International Journal of Research in Finance and Management

P-ISSN: 2617-5754
E-ISSN: 2617-5762
Impact Factor (RJIF): 5.1
https://www.allfinancejournal.com/
IJRFM 2022; 5(1): 79-87
Received: 10-02-2022
Accepted: 15-03-2022

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Determinants of user satisfaction in mobile wallet usage: An empirical study using scale-based analysis

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DOI: https://www.doi.org/10.33545/26175754.2022.v5.i1a.611

Abstract
The unprecedented growth of mobile wallets has reshaped the facets of digital payment ecosystems; however, sustained satisfaction among customers remains a serious challenge for service providers. Based on this understanding, the present study makes an empirical investigation into the determinants of user satisfaction in using mobile wallets by integrating constructs from the Technology Acceptance Model, Expectation-Confirmation Theory and SERVQUAL. This is a quantitative research design with a cross-sectional approach in which data were collected through a self-administered online survey from 258 active users of mobile wallets. The measurement model was validated through confirmatory factor analysis, assessment of reliability and tests for convergent and discriminant validity. Results have revealed that transaction speed is the strongest predictor of user satisfaction, followed by trust in provider, customer support experience and reward and incentive programs. The perceived ease of use is weaker and positive, indicating that although usability contributes to satisfaction, performance and service-quality attributes turn out to be more decisive in shaping user perceptions. The integration of TAM, ECT and SERVQUAL offers an inclusive post-adoption framework that stresses the combined influence of cognitive, affective and service-related factors. From a managerial perspective, the findings encourage developers of fintech and policymakers to enhance transaction efficiency, strengthen the mechanisms for data security and building trust, improve responsiveness to customer support and design incentive systems in a more engaging way. These will contribute to increased confidence in users, reinforce perceived value and foster loyalty in the long term. This study concludes by underlining some limitations concerning sampling, geographic scope and moderate KMO values and by giving a direction for future studies through cross-country and longitudinal validation.

Keywords: Mobile wallets, user satisfaction, transaction speed, trust in provider, technology acceptance model (TAM), expectation-confirmation theory (ECT), SERVQUAL, digital payments

Introduction
The growth of mobile technologies has reshaped the world payment environment and formed the digital ecosystems where consumers can do financial transactions with convenience and high security. Mobile wallets like Apple Pay, Google Pay, Samsung Pay and locally available solutions like Paytm and M-Pesa allow customers to store payment information and implement cashless payments through smartphones. The rising number of smartphone users, the existence of near-field communication (NFC) infrastructures and government projects that encourage the use of cashless economies underpin their development (Zhou, 2013) [22].

Despite the steady increase in adoption rates, the ability to sustain usage depends on user satisfaction, which depends on the technical, behavioral and psychological determinants. The Technology Acceptance Model (TAM) (Davis, 1989) [4] and its descendants suggest that perceived usefulness and perceived ease of use are the motivation behind initial adoption but post-adoption satisfaction is influenced by other factors including trust and security and quality of service (Shaikh and Karjaluoto, 2015) [17]. Surveys based on Expectation-Confirmation Theory (ECT) (Bhattacharjee, 2001) point to the fact that satisfaction is the outcome of confirmation of expectations by the users after users went through the real system. These models combined show that the performance of a technology and the user perceptions together has an effect on satisfaction and usage.

In spite of its popularity there exists a persistent disparity between having mobile wallets and satisfaction by users. A large portion of the users use it nondominantly because of the complexity of the interface or the transaction errors or because they feel their data is not safe (Liebana-Cabanillas *et al.*, 2017) [9]. Although previous studies placed a significant emphasis on adoption intention, not much has been done on the determinants of satisfaction that can be used to maintain the long-term use (Kim *et al.*, 2010) [8]. The scarcity of merged empirical models which incorporate a combination of constructs of TAM, SERVQAL (Parasuraman *et al.*, 1988) [15] and ECT narrows down theoretical advances. This paper fills that gap by composing a quantitative based scale analysis, which measures the multidimensional determinants of satisfaction of mobile-wallet users.

This study aims to:

- Identify and quantify the primary determinants influencing user satisfaction with mobile wallet usage.
- Examine the relationship between perceived ease of use, transaction speed, trust in provider, customer support experience, reward and incentive programs with overall user satisfaction.

