and communicate their offerings personalized at an individual basis. Thus, businesses can deliver a differential value through mobile platforms by customizing their products and services resulting from a better understanding of behavioural patterns of their target market.

There is a substantial effect in the ways marketers have been designing their marketing strategies in order to deliver a superior value to their target customers. For instance, consumers have access to information on their finger tips and have up-to-date knowledge about the various offerings available in the market, since they spend a greater amount of time on the digital and mobile platforms. As they are highly connected to each other, this has

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resulted in increased peer pressure and quickly adapting/changing lifestyle habits. Under these circumstances, marketers have to ensure not mere digital presence, but delivery of a delightful customer experience through omni-channel communication on 24/7/365 basis.

Another important effect of digital technologies in general and mobile technologies in particular is due to pricing strategies. Consumers visit different mobile websites or applications in order to find the best deals suitable to them before making a final purchase decision. There are many mobile applications available on various mobile platforms, which provide comparisons of products and services primarily differentiated based on price.

The impact of mobile based communication strategies among the modern marketers are more commonly witnessed with the revolutionary growth of mobile applications and their usage. Today's consumers are spending a greater amount of time on various mobile messenger and social media applications such as Facebook, Twitter, Instagram, WhatsApp, etc. As marketers promote their brands through such applications, they have been creating engaging brand content for their target market in order to build long-term profitable relationships.

Hence, there is a profound impact of mobile technologies on the strategies used by marketers as consumers are highly hooked to their mobile phones. With the rapid development of technologies and introduction of smart features, consumers have become smarter in the way they prefer, choose, and satisfy their varied needs. The disruption of mobile technology coupled with advancements such as artificial intelligence and augmented reality have further fuelled the faster penetration of this technology among consumers. At the same time, it also poses a variety of challenges to marketers. It is believed that customers have been empowered more as they do more voice searches through mobiles, looking for spectrum of channels for information of products and services, resulting in highly fragmented segments and being less loyal or more easily switching to other competing brands.

Another important challenge for marketers today in a highly dynamic market is ensuring brand presence felt by consumers or brand communication/essence that engages them, that is, creating an emotional bonding between brands and target customers. It has been noted that many marketers find it challenging to create an engaging brand content on a variety of mobile platforms, such as short messaging service (SMS), mobile websites, mobile applications, etc.

One of the significant developments of mobile technologies that prove to be beneficial to both businesses and customers is the introduction of mobile payment systems, otherwise known as mobile wallet applications. Consumers can perform many transactions on their smartphones such as online recharge, bill payments, fund transfer, etc. with a great amount of ease, convenience, and speed. According to Statista (2016), the total transaction volume of mobile payment was US$450 billion and the same was expected to surpass US$1 trillion in 2019.

India, as one of the fastest developing economies in the world, has seen an upward trend in the usage of mobile wallet services in the last few years. This development was due to many reasons, including introduction of 4G technologies, low-cost mobile data, rapid growth of mobile shopping, and more importantly, change in government policies (for instance, demonetization of high value currency by the Indian government in 2016).

In spite of many mobile wallet users in the Indian market, it is highly challenging for service providers to understand the motivations behind customers to be loyal because of divergent customer segments and their needs. Hence, this study aims at identifying the factors that determine the mobile wallet users' intentions to continue using a specific service provider and how this behaviour would be different across the customer groups based on their usage. This paper proposes a theoretical research framework and validates the same with empirical data in order to explain the enablers of continued usage intention of mobile wallet services in India.

