

Exploring Post-Adoption Behavior of the UPI users with Cognitive and Affective Factors

Sandeep Kaur¹, Dr. Rupinder Katoch², Dr. Avinash Rana³

¹Research Scholar, Lovely Professional University Phagwara
Punjab, India

Email: sksandeepmomi@gmail.com

²Associate Professor, Lovely Professional University, Phagwara
Punjab, India

Corresponding author

Email: rupinderkatoch@gmail.com

³Associate Professor, Lovely Professional University, Phagwara
Punjab, India

Email: avinash.21033@lpu.co.in

Abstract- The National Payments Corporation of India (NPCI) has invested a sizable amount of money in the country's massive payment infrastructure in an effort to enhance the user experience. However, in order for investments to be profitable, NPCI must guarantee the ongoing use of technological solutions and post-adoptive behaviors like continuance and recommendation intention. The impact of cognitive factors (i.e. Performance expectancy, effort expectancy, social influences, facilitating conditions; personal innovativeness) and affective factors (such as satisfaction) on conative factors (such as continuation and recommendation intention) in the perspective of UPI applications (apps) was investigated using the UTAUT model. Partial Least Square Structural Equation Modeling when applied on 651 users (PLS-SEM) showed that satisfaction had a direct impact on continuation intentions, which in turn had an impact on recommendations intentions. It was discovered that all cognitive factors, including performance expectations, effort expectations, and facilitating conditions, have an impact on satisfaction. According to the study, adding a significant individual difference variable—personal innovativeness with regard to information technology—would aid in our understanding of the role that these factors play in the development of continuous intention. It further examines the influence of trust and security, and the pace of innovation on continued intentions. Through the mediating function of user satisfaction, it also looked at the impact of performance expectancy, effort expectancy, social influence, facilitating variable, and personal innovativeness on the continuance intentions of the UPI system. All factors have been shown to be significant. Future researchers will find it extremely helpful that the study used a validated instrument to better understand user adherence and referral intentions. Therefore, this study adds to the limited body of knowledge in the payment industry literature by examining how users perceive UPI apps and post-adoption behaviors.

Keywords: Digital payments, UPI, Satisfaction, UTAUT, personal innovativeness, Continuance Intention.

I. Introduction

Every aspect of the economy is being impacted by digitization, including the way financial transactions are executed and processed. It is not surprising that health (e.g., Neilson & Sahay, 2022), governance (e.g., Upadhyay et al, 2022), and education (e.g., Arkorful and Abaidoo, 2015) are some of the areas where technologically-enabled communication processing capabilities have proved to be beneficial. Even the financial services industry is undergoing a major shift at the moment. Given the central role that digitization plays in the financial lives of an increasing proportion of the global population, electronic payments are at the heart of this transformation. To maintain growth in a competitive market and to encourage new entrants, the payments sector has been an early adopter of cutting-edge technologies and is continuously simplifying

processes, standardizing overall operations, and employing innovations. It is clear that utilizing appropriate technology will accelerate the growth of digital payments and open up access to financial services for previously underserved and untapped populations. The digital payment system is defined as doing transactions or payments for goods/services with a help of a digitalized system, eliminating the usage of cash or cheques (Kumar et al, 2020). Digital payments have become more popular in recent years because users and service providers can use data in more ways than ever, such as; images, audio, video, and sensors (Agarwal & Dhar, 2014). According to PwC `India's (2021) analysis of data from the Reserve Bank of India and National Payments Corporation of India, the Indian digital payments sector has experienced phenomenal growth in recent years, with the volume of transactions growing at an average CAGR of 23%. Unified Payments Interface (UPI) an innovative payment product

has put the digital payments industry on a clear path to growth. So, as the industry grows, we need to make sure that our current and future payment systems can offer value to all stakeholders while reducing risks. Academia is of the view that UPI can also curb the problem of Black money as economic activity becomes more transparent (Dixit et al., 2018).