The researchers have made theoretical contributions to the study through the incorporation of TAM, SERVQUAL and ECT in a unified empirical model of post adoption satisfaction. Empirically, it enhances the validity of measurement because of tested Likert constructs employed in previous studies of digital-payment (Zhou, 2013; Liebana-Cabanillas *et al.*, 2017) [9, 22].

In practice, the lessons learned can inform fintech providers and policy-makers on how to make usability, reliability and assumed trust more apparent. By enhancing these aspects, it can encourage further usage and devotion, hence making mobile-payment elec-systems sustainable (Shaikh, and Karjaluoto, 2015) [17].

The rest of this paper will be structured to the following: Section 2 examines the literature and theoretical frameworks of user satisfaction in mobile wallet situations. The research model and hypotheses are developed in section 3. Section 4 defines the methodology and measurement steps in the research. Section 5 is the expected results and discussion whereas User-based implication on theoretical and practical issues is the conclusion of Section 6. Sections 7 are the limitations and future research directions respectively.

Literature Review

1. Mobile Wallet Technology and Adoption

1.1 Definition and Types of Mobile Wallets

Mobile wallets are electronic applications and they hold payment details which are used to facilitate electronic transactions between consumers using a smartphone or any other device which is connected to a network. They additionally combine various financial services like no-contact payments, peer-to-peer payments and paying bills (Liebana-Cabanillas, Ramos de Luna, and Montoro-Rios, 2017). Mobile wallets in terms of functionality can further be grouped into closed wallets (the wallets that are confined to individual merchants or platforms), semi-closed wallets (wallets that allow their use across partnered merchants) and open wallets (wallets tied to bank accounts and can be used freely) (Zhou, 2013) [22]. The different variations of these categories are of flexibility, security demands and regulatory rules.

1.2 Global Market Penetration and Usage Patterns

The use of mobile wallets has spread its tentacles worldwide since 2010 due to the growth of smartphone capabilities and the emergence of fintech application ecosystems. Asian markets, especially China and India, are the most likely to adopt it because of the incorporation of wallets such as Alipay, WeChat Pay and Paytm into everyday business (Shaikh and Karjaluoto, 2015) [17]. Conversely, the uptake is slower in Western markets that are limited due to issues to do with data privacy and the presence of card-based infrastructures (Kim, Mirusmonov and Lee, 2010) [8]. Experimental research indicates that perceived convenience, ubiquity and merchant acceptance is a strong predictor of their continued use (Oliveira, Thomas, Baptista and Campos, 2016) [13].

1.3 Regulatory Environment and Security Standards

Financial authorities and central banks control mobile wallet ecosystems to protect users and keep off fraud. The laws are generally focused on data protection, interoperability, anti-money laundering (AML) and consumer rights (Shaikh and Karjaluoto, 2015) [17]. Programs like PCI DSS (Payment Card Industry Data Security Standard) are security standards that play a crucial role in improving level of trust and compliance. Yet user perception of security differs behaviorally with the technicalities and therefore the perceived security is an important psychological decisive variable of satisfaction (Zhou, 2013) [22].

2. Theoretical Frameworks for Technology Acceptance and Satisfaction

2.1 Technology Acceptance Model (TAM)

According to the Technology Acceptance Model (Davis, 1989) [4], the direct cause of the user attitude towards technology is the perceived ease of use (PEOU) and perceived usefulness (PU). In mobile wallet settings, empirical research has confirmed ease of use increases usability perceptions with usefulness increasing satisfaction and continuance intention (Kim *et al.*, 2010; Liebana-Cabanillas *et al.*, 2017) [8, 9]. The simplicity of TAM enables it to obtain functional determinants, but not post-adoption dimensions, such as trust or quality of service, leading to subsequent integrations with Expectation-Confirmation Theory (ECT) and SERVQUAL models.

2.2 The Expectation-Confirmation Theory (ECT)

The theory of Expectation-Confirmation (Bhattacherjee, 2001) [2] describes the satisfaction as the outcome of the expectation confirmation after the first use. Confirmation creates satisfaction and further intention of continuance; when user experiences are better or equal to previous expectations. There are indices of empirical support showing that confirmation and perceived usefulness bring considerable satisfaction in situations of mobile wallet banking and online banking (Zhou, 2013; Wahab, 2021) [20, 22]. This model is important in explaining the retention of mobile wallets because it was successful in bridging the gap between expectations before adoption and satisfaction after adoption.