Theoretical Background and Hypotheses Development

This section highlights the literature explaining pre-adoption and post-adoption behaviour of users in various technological contexts. There are many research studies that focused on elucidating the motivations behind people

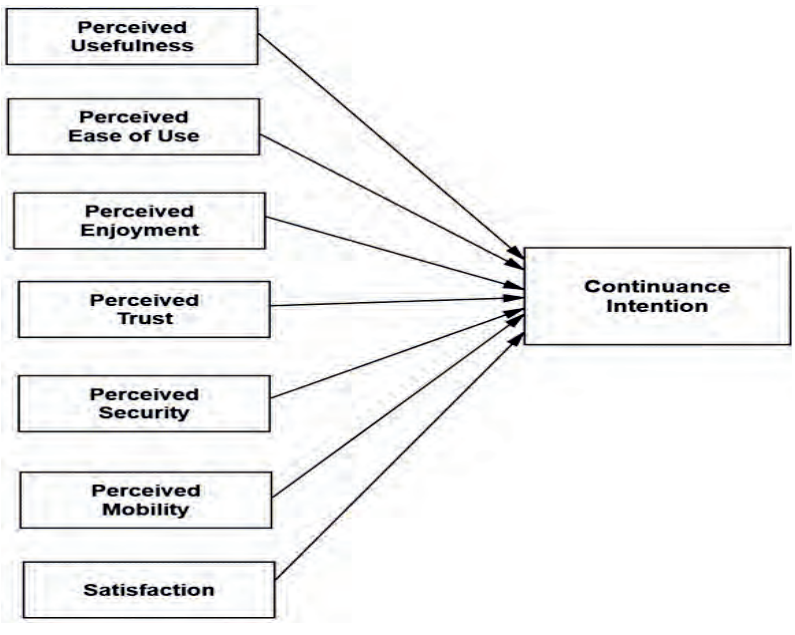
adopting and using different technologies. The technology acceptance model (TAM) introduced by Davis (1989) identified two significant predictors of behavioural intention to use a technology, and they are perceived usefulness and perceived ease of use. This study also confirms the positive and substantial effect of behavioural intention on users' actual usage behaviour towards technology. Bhattacherjee (2001) developed a model, expectation – confirmation model (ECM) that illuminates the post-adoption behaviour of a technology. He further identified important determinants of user's continuance intention to use a technology. A research model has been proposed based on the existing literature in order to identify potential determinants of continued intention of mobile wallet services, as given in Figure 1.

Arvidsson (2014) studied the factors that motivated the consumers to adopt mobile payment services in Sweden. The research framework of this study incorporated various constructs in order to measure the motivators and inhibitors of consumers' attitude toward the mobile payment services. The results of the study suggested that the factors such as ease of use, relative advantage, trust, age, and income were found to have a strong and positive influence on the attitude towards mobile payment services.

Tang et al. (2014) stated that the trend of using contactless communication technology, that is, near field communication (NFC) has risen tremendously, and an innovative NFC based technology has been invented, that is, mobile wallets. In their research study, they conducted a survey of Gen Y smartphone users in Malaysia to understand the determinants of adoption of mobile wallets. The results indicated that performance expectancy, effort expectancy, facilitating conditions, hedonic motivation, and habit were found to have a significant influence on behavioural intention of Gen Y users to adopt mobile wallets in Malaysia. Pal et al. (2015) compared the behavioural pattern of early adopters and late adopters for mobile payments services and showed that system knowledge, mobility, reachability, personal innovativeness, and convenience were the influencing factors of perceived usefulness and perceived ease of use.

Hampshire (2017) conducted a study to determine the impact of trust and risk on the mobile payment behaviour

Figure 1. ***Proposed Research Model – Determinants of Continuance Intention of Mobile Wallet Customers in India***



of UK consumers. The study got both qualitative and quantitative data about the consumers' beliefs of mobile payments, that is, risk, trust, and perceived usefulness. The results of the study clearly stated that perceived trust had a strong positive influence on perceived usefulness ; whereas, perceived risk was found to have a negative impact on perceived usefulness. Furthermore, it was indicated that perceived usefulness was found to have a strong influence on attitude toward mobile payment services. Bailey et al. (2017) conducted a study based on TAM and identified that perceived ease of use and perceived usefulness had a significant impact on the adoption of mobile payment services in the U.S.