II. Problem statement

Although there are benefits to information technology (IT) capabilities, these benefits accrue from actual usage. The underutilization (e.g., ineffectual or lacking use) of UPI, which is a major issue in the adoption and continuation of UPI, is unfortunately caused by a number of factors, including privacy and trust issues since UPI is vulnerable to attacks that have devastating implications (Kumar et al., 2020), and lack of innovativeness on the part of consumers, which is a valuable contributor to service value creation (Salim et al., 2020). The growth of digital payments has also led to numerous instances of failed payments due to infrastructure issues, network outages, server downtimes, and other technical issues, which in turn has a negative effect on customer satisfaction, confidence, and usage continuance (PWC, 2021). Moreover, the demand for higher-quality upgraded solutions is raised by the speed of technological advancement (Park and Koh, 2017). Consumers' willingness to use a certain innovation can be affected by their opinions of how slowly it is developing. Information systems studies in the past oftentimes assumed that customer experience is associated to the pace of technical innovation, but few of these studies have established any empirical support for this assumption (Byrne et al., 2017; Mani & Dhingra, 2012; Shehryar & Hunt, 2005). Recent academic research and corporate report have highlighted the prevalent issues in the context of UPI implementation in many countries (Madwanna et al., 2021; Khanra et al., 2020). Recognizing that underutilization of digital payments remains a barrier to realizing its full potential benefits, IT/IS researchers have acknowledged the need to explore the factors affecting UPI use in order to facilitate better technology implementation. Further, customer satisfaction with UPI is a key-dependent variable for investigation in the context of multiple stakeholders, because of its linkage to the continuation intentions of customers (Mubarokah & Hidayanto, 2020). Researchers have been attempting to determine what causes people's continued use of the technology and satisfaction with this IT adoption for many years (Venkatesh et al., 2003). The outcomes of this research are anticipated to offer insights that will be both beneficial and provocative in influencing

the payment industry. The statement of the research problem of the study can be stated as

“To study the factors which influence the user’s satisfaction of UPI based payment, to examine the impact of perceived security factors on users’ trust and their influence on intention to continue using UPI, to study the continuance and recommendation intentions of UPI system by users through the mediating role of users satisfaction and to finally to measure the impact of the pace of technology innovations and personal innovativeness on continuance intention.”

III. Theoretical framework

To enhance our awareness of post-adoption behaviours in the UPI context, this study evaluated the key drivers of continue usage and recommending intentions, both are two significant post-adoption behaviors. The study emphasizes the role of cognitive factors as a force behind behavior. Individuals are more likely to accept behaviors they believe will result in appreciated outcomes than those they do not see as having favorable outcomes. Further, affective, and conative reactions of individuals to technology were also studied to examine the factors that influence individuals’ reactions. The affective phase is defined as the user behaviours that reflect their individual feelings toward an object and how those feelings influence their behaviour (Pappas et al., 2016). Experts of information system domain have shown a great deal of interest in affective factors like satisfaction, which has also been the factor that has been used in continuance intention research most frequently. A deeper comprehension of the affective state will lead to practical implications for the development, acceptance, and management of communication and information (Zhang, 2013). Further, conative behaviour is incorporated in the study which is the the likelihood or tendency of an individual to act or exhibit a certain action (Wilkie, 1994). In this particular study, the conative phase factors include both the intention to continue and the intention to recommend. The present study uses these cognitive, affective and conative factors as a background for developing a comprehensive research framework in subsequent sections.

Hypothesis Development:

Affective Phase:

Users' satisfaction is measured by how happy they are with how well they understand a digital payment system (Rai et al., 2002). Customer satisfaction has an effect on a specific company's direct user experience, which may have a significant impact on the intention to continue adopting technology (Wang et al, 2019; Bhattacharjee & Hikmet,

2008). Prior research has shown that factors such as performance expectations, effort expectations, facilitating conditions, social influence, and individual creativity are crucial for boosting user satisfaction with a variety of e-commerce services. In the present study, five factors are included that influence the user satisfaction with UPI-based payment practices namely performance expectancy, effort expectancy, facilitating conditions, personal innovativeness, and social influence. The impact of these factors is analyzed on the user satisfaction of UPI-based payment practices. Performance Expectancy (PE) is defined as extent to which people believe that adopting that technology will assist them to complete their tasks. Perceived utility, relative advantage, job fit, extrinsic motivation, and outcome expectation are its five constructs (Venkatesh et al., 2003). It reflects the apparent benefits and utilities that can be expected from the adoption of technologies. According to Tam et al. (2018), performance expectancy was discovered to be a significant predictor of customer satisfaction and continued intention to use mobile technology (Marinkovic et al., 2020; Chong, 2013). In various studies PE have significant influence on customer satisfaction in various domains such as mobile apps (Tam et al., 2018), mobile shopping (Shang & Wu, 2017; Agrebi&Jallais, 2015), m-commerce (Chong, 2013; Marinkovic&Kalinic, 2017), mobile insurance (Lee et al., 2015) and mobile services (Rezaei & Valaei, 2017). Effort expectancy is the efforts used in an information system. Studies established a significant impact of EE on customer satisfaction in the m-commerce domains (Marinkovic&Kalinic, 2017; Marinkovic&Kalinic, 2020), m-insurance, and m-shopping (Shang & Wu, 2017; Agrebi&Jallais, 2015). (Lee, Tsao, Chang, 2015). Social Influence (SI) is the process by which individuals alter their beliefs, perspectives, or behaviour to accommodate the demands of the social environment and interpersonal relationships. SI influenced user satisfaction and their continuance intentions positively and significantly in mobile technology context (Hsiao et al., 2016; Marinkovic et al., 2020). Facilitating Conditions mean there is organisational and technical infrastructure support for using the system. Customer service, mobile devices, and an internet connection are considered to be facilitating conditions for using UPI services in this context. Prior studies found FC to have a positive influence on consumer satisfaction (Gholami et al,2012; Park, 2020). User satisfaction in massive open online courses was significantly impacted by facilitation conditions (Wan Liyong et al., 2020). Personal innovativeness has been considered to be a user's attitude toward embracing new technology and can be described as the personality trait. According to Khan et al. (2019) there are positive and significant effects of individual creativity,