2.3 Service Quality Models (SERVQUAL)

Perceived service quality in the SERVQUAL (Parasuraman, Zeithaml and Berry, 1988) [15] is measured using reliability, responsiveness, assurance, empathy and tangibles. These aspects in a digital payment setting turn into the reliability of the systems, the responsiveness of technical support and the guarantee of the safety of the transactions (Amin, 2016) [1]. The scholarly literature shows a positive impact of the high service quality on the satisfaction levels, trust and loyalty. When SERVQUAL is combined with TAM or ECT, a more encompassing model is created which includes factors like technology and experience.

The integrated framework synthesizes TAM's cognitive perceptions (ease of use), ECT's affective evaluation (confirmation and satisfaction), and SERVQUAL's service dimensions (responsiveness, assurance, reliability).

3. Determinants of User Satisfaction in Mobile Wallets

The factors that determine the user satisfaction in mobile wallet systems are a combination of technological, psychological and experiential factors. Of the many determinants, five variables have always come out as the core of satisfaction; perceived ease of use, transaction speed, trusted provider, customer support experience, reward and incentive program. All these traits affect the overall rating of the users on the performance of mobile wallets, which affect both the satisfaction and the continuance intention.

3.1 Perceived Ease of Use

Perceived ease of use (PEoU) is used to refer to the level to which the users have the impression that it takes little effort to use a system (Davis, 1989) [4]. In the case of mobile wallets, the convenience of ease of use includes the simplicity of registration and payment procedures as well as navigation. When the users feel that a mobile wallet is user-friendly and simple to use, their satisfaction level and their future intentions to use it rise to a great level (Kim, Mirusmonov and Lee, 2010) [8].

It has been empirically proven that the perceived usefulness is increased by ease of use, which results in the reinforcement of satisfaction and behavioral intention (Zhou, 2013) [22]. In their case, Liebana-Cabanillas, Ramos de Luna and Montoro-Rios (2017) discovered that ease of use is especially important in the initial stages of adoption but it remains significant in satisfaction during the stage of habitual use. Ease of use hence is a direct determinant and indirect antecedent of satisfaction via perceived usefulness.

Perceived Ease of Use and User Satisfaction in Mobile Wallet Usage

Usability makes the user more comfortable and gives them confidence and this affects the satisfaction directly by lowering the cognitive effort (Davis, 1989; Kim *et al.*, 2010) [4, 8].

- **H1:** Perceived ease of use has a positive impact on the satisfaction of users with mobile wallets.

3.2 Transaction Speed: Transaction speed indicates the speed at which a mobile wallet handles payments, checks credentials and provides confirmations. Being one of the main metrics of system performance, the speed of transaction is directly proportional to perceived efficiency and user satisfaction (Zhou, 2013) [22]. Delays or low-speed transactions, on the contrary, undermine confidence and satisfaction especially when used at a high frequency e.g. when buying products in a store or paying off a transportation bill (Oliveira, Thomas, Baptista and Campos, 2016) [13].

In terms of service quality, speed of transaction is similar to the SERVQUAL dimension of responsiveness (Parasuraman, Zeithaml and Berry, 1988) [15]. The users demand instant processes and less downtime; therefore, applications that are always reliable and render fast service create higher satisfaction rates and lead to recurrent use (Amin, 2016) [1].

Speed of transaction and satisfaction of users in Mobile Wallet Usage

Fast and trustful transactions make the mobile wallet solution appear to be more responsive (Amin, 2016; Zhou, 2013) [1, 22].

- **H2:** The speed of the transactions has a positive impact on user satisfaction.

3.3 Trust in Provider

One of the most important factors predicting satisfaction with the digital financial services is trust in the service provider and their ability to behave in a competent, secure, ethical manner (Shaikh and Karjaluoto, 2015) [17]. The methods of providing trust in the context of mobile wallets include data protection, transparency, fraud prevention and reliable system performance (Wahab, 2021) [20].

The Expectation-Confirmation Theory (Bhattacherjee, 2001) [2] is based on the assumption that the satisfaction level will be stronger as a result of the expectation being confirmed against the expectation of high security and high degree of service reliability. Further, perceived security correlates with perceived security satisfaction through the mediation of trust, which demonstrates that technical defense is ineffective without some perceived credibility of the provider (Zhou, 2013) [22]. Withdrawing trust will therefore be crucial to long term satisfaction and loyalty through the constant promotion of trust through regular and safe experiences.