Srivastav and Mittal (2016) conducted an exploratory study focused on the influence of various internet banking services on banking customers' satisfaction in India. The study revealed that better quality of services, proper customer service, proper guidelines, and security concerns were important to increase customers' satisfaction and trust.

Nagdev and Rajesh (2018) proposed a technology adoption model in internet banking in India. It was found that perceived usefulness, perceived ease of use, trust, and perceived quality were the significant determinants of internet banking adoption in India.

A study by Kumar et al. (2018) aimed at identifying the motivations behind the usage of BHIM app – a mobile banking application among the users in India. They collected the opinions of 87 users of this application in Telangana. They identified two distinct patterns of usage, that is, motivations among the users to do mobile transactions and drawbacks of using BHIM app. They also proposed a model in order to increase the motivation of using this application.

Thakur et al. (2017) identified the significant factors that impacted the customers' trust on online shopping in Punjab, India. It was found that perceived risk, perceived benefits, and security protection were the influencers of customers' trust, and consequently, trust was found to have a significant relationship with online activities.

Singh et al. (2020) developed and empirically validated a research model measuring the customers' intention, satisfaction, and recommendation to use mobile wallet applications in India. They found that ease of use, usefulness, risk, and attitude had a significant impact on users' intention, which further impacted their satisfaction and recommendation to use mobile wallet services in India. The study also revealed that moderating effect of stress to use and social influence on the hypothesized relationships were significant.

Trust and security are two important features considered as important by mobile technology users and the same were found to influence users' preference and usage of mobile payment systems (Chandra et al., 2010 ; Duane et al., 2011 ; Hampshire, 2017). Perceived enjoyment and perceived mobility were distinctive features of mobile technology that were widely studied and highlighted as significant factors in the literature (Marinkovic & Kalinic, 2017 ; Park & Kim, 2013 ; Zhou 2013 ; Zmijewska et al., 2004). Finally, satisfaction has been identified as one of the most important determinants of continuance to use mobile payment services (Dlodlo 2015 ; Marinkovic & Kalinic, 2017).

The review of previous literature clearly states that there is a dearth of studies measuring the post-adoption behaviour of mobile wallet services, especially in emerging markets such as India. This study attempts to fill this research gap by proposing a research model capturing this behaviour in the Indian context.

The research framework given in Figure 1 has been structured based on the previous literature and seven constructs, that is, perceived usefulness, perceived ease of use, perceived enjoyment, perceived trust, perceived security, perceived mobility, and satisfaction, which are depicted as independent variables and continuance intention to use mobile wallet applications is taken as a dependent variable, along with measuring the varying effects of these relationships among the two types of users, that is, light users verses heavy users.

Based on the above discussion, the following research hypotheses are proposed :

↳ **H01 :** Perceived usefulness has no positive influence on continuance intention.

- **Ha1 :** Perceived usefulness has a positive influence on continuance intention.

- **H02 :** Perceived ease of use has no positive influence on continuance intention.
- **Ha2 :** Perceived ease of use has a positive influence on continuance intention.

- **H03 :** Perceived enjoyment has no positive influence on continuance intention.
- **Ha3 :** Perceived enjoyment has a positive influence on continuance intention.

- **H04 :** Perceived trust has no positive influence on continuance intention.
- **Ha4 :** Perceived trust has a positive influence on continuance intention.

- **H05 :** Perceived security has no positive influence on continuance intention.
- **Ha5 :** Perceived security has a positive influence on continuance intention.

- **H06 :** Perceived mobility has no positive influence on continuance intention.
- **Ha6 :** Perceived mobility has a positive influence on continuance intention.

- **H07 :** Satisfaction has no positive influence on continuance intention.
- **Ha7 :** Satisfaction has a positive influence on continuance intention.

- **H08 :** Impact of determinants on continuance intention would not vary significantly among light users and heavy users.
- **Ha8 :** Impact of determinants on continuance intention would vary significantly among light users and heavy users.