the calibre of digital capital, and the general usability of the digital information on user satisfaction. We assume that these five variables are zero-order and reflective in nature and that they have an impact on users' satisfaction using UPI services. The following hypotheses are put forth to investigate the impact of satisfaction:

H1a: "Performance Expectancy is positively related to UPI payment service satisfaction of users."

H1b: "Effort Expectancy is positively related to UPI payment service satisfaction of users."

H1c: "Social Influence is positively related to UPI payment service satisfaction of users."

H1d: "Facilitating Conditions are positively related to UPI payment service satisfaction of users."

H1e: "Personal innovativeness is positively related to UPI payment service satisfaction of users."

Conative Phase:

Consumers will probably keep using mobile payment technologies as long as their needs are met as effectively as possible. The majority of researchers have focused on satisfaction as the motivator of continuance behavior (Rajeh et. al. 2021). Several studies (e.g., Zhou, 2011; Deng et al., 2010; Lee et al., 2007) have found that satisfaction influences how likely people are to continue using IT. Moreover, many studies have found customer satisfaction to mediate the relationship of performance expectancy, effort expectancy, facilitating conditions, personal innovativeness, social influence with continuation intention (Soon et al., 2016). Trust, Security, and Pace of Innovation further explored as antecedents to conative factor viz. and Continuance Intention. Trust can be defined as the state of people's beliefs about reliable and capable behaviour (Grazioli&Jarvenpaa, 2000; Gefen, 2000). Furthermore, Trust has been established as a new UTAUT variable that reflects users' subjective perceptions of security in the face of risk and uncertainty and that significantly impacts their behavioural intentions. (Khalilzadeh et al., 2017; Shao et al., 2018). Meantime, trust found as an important determinant of users' continuance intentions of using mobile technologies (Hung et al., 2012; Gao et al., 2015; Zhou, 2013). Among Chinese consumers, trust was discovered to be the most important determinant of m-commerce continuation intentions (Chong 2013). The quality of security available will also influence users' decision to use any digital payment system. The security of digital payments influenced their continued use (Huang, 2012). Pace of Innovation is the frequency at which new advancements/technological developments take place. Users are more ready to stick with new features offered by digital payment systems (Cabanillas

et al., 2017, Sandeep & Rupinder, 2022). When compared to other technologies, UPI is moving quickly in India, with advancements happening frequently. According to Engestrom et al. (1998), the innovative nature is a reflection of active cognitive thinking. Personal innovativeness should therefore play a significant role in influencing post-adoption continuance decisions regarding UPI services. UPI users who are more innovative, tolerant, and confident in their ability to adapt to frequent changes are more likely to maintain usage. Further, experts have investigated the relationship between continued usage intention and word of mouth in different domain including transportation self-service terminals, mobile banking, and Web2.0 (Chen et al., 2012, choi et al., 2015, sheikh & Karjaluo, 2016). The term "recommendation intention" refers to a user's willingness to recommend a product or service to other users. A study of Chen et al. (2012) established that WOM has a significant effect on continuance intention with Web 2.0. This study considers recommendation intent to be an important aspect of an information system and investigates its factors in context of UPI service. Given the continuing interest of users and the contradictory findings, the following hypothesis are framed:

H2: "Customer satisfaction with UPI is positively associated with continuance intention of using UPI."

H3: "User satisfaction mediates the relationship between PE, EE, SI, FC, PI and continuance intentions in UPI platforms"

H4: "Security in UPI is positively associated with users' trust in UPI."

H5: "Security in UPI is positively associated with continuance intention of using UPI."

H6: "Trust is positively related to continuance intention."

H7: "Continuance intention is positively related to recommendation intention."