Provider and User Satisfaction Trust in Mobile Wallet Usage: Perceived risk is alleviated by trust and results in higher satisfaction with mobile wallet services (Shaikh and Karjaluoto, 2015; Wahab, 2021) [17, 20].

- **H3:** Trust in the provider has a positive outcome on the satisfaction of the user.

3.4 Customer Support Experience

Quality and responsiveness of support when users have problems involving customer experience is a critical service quality reliability predictor of customer satisfaction. As per SERVQUAL, responsiveness and assurance have a direct influence on the perceptions of service quality (Parasuraman *et al.*, 1988) [15]. In the virtual realm, good support (chatbots, support centers, overview of complaints, etc.) can also be seen as part of perceived reliability and satisfaction (Amin, 2016) [1].

The empirical studies on mobile banking and mobile

payment systems show that the lack of proper resolution of complaints and slow response to support are the most crucial factors that undermine user satisfaction despite well-developed technical features (Shaikh and Karjaluoto, 2015) [17]. In such a way, customer support does not only help to eliminate the functional ones but also to strengthen emotional guarantees establishing a positive relationship between the user and a provider.

Customer Service and Satisfaction with Use in Mobile Wallet Usage: Proper customer service leads to the perceived quality of service and satisfaction (Parasuraman, Zeithaml and Berry, 1988; Oliveira *et al.*, 2016) [13, 15].

- **H4:** User satisfaction is positively related to customer support experience.

3.5 Reward and Incentive Programs: Reward and incentive programs such as cashbacks, discounts and loyalty points are motivational tools that ensure greater user satisfaction as they give them a sense of economic value. When users feel that they are adequately rewarded to use it, then they experience greater satisfaction and continuance intention (Amin, 2016) [1].

In terms of expectation-confirmation, higher the expectations of the users in terms of benefits or incentives met, it leads to a proportional increment in satisfaction (Bhattacherjee, 2001) [2]. These rewards in competitive fintech markets have not only an economic role but a symbolic implementation of user engagement, which leads to an increase in emotional satisfaction.

Rewards/Incentive Programs and Satisfaction of users in Mobile Wallet Usage; Recent gains achieved through reward and incentive schemes strengthen satisfaction by warranting financial assumptions (Bhattacherjee, 2001; Amin, 2016) [1, 2].

- **H5:** Reward and incentive categories have a positive impact on user satisfaction.

4. Empirical Studies on Mobile Wallet Satisfaction

4.1 Scale-Based Measurement Approaches

Surveys that measure satisfaction use multi-item Likert scales to measure latent constructs, e.g., trust, usefulness and confirmation (Kim *et al.*, 2010; Zhou, 2013) [8, 22]. Confirmatory factor analysis (CFA) is normally used to determine reliability (Cronbach a > 0.70) and construct validity (convergent and discriminant). These tested scales are empirically rigorous in measuring dimensions of user satisfaction.

4.2 Key Findings from Existing Research

It is empirically proved that perceived usefulness, ease of use and trust are always the most substantial determinants of satisfaction (Liebana-Cabanillas *et al.*, 2017) [9]. Comparisons of regions revealed that developing markets focus more on security issues, and technologically advanced economies have usability and convenience as their driving force (Shaikh and Karjaluoto, 2015) [17]. All these results prove that satisfaction is a multidimensional construct that depends on both technological and experience features and this is the basis of the conceptual model of this study.

5. Research Framework

This study uses constructs of Technology Acceptance Model (TAM) and Expectation-Confirmation Theory (ECT) to come up with a holistic model that explains the user satisfaction in the use of mobile wallets.

The model suggests that five main determinants such as the perceived ease of use, speed of transaction, trust in provider, customer support experience, reward and incentive programs, which are all included in the model, are considered to influence satisfaction and all of them comprise technological, functional and service-quality aspects of mobile wallet experience.

The conceptual model (Figure 1) places the user satisfaction as a latent dependent variable which is affected by cognitive (TAM) and affective (ECT) variables.