Methodology

We collected empirical data for this study through an online survey using a leading online/mobile survey website in India. The survey questionnaire comprised of different parts such as demographic information, general technology behaviour, and specific behaviour towards mobile wallet applications. We conducted the study for a period of three months, that is, from August – October 2017. The target respondents of the survey were the existing customers of mobile wallet services, thus the responses from the non-users were discarded. The survey resulted in 325 usable responses and the same was used for further analysis.

The measurement scales of the constructs used in this study were drawn from the previous technology adoption and usage literature and modified accordingly, suiting the requirement of this study's context. Indicators for measuring perceived usefulness and perceived ease of use were taken from Davis (1989) ; items of perceived enjoyment were adopted from previous studies (Lin & Bhattacharjee, 2008 ; Thong et al., 2006). The questions of perceived trust were modified from Gefen et al. (2003) and Kim et al. (2009). Items of perceived security were adopted from previous research studies (Cheung & Lee, 2006 ; Susanto et al., 2013). Indicators of perceived mobility with the use of mobile wallet applications were drawn from Baek et al. (2011) and Wang and Li (2012). Finally, items of satisfaction and continuance intention were adopted from Bhattacherjee (2001) and modified accordingly. The items measuring all constructs used in this research are based on a 7-point Likert scale, with anchors ranging from 1*(strongly disagree)* to 7 *(strongly agree)*. The data analysis was performed with the help of most commonly used statistical package, that is, IBM SPSS Version 18.0.

Among the sample respondents, 58.8% were male and the rest were female. Majority (63.7%) of the respondents were in the age group of 18–35 years. It was also found that respondents with bachelor's degree or master's degree occupied a majority (69.5%) percentage in the sample. Further, 77% of the sample were salaried and 42.8% belonged to the income group of ₹ 40,000 – ₹ 80,000 per month. A majority (77%) were using smartphones with Android operating system. It is further noted that debit/credit cards and internet/mobile banking services (with 64.3%) were the most frequently used payment methods followed by mobile wallet applications (24.0%). Among the sample respondents, 34.8% were using services for more than 2 years and only 45.8% believed that mobile wallet applications could be a complete alternate for cash. Online recharge, ticketing, bill payment, and shopping were the primary purposes of using mobile wallet services. Finally, a greater number (49.2%) of the respondents was spending less than ₹ 2,000 (monthly average) on their preferred mobile wallet services.

Analysis and Results

Factor analysis was employed as a primary tool in order to confirm the factor item loading and to assess the reliability of the measures used in the study. Before conducting factor analysis, the requirement of minimum number of sample size, that is, a recommended ratio of 1:10, at least 10 observations for each item is to be used. This was met as the total usable sample cases were exceeding the minimum requirement. In addition, it is recommended that the constructs used should be correlated in order to execute factor analysis, and the same is confirmed as given in Table 1.

Barlett's test of sphericity was conducted to evaluate appropriateness of factor analysis and the results given in Table 2 indicate that sufficient correlation exists among the constructs used. The results of KMO measure of sample adequacy and the intercorrelations among the constructs is 0.874, which exceeds the recommended value of 0.50.

Table 1. ***Component Correlation Matrix***

	PERC_USF	*PERC_EOU*	*PERC_ENJ*	*PERC_TR*	*PERC_SEC*	*PERC_MOB*	*SATSFN*	*CONT_INT*
PERC_USF	1							
PERC_EOU	0.426**	1						
PERC_ENJ	0.403**	0.377**	1					
PERC_TR	0.391**	0.599**	0.374**	1				
PERC_SEC	0.164**	0.161**	0.226**	0.182**	1			
PERC_MOB	0.504**	0.535**	0.546**	0.488**	0.296**	1		
SATSFN	0.395**	0.462**	0.395**	0.408**	0.241**	0.453**	1	
CONT_INT	0.499**	0.569**	0.445**	0.489**	0.187**	0.520**	0.551**	1

Note. *PERC_USF* – Perceived Usefulness ; *PERC_EOU* – Perceived Ease of Use ; *PERC_ENJ* – Perceived Enjoyment ; *PERC_TR* – Perceived Trust ; *PERC_SEC* – Perceived Security ; *PERC_MOB* – Perceived Mobility ; *SATSFN* – Satisfaction ; *CONT_INT* – Continuance Intention.

Table 2. ***KMO and Bartlett's Test***

Kaiser–Meyer–Olkin Measure of Sampling Adequacy		**0.874**
Bartlett's Test of Sphericity	Chi-Square	10162.940
	df	325
	Sig.	0.000

Table 3. ***Total Variance Explained***

Component	Eigenvalues Extraction			Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Initial	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative	Total	% of Variance	Cumulative %
1	10.803	36.011	36.011	10.803	36.011	36.011	4.369	14.562	14.562
2	3.305	11.016	47.027	3.305	11.016	47.027	3.546	11.819	26.382
3	2.790	9.300	56.326	2.790	9.300	56.326	3.160	10.533	36.914
4	2.412	8.040	64.367	2.412	8.040	64.367	3.106	10.352	47.266
5	1.824	6.080	70.446	1.824	6.080	70.446	3.069	10.231	57.498
6	1.510	5.034	75.480	1.510	5.034	75.480	2.922	9.739	67.237
7	1.163	3.877	79.357	1.163	3.877	79.357	2.757	9.189	76.426
8	1.114	3.712	83.069	1.114	3.712	83.069	1.993	6.643	83.069

The method used in factor analysis is principal component analysis and varimax as a rotation method. With the above criterion, eight factors were extracted, explaining the total variance of 83.07%, as given in Table 3.

The results of rotated component matrix, as given in Table 4, reveal that loading of most of the items belonging

Table 4. ***Rotated Component Matrix***

	Component							
	PERC_USF	***PERC_SEC***	***PERC_ENJ***	***CONT_INT***	***PERC_EOU***	***PERC_TR***	***PERC_MOB***	***SATSFN***
PERC_USF1	0.861							
PERC_USF2	0.892							
PERC_USF3	0.880							
PERC_USF4	0.923							
PERC_USF5	0.762							
PERC_EOU1					0.799			
PERC_EOU2					0.769			
PERC_EOU3					0.823			
PERC_ENJ1			0.836					
PERC_ENJ2			0.798					
PERC_TR1						0.940		
PERC_TR2						0.956		
PERC_TR3						0.944		
PERC_MOB1							0.847	
PERC_MOB2							0.853	
PERC_MOB3							0.893	
PERC_SEC1		0.928						
PERC_SEC2		0.929						
PERC_SEC3		0.930						
PERC_SEC4		0.889						

CONT_INT1	0.717		
CONT_INT2	0.804		
CONT_INT3	0.811		
SATSFN1			0.658
SATSFN2			0.788
SATSFN3			0.754

Note. *PERC_USF* – Perceived Usefulness ; *PERC_EOU* – Perceived Ease of Use ; *PERC_ENJ* – Perceived Enjoyment ; *PERC_TR* – Perceived Trust ; *PERC_SEC* – Perceived Security ; *PERC_MOB* – Perceived Mobility ; *SATSFN* – Satisfaction ; *CONT_INT* – Continuance Intention.