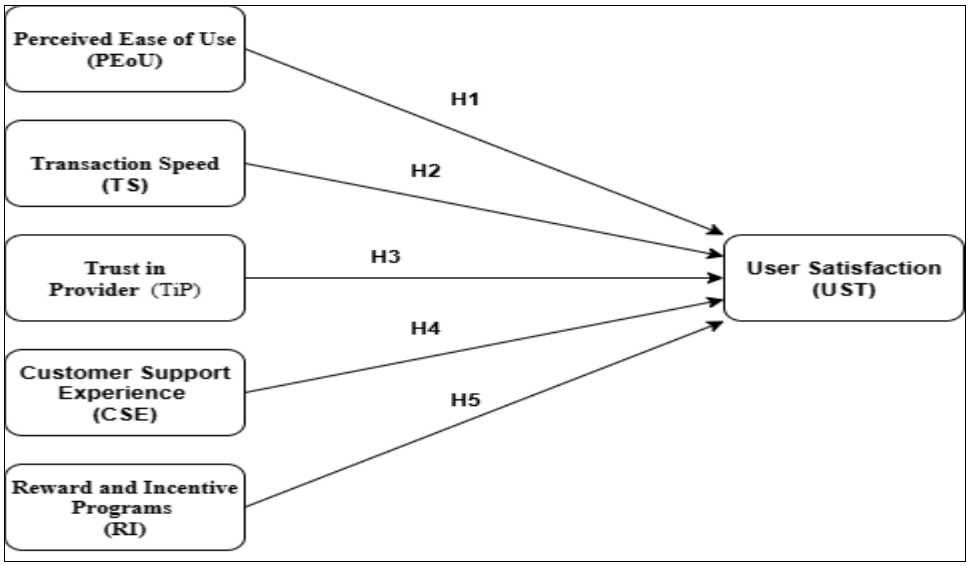

Fig 1: Conceptual Framework

Research Methodology

The current study is a quantitative, cross-sectional set of studies into the significant factors defining consumer satisfaction in the use of mobile wallets. It is an explanatory study, and it aims to know the relationship between customer satisfaction and a series of experience-based and design-related features related to mobile wallet applications. It involves the use of statistics to analyze how people perceive the use of mobile wallets.

Primary data was collected using a self-administered survey consisting of closed ended statements on a five-point Likert scale. The questionnaire was shared online and the respondents were chosen through a snow ball method. The preliminary respondents were identified with the help of the academic and social networks, and they were asked to distribute the questionnaire among other users of the mobile wallet services. The reason why such an approach was selected is that it has been proven to be effective in targeting a geographically scattered community of consumers of digital payment products in the period under 3 weeks.

The analysis of the study examined responses of 258 respondents. All the respondents were filtered to make sure they were the one who currently used mobile wallets. The survey also gathered demographic data, which consisted of age, gender, education, and the frequency of use of digital wallets to give more context to the results.

IBM SPSS Statistics software was used to analyse the data obtained. Responses were first checked as complete and proper methods of data cleaning were employed to ensure that they are correct and consistent. The respondent numbers of this survey, based on a five-point Likert scale, were coded by numbers to facilitate statistical processing.

To test the internal consistency of the multi-item scales used to measure each construct, the alpha of Cronbach was used. Constructs with alpha values more than the generally accepted threshold of 0.70 were considered to be reliable enough to proceed to study.

Lastly, a multiple linear regression was conducted to determine the effectiveness of the considered independent attributes to predict the level of user satisfaction with mobile wallet services (considering all of them as well as each of them separately).beta coefficients adjusted, t-values and p-values were some of the values used to test the regression model.

Results and Discussion

1. Demographic Characteristics of Respondents

As can be seen in Table 1, younger, educated and tech-savvy users represent the core population of mobile wallet users. The majority consisted of respondents aged under 25 years (49.22%) and 26-35 years (36.82), which proves that young segments are the most significant participants in the digital payment adoption process because of the high level of smartphone integration and digital literacy (Gupta and Arora, 2020) [5].

The gender presence was 56.98 percent male and 43.02 percent female indicating that the gender gap is being reduced because digital interfaces are becoming more accessible (NASSCOM, 2020) [12].

The 58.14% and 37.2% postgraduates and undergraduates respectively showed that the users are overall well-educated and able to use digital payment methods (Singh and Sinha, 2020) [18].

Students (42.64) and employed persons (34.1) were overwhelmed by occupation and therefore common use of transactions relating to routine and retail people were evident. Users were spread across all income categories, with the majority of low- and middle-income ones (under [?]50,000), some demonstrating the accessibility and inclusion in regards to mobile wallets (World Bank, 2021) [21].

Frequently, 63.18% said they used wallets every day and 28.68% every week, a significant move in the behavior of paying daily, not infrequently using them (McKinsey, 2021) [11].

The results reveal that digitally inclined consumers who are younger and educated are the main users of mobile wallets. The fact that the user satisfaction and dependency are high and manifested in terms of such factors as convenience, security, and accessibility helps voters recognize the high demand and usage on a daily basis. The equalized distribution of income is the evidence of the dictatorship of digital wallets that have democratized access to finances. These population trends are in line with the Technology Acceptance Model (TAM), where perceived utility and perceived ease of use are the key sources of satisfaction.

Table 1: Demographic Characteristics

Characteristic		Frequency	Percentage (%)
Age	< 25 years old	127	49.22
	26-35 years old	95	36.82
	36-45 years old	22	8.52
	46-55 years old	9	3.48
	> 56 years old	5	1.96
Gender	Male	147	56.98
	Female	111	43.02
Education Level	High School	7	2.72
	Under-graduate	150	58.14
	Post-graduate	96	37.2
	Others	5	1.94
Occupation	Student	110	42.64
	Employed	88	34.1
	Self-employed	53	20.54
	Unemployed	7	2.72
Monthly Income	Less than ₹10,000	76	29.46
	₹10,001 - ₹25,000	48	18.6

	₹25,001 - ₹50,000	66	25.58
	₹50,001 - ₹1 Lac	39	15.12
	Above ₹1 Lac	29	11.24
How frequently do you use mobile wallet services?	Daily	163	63.18
	Weekly	74	28.68
	Monthly	17	6.58
	Rarely	4	1.56

2. Confirmatory Factor Analysis

CFA was used to confirm the measurement model and determine convergent validity of the six constructs that included, Perceived Ease of Use (PEoU), Transaction Speed (TS), Trust in Provider (TiP), Customer Support Experience (CSE), Reward and Incentive Programs (RI), and User Satisfaction (UST).

Table 2 indicates that the loading of all the factors was greater than 0.60 which proves the good internal consistency and reliability (Hair *et al.*, 2019) [6].

- **PEoU** (0.613-0.657, avg. 0.629): Refers to the fact that users considered mobile wallet easy to use and navigate, which is in line with the Technology Acceptance Model (Davis, 1989) [4].
- **TS** (0.599-0.693, avg 0.643): Indicates great significance of quick, smooth transactions (Madan and Yadav, 2018) [10].
- **TiP** (0.667-0.710, avg. 0.681): Reflects the confidence of the user in the reliability of the provider and the safety of data (Pal *et al.*, 2020) [14].
- **CSE** (0.685-0.798, avg. 0.719): Lays emphasis on the fact that good customer support improves customer satisfaction (Chawla and Joshi, 2019) [3].
- **RI** (0.698-0.732, avg. 0.719): Communicates responsiveness of the users to the rewards and cashback offers (Gupta and Arora, 2020) [5].
- **UST** (0.619-0.707, avg. 0.663): The overall satisfaction with usability and service quality is confirmed (Bhattacherjee, 2001) [2].

The constructs have all satisfied recommended loading thresholds, which means that there was strong convergent validity and they could be analyzed later in structural modeling.

Table 2: Confirmatory Factor Analysis

	Variables	Factorial Load	Average Factorial Loads
Perceived Ease of Use	PEoU1	0.630	0.629
	PEoU2	0.617	
	PEoU3	0.657	
	PEoU4	0.613	
Transaction Speed	TS1	0.599	0.643
	TS2	0.637	
	TS3	0.693	
Trust in Provider	TiP1	0.710	0.681
	TiP2	0.667	
	TiP3	0.68	
	TiP4	0.668	
Customer Support Experience	CSE1	0.685	0.719
	CSE2	0.706	
	CSE3	0.798	
	CSE4	0.687	
Reward and Incentive Programs	RI1	0.698	0.719
	RI2	0.732	
	RI3	0.727	
User Satisfaction	UST1	0.691	0.663
	UST2	0.707	
	UST3	0.619	
	UST4	0.638	

3. Convergent Validity

The convergence validity was measured through the KaiserMeyerOlkin (KMO) measure of sampling adequacy and test of sphericity created by Bartlett. Out of the constructs as illustrated in Table 3, all had KMO of more than 0.50, indicating the validity of the data to commit the factor analytical process (Hair *et al.*, 2019) [6]. Further, Bartlett's Test of Sphericity was also significant (p<0.001) in all the variables suggesting that the correlation between the items were high enough to form a factor.