Table 5. ***Reliability Statistics***

Measurement Items	Original Number of Items	Number of Items Retained in this Study	Cronbach's Alpha
PERC_USF	5	5	0.955
PERC_EOU	4	3	0.813
PERC_ENJ	4	2	0.921
PERC_SEC	4	4	0.949
PERC_TR	4	3	0.966
PERC_MOB	4	3	0.959
SATSFN	4	3	0.767
CONT_INT	3	3	0.893

Note. *PERC_USF* – Perceived Usefulness ; *PERC_EOU* – Perceived Ease of Use ; *PERC_ENJ* – Perceived Enjoyment ; *PERC_TR* – Perceived Trust ; *PERC_SEC* – Perceived Security ; *PERC_MOB* – Perceived Mobility ; *SATSFN* – Satisfaction ; *CONT_INT* – Continuance Intention.

to eight factors were above the recommended value of > ± 0.70, except for six items which were excluded from further analysis.

The reliability measures of the constructs used in this study are given in Table 5. Multiple regression is used to test whether the constructs identified in this study are significant predictors of mobile wallet users' intention to continue using their preferred mobile wallet applications.

In this analysis, a standard multiple regression is performed with seven constructs (*PERC_USF, PERC_EOU, PERC_ENJ, PERC_TR, PERC_SEC, PERC_MOB*, and *SATSFN*) as independent variables, and continuance intention as the dependent variable. The *F*-test is found to be significant, indicating that the hypotheses of $R^2 = 0$ can be rejected. Table 6 shows that R^2 of 0.499 is obtained, and three constructs are found to be insignificant in influencing continuance intention of mobile wallet users. *PERC_USF, PERC_EOU, PERC_ENJ,* and *SATSFN* are identified as important factors influencing user's intention to continue using mobile wallet applications. The coefficient table (Table 6) provides insights on how each variable contributes to the explanation of continuance intention.

Satisfaction is the most important influencing factor of continuance intention, contributing 25.5% of variance in continuance intention ($\beta = 0.255$, $p < 0.001$) followed by perceived ease of use, which accounts for 23.3% ($\beta = 0.233$, $p < 0.001$). Perceived usefulness contributes 17.6% of variance in continuance intention ($\beta = 0.176$, $p < 0.001$) followed by perceived enjoyment, which accounts for 10.1% ($\beta = 0.101$, $p < 0.05$).

Perceived security, perceived mobility, and perceived trust do not contribute significantly. The above

Table 6. ***Results of Multiple Regression Statistics***

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	**Std. Error**	**Beta**	***T***	**Sig.**
1	(Constant)	2.222	.745		2.983	.003
	PERCMOB	.091	.056	.091	1.619	.106
	PERCUSF	.135	.037	.176	3.636	.000
	PERCTR	.121	.065	.096	1.843	.066
	PEOU	.299	.070	.233	4.269	.000
	PERCENJ	.115	.056	.101	2.062	.040
	PERCSEC	–.012	.065	–.008	–.186	.852
	SATSFN	.372	.071	.255	5.270	.000

Note. *PERC_USF* – Perceived Usefulness ; *PERC_EOU* – Perceived Ease of Use ; *PERC_ENJ* – Perceived Enjoyment ; *PERC_TR* – Perceived Trust ; *PERC_SEC* – Perceived Security ; *PERC_MOB* – Perceived Mobility ; *SATSFN* – Satisfaction ; *CONT_INT* – Continuance Intention.

statistical results support the major four hypotheses, that is, Ha1, Ha2, Ha3, and Ha7. Meanwhile, the assumed significant effects of perceived security, perceived mobility, and perceived trust cannot establish a relationship on continuance intention ; hence, Ha4, Ha5, and Ha6 are not supported in this study.

Next, the need for evaluating the differences between light users and heavy users on their post-adoption behaviour is evaluated with the help of independent sample *t*-test by comparing mean scores of predictors and continuance intention for these two groups.

Table 7 reveals that all constructs vary significantly between the two studied groups with $p < 0.001$. The *t*-statistic given is negative for all constructs, which implies that the mean scores for Group 2 (heavy users) are higher than the mean scores for Group 1 (light users). Hence, heavy users are characterized on average of having higher level of perceived usefulness, perceived ease of use, perceived enjoyment, perceived trust, perceived security, perceived mobility, and continuance intention as compared to light users. However, the statistical significance may not necessarily reveal that the differences are realistic and practically relevant.