- There was also a better than adequate congruence between perceived Ease of Use (KMO = 0.608) and the Transaction Speed (KMO = 0.571).
- Provider Trust (KMO = 0.726) and User Satisfaction (KMO = 0.710) had sufficient sampling adequacy, which indicated a good construct reliability.
- Customer Support Experience (KMO = 0.796) was the most adequate one and it indicates high inter-item correlation and measurement consistency.
- Reward and Incentive Programs (KMO = 0.641) were also less than the acceptable value and hence verifies convergent validity.

On the whole, findings provided by KMO and Bartlett confirm that the measurement items meet their constructs quite well, and the scale is reliable to continue testing the model.

Table 3: Convergent Validity

	Kaiser-Meyer-Olkin Measure	Bartlett's Test of Sphericity
Perceived Ease of Use	0.608	<0.001
Transaction Speed	0.571	<0.001
Trust in Provider	0.726	<0.001
Customer Support Experience	0.796	<0.001
Reward and Incentive Programs	0.641	<0.001
User Satisfaction	0.710	<0.001

4. Discriminant Validity

The Heterotrait-Monomethod (HTMT) ratio of correlations was used to test discriminant validity, which is considered a sound way of testing distinctiveness in construct (Henseler, Ringle, and Sarstedt, 2015) [7]. Table 4 indicates that all values of the HTMT are not above the satisfactory discriminant validity of 0.85 value.

It corroborates the fact that each of the constructs on the model Perceived Ease of Use (PEoU), Transaction Speed (TS), Trust in Provider (TiP), Customer Support Experience (CSE), Reward and Incentive Programs (RI), and User Satisfaction (UST) is statistically different and represents a different dimension of user perception or experience.

- PEoU versus CSE has the lowest value of HTMT (0.100) implying that there is little overlap, which implies explicitly defined concepts.
- The largest value (0.789) of CSE and RI is still under the 0.85 threshold, which means that the two constructs are separated well even though they are moderately associated, and this could be so since both variables are also concerned with post-service experiences.
- The TS-UST pair (0.715) also shows that the relationship is significant although not too high as the efficiency of transactions factors in the satisfaction.

The general outcome of the HTMT outcomes confirms the absence of multicollinearity and the strong discriminant validity of the model constructs, which will result in reliability with regards to the further structure modeling.

Table 4: Discriminant Validity Using HTMT

Construct Pair	HTMT Value
PEoU - TS	0.305
PEoU - TiP	0.228
PEoU - CSE	0.100
PEoU - RI	0.210
PEoU - UST	0.293
TS - TiP	0.370
TS - CSE	0.227
TS - RI	0.232
TS - UST	0.715
TiP - CSE	0.149
TiP - RI	0.378
TiP - UST	0.300
CSE - RI	0.789
CSE - UST	0.127
RI - UST	0.176

5. Reliability

Cronbach Alpha was used to evaluate reliability because this method evaluates the internal consistency of items in each construct. The acceptable level of value at which reliability of research is thought to be acceptable is usually 0.70 (Nunnally and Bernstein, 1994).

Most of the constructs exhibit satisfactory reliability as indicated in Table 5:

- Perceived Ease of Use (a = 0.721), Trust in Provider (a = 0.719), and User Satisfaction (a = 0.722) have good internal consistency.
- The highest reliability is observed in Customer Support Experience (a = 0.861) which has a high degree of coherence.
- Transaction Speed (a = 0.689) and Reward and Incentive Programs (a = 0.667) are not much far off the conventional threshold yet are in the acceptable range of measurement items in exploratory studies and indicate that these items have a good correlation.

On the whole, the outcomes of the reliability tests prove the consistency and the trustworthiness of the measurement scales which are applied in this investigation, which justifies the validity of the further statistical calculations.

Table 5: Reliability

Factor	Cronbach's Alpha
Perceived Ease of Use	0.721
Transaction Speed	0.689
Trust in Provider	0.719
Customer Support Experience	0.861
Reward and Incentive Programs	0.667
User Satisfaction	0.722

6. Hypothesis Testing

A hypothesis test for the independent variables' impact on User Satisfaction through multiple regression analysis was performed. Most predictors have an influence on user satisfaction for mobile wallet usage, as indicated by the results shown in Table 6.

The Transaction Speed ($\beta = .739$, $t = 7.96$, $p<.001$) proved to be the most impactful predictor of user satisfaction when utilizing mobile wallets, and indicates that fast and easy transactions will greatly increase user satisfaction.

Trust in Provider ($\beta = .258$, $t = 3.03$), although a much less powerful predictor than transaction speed, still showed a statistically significant positive relationship with user satisfaction; thus indicating that perceived security and reliability of providers are key factors in maintaining satisfaction.

Reward and Incentive Programs ($\beta = .099$, $t = 4.06$, $p<.001$) and Customer Support Experience ($\beta = .094$, $t = 6.82$) also had a positive contribution to the model and indicate that

both continued engagement of customers and responsive customer support experiences also contribute to retaining customers as satisfied mobile wallet users.

Perceived Ease of Use (β = .093, t = 1.54), although having a lower influence on user satisfaction than other variables included in the study, is still statistically significant at the .001 level, indicating that although users perceive ease of use as somewhat important, the primary factor influencing user perception of mobile wallet usability are likely to be the rapidity of transaction and trust of the provider after initial familiarity with mobile wallets.

Overall, this research confirmed that transaction speed, trust in provider and customer support were the three most powerful influences on user satisfaction, and that ease of use and rewards had lesser but complementary impacts on how users perceive mobile wallets.

Table 6: Hypothesis Testing

Predictor	Beta (Coef.)	t-value	p-value
PEoU	0.093	1.54	<0.001
TS	0.739	7.96	<0.001
TiP	0.258	3.03	>0.001
CSE	0.094	6.82	>0.001
RI	0.099	4.06	<0.001

Conclusion

The present study investigated key user satisfaction determinants of mobile wallet usage through a quantitative, scale-based analytical approach. The results indicated that transaction speed, trust in provider, reward and incentive programs and customer support experience are the strongest predictors of satisfaction, with perceived ease of use playing a comparatively moderate yet positive role. These elements reveal that post-adoption satisfaction is driven by usability but also by performance reliability, service assurance and value-added benefits.

The study contributes theoretically by integrating constructs from TAM, Expectation Confirmation Theory and SERVQUAL into a unified post-adoption satisfaction framework. This combined approach shows that satisfaction emerges both from the cognitive evaluations in terms of ease of use and trust and from the experiential factors like speed, support quality and rewards, thus extending traditional technology adoption models toward a more service-centric view of digital payment experiences.

For managers, the findings underscore that the most important concerns for fintech providers operating mobile wallets involve transaction speed, strengthening security and building trust, response to customer support and offering reward structures that would favorably lead to continuous interaction. By enhancing these dimensions, mobile wallet companies can decrease user friction, amplify perceived value and reinforce overall satisfaction and loyalty.

Overall, the research study provides empirical insights into factors that drive mobile wallet satisfaction and offers practical guidance for developers, service providers and policymakers working to build a more efficient and trusted digital payment ecosystem.

Limitations and Future Research Directions

A number of limitations should be taken into consideration when interpreting these results. First is the possibility of sample bias due to the snowball sampling approach, given that the participants were digitally active and from similar social or academic circles. In this regard, the sample may not be very representative because it cannot reflect the perceptions of underrepresented groups, including rural users, older populations, and those with low digital literacy.

Second, the study is limited to only one geographic context, which restricts generalizability. The ecosystem for mobile wallets varies quite considerably between countries regarding regulatory frameworks, technological infrastructure and cultural attitudes toward digital payments. Consequently, the findings may not have direct applicability to other national settings.

Third, while the constructs showed acceptable reliability, several KMO values were relatively low, indicating only moderate sampling adequacy for certain factors. This may indicate a need for better refinement of the items or larger and more diverse samples in the future to enhance construct validity.

These limitations should be addressed in future research through cross-country comparative studies that investigate the moderation effects of national contexts on user satisfaction determinants. Longitudinal research designs also allow the assessment of temporal variations in user satisfaction and validation of the measurement model with regard to stability. An expansion in sampling, including demographic and regional diversity, will add further strength and generalizability to any future results.

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