In order to measure the magnitude of the differences of mean scores, the η^2 is calculated in SPSS. Based on the

Table 7. ***Independent t - test***

Construct	Mean	Standard Deviation	*t*-value	η^2	*p*-value
PERC_USF	17.9938	3.48984	–7.020	0.136	0.000*
PERC_EOU	9.2892	2.08523	–4.938	0.187	0.000*
PERC_ENJ	8.7938	2.36695	–5.069	0.074	0.000*
PERC_TR	9.1938	2.12770	–4.068	0.092	0.000*
PERC_SEC	6.4585	1.74509	–3.519	0.017	0.000*
PERC_MOB	9.0246	2.68616	–6.139	0.114	0.000*
SATSFN	9.3908	1.83196	–6.288	0.133	0.000*
CONT_INT	13.7815	2.67562	–6.195	0.118	0.000*

Note. *Significant at the $p < 0.01$ level.

Note. *PERC_USF* – Perceived Usefulness ; *PERC_EOU* – Perceived Ease of Use ; *PERC_ENJ* – Perceived Enjoyment ; *PERC_TR* – Perceived Trust ; *PERC_SEC* – Perceived Security ; *PERC_MOB* – Perceived Mobility ; *SATSFN* – Satisfaction ; *CONT_INT* – Continuance Intention.

interpretation schemes given by Cohen (2013), for the η^2 value, the effect size is smaller for perceived security, perceived enjoyment, and perceived trust with $\eta^2 < 0.10$, which implies that less than 10% of the variance in perceived security, perceived enjoyment, and perceived trust can be explained by user types. However, the differences are found to be large for perceived mobility, continuance intention, satisfaction, perceived usefulness, and perceived ease of use, where η^2 values range between 0.114 – 0.187 that user groups can account for 11–18% of variance in the respective variables.

Finally, MANOVA (multivariate analysis of variance), a type of multivariate analysis, was used to test

Table 8. ***MANOVA Statistics***

		Multivariate Test		Between-Subjects Effects	
Source	**Dependent Variable**	**Wilks's λ**	**Sig.**	***F***	**Sig.**
Type of User	*PERC_USF*	0.840	0.000	49.284	0.000
	CONT_INT			38.375	0.000
Type of User	*PERC_EOU*	0.884	0.000	24.381	0.000
	CONT_INT			38.375	0.000
Type of User	*PERC_ENJ*	0.874	0.000	25.690	0.000
	CONT_INT			38.375	0.000
Type of User	*PERC_TR*	0.889	0.000	16.546	0.000
	CONT_INT			38.375	0.000
Type of User	*PERC_SEC*	0.876	0.000	12.385	0.000
	CONT_INT			38.375	0.000
Type of User	*PERC_MOB*	0.861	0.000	37.691	0.000
	CONT_INT			38.375	0.000
Type of User	*SATSFN*	0.861	0.000	39.537	0.000
	CONT_INT			38.375	0.000

Note. *Significant at the $p < 0.01$ level.

PERC_USF – Perceived Usefulness ; *PERC_EOU* – Perceived Ease of Use ; *PERC_ENJ* – Perceived Enjoyment ; *PERC_TR* – Perceived Trust ; *PERC_SEC* – Perceived Security ; *PERC_MOB* – Perceived Mobility ; *SATSFN* – Satisfaction ; *CONT_INT* – Continuance Intention.

Table 9. ***Results of Hypotheses Testing***

Hypotheses	**Results**
H01: Perceived usefulness has no positive influence on continuance intention.	Rejected
H02: Perceived ease of use has no positive influence on continuance intention.	Rejected
H03: Perceived enjoyment has no positive influence on continuance intention.	Rejected
H04: Perceived trust has no positive influence on continuance intention.	Accepted
H05: Perceived security has no positive influence on continuance intention.	Accepted
H06: Perceived mobility has no positive influence on continuance intention.	Accepted
H07: Satisfaction has no positive influence on continuance intention.	Rejected
H08: Impact of determinants on continuance intention would not vary significantly among light users and heavy users.	Rejected

hypotheses regarding the effect of one or more independent variables on two or more independent variables (Hair et al., 2006). In this research, we performed MANOVA to statistically test the significant differences between the two user types on a linear combination of dependent variables. Table 8 shows that Wilks's l, the most commonly used statistics to assess the significance of difference between groups, is at higher significant levels for all linear relationships ($p = 0.000$).

It can be inferred that light users and heavy users differ significantly in terms of their overall post-adoption behaviour on mobile wallet applications. As can be inferred from Table 8, tests of between-subjects effects provide information on whether significant differences also apply to each of the dependent variables. The results show that significance level for all relationships is less than or equal to 0.001. Thus, it is concluded that light users and heavy users differ significantly on all variables. Hence, the corresponding hypothesis Ha8 is supported.

Implications

Theoretical Implications

This study contributes significantly to the post-adoption behaviour of mobile technology literature. This model is developed based on various theories such as TAM and ECM and also based on various research studies focusing on post-adoption behavior of various technological systems in general and mobile technology in particular. The study confirms the significant impact of perceived usefulness, ease of use, enjoyment, and satisfaction on customers' intention to continue using mobile wallet services in India.

Practical Implications

Finally, the study also offers key insights into the mobile wallet service providers by highlighting the need for understanding varying degree of customers' perceptions and the influence of their perceptions on continued usage intention of mobile wallet applications. The study clearly highlights the need for understanding significant determinants of continuance intention of mobile wallet customers in India, which helps the marketers of these services to be more focused and design their strategies accordingly. Further, it clearly states the need for distinguishing the mobile wallet users based on their intensity of usage, which would help practitioners to understand the market segments better and increase profitability through customer loyalty.

Conclusion

The objective of this research paper is to identify the significant determinants of mobile wallet users' continuance intention and how this behaviour differs among light users and heavy users. The proposed research framework was empirically validated through multiple regression analysis, and we observe that about 50% of the variance on continuance intention is explained by four significant predictors namely, perceived usefulness, perceived ease of use, perceived enjoyment, and satisfaction. Thus, it was proved that the research model exemplifies good explanatory power in order to meet the research objectives. It is clear from the above that this research study is unique in its approach by not only proposing a research model measuring the post-adoption behaviour of mobile wallet customers in India, but also confirming its practical applicability through empirical validation of data using multivariate statistical techniques (factor analysis, multiple regression, and MANOVA).

Limitations of the Study and Scope for Future Research

This study is cross-sectional in nature and did not capture the varying level of perceptions of mobile wallet

users' from time to time. Although, the sample size is relatively large, the study did not capture the differences in responses from rural, semi-urban, urban, and metropolitan cities across the country. This study has adopted convenience sample method in collecting the responses. The findings of this study should be cautiously generalized to the population while implementing the recommended strategies.

Future studies could be extended by focusing on understanding the perceptions of mobile wallet users' during different points of time through longitudinal studies, with an objective of uncovering the changes in their post-adoption behavior. Future research should identify the variances in post-adoption beliefs of mobile wallet customers based on geographical (rural vs urban), educational (high vs. low), income (high vs middle vs low), and psychographic characteristics (personality, attitude), etc.

Authors' Contribution

T. Thirumal Reddy came up with an idea and subsequently designed the quantitative framework for carrying out this empirical study. T. Thirumal Reddy did an extensive literature survey of the existing studies, referred to reputed journals for the same, and eventually came up with the research design suitable to the study. The study was closely monitored and supervised by Dr. B. Madhusudhana Rao.

Conflict of Interest

The authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest, or non-financial interest in the subject matter, or materials discussed in this manuscript.

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