H8: "Pace of Innovations is positively related to continuance intention"

H9: "Personal Innovation is positively related to continuance intention"

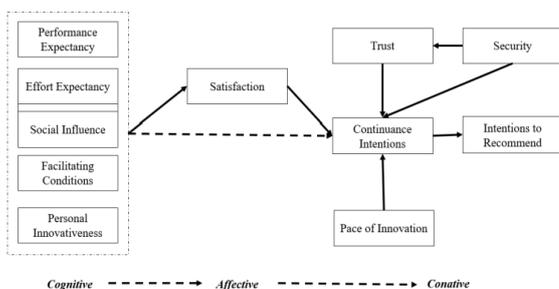


Figure 1- conceptual framework

IV. Research methodology

Data Collection: This study adapted items from previously validated measures for use within the framework of IT/IS in order to ensure the validity and reliability of the questionnaire. To evaluate performance expectancy, effort expectancy, social influence, and facilitating conditions, we used the questions from Venkatesh et al. (2003). In order to analyze personal innovativeness and continuance intention, as well as the pace of innovation, we employed the items from (Grewal et al., Kim et al., 2007 and Indrawati, 2018). To test respondents' intention to recommend and satisfaction, we modified Gupta et al. (2020), Goldsmith and Hofacker (1991), and Hofacker et al., (2004) to study needs. We used a Likert seven-point scale to take the measurements of all items. Ambiguous items were examined twice before being included in an online survey: during the expert review and the pilot trial. Five experts were invited to the first stage to check that the measuring tools suited the UPI context and examine the tools to ensure that they appropriately reflected the model. The style of writing and viability of the measurement tools of the constructs have fitted the context of UPI and are correct, according to all specialists. In the second stage, we conducted pilot research with 79 respondents and changed unclear items in response to issues found. There were two sections to the questionnaire. The demographics of this study, including age, gender, and occupation, were first described. The research model's chosen constructs are measured in the second portion. Finally, 651 individuals who have used UPI apps were surveyed online between September 2021 and March 2022.

The demographic traits that we estimated are shown in Table 1 below. Males made up 57.3% of all respondents, while females 42.7% of all participants. 39.8% of participants were under the age of 30, 42.5% were between the ages of 31 and 45, and 17.7% were over the age of 45. The majority of participants in this study (83.5%) were workers. The participants are mostly from urban areas.

Table 1: Demographic profile of respondents

Gender	Frequency	Percentage (%)
Male	373	57.3
Female	278	42.7
Age		
Less than 30 years	259	39.8
31-45 years	277	42.5
More than 45 years	115	17.7
Occupation		

Service class- (Employees)	279	42.9
Businessmen	110	16.9
Professional-(CA, DR., Lawyers etc.)	58	8.9
Retired people	49	7.5
Student	155	23.8
Location		
Rural	151	23.2
Urban	500	76.8

the structural model. PLS-SEM was executed using three step approach; first a measurement model is developed to establish reliability and validity of items and constructs used in the model; second, structural path modeling was done using PLS bootstrap procedure recommended by the existing researchers (Hair et al., 2013). Third, this study tested the mediating function of satisfaction using the bootstrapping analysis method. Table 2 contains the means and standard deviations for each construct. Based on the sample examination, we evaluate each construct's validity, reliability. The validity of the questionnaire's content is guaranteed because every scale is based on previously conducted research. The reliability of the questionnaire is supported by Cronbach's alpha and composite reliability, both of which are greater than 0.7 (Goldsmith and Hofacker, 1991). Additionally, all factor loadings over 0.7 demonstrate the strong convergent validity of our scales. Average variance extracted from all constructs (AVE) was higher than the permitted level.

V. Data Analysis and Results

This study used a three-step analysis procedure to test the given hypotheses. First, a confirmatory factor analysis was performed in this study using SPSS Statistics 25 to test the measurement model. Second, this work employed the structural equation model technique using SmartPLS to test

Table 2: Results of Constructs Validity and Reliability

Construct	Item Code	Mean	SD	Loadings	CA	CR	AVE
Continuance Intention	CI1	4.91	1.612	0.85	0.912	0.912	0.636
	CI2	4.81	1.568	0.758			
	CI3	4.79	1.567	0.72			
	CI4	4.72	1.542	0.772			
	CI5	4.73	1.496	0.762			
	CI6	4.97	1.717	0.907			
Effort Expectancy	EE1	4.90	1.545	0.797	0.908	0.908	0.664
	EE2	5.02	1.550	0.807			
	EE3	4.92	1.620	0.814			
	EE4	4.86	1.660	0.83			
	EE5	4.70	1.605	0.825			
Facilitating Conditions	FC1	5.33	1.513	0.782	0.864	0.864	0.56
	FC2	5.21	1.495	0.799			
	FC3	5.03	1.625	0.709			
	FC4	5.11	1.499	0.713			
	FC5	5.11	1.575	0.734			
Performance Expectancy	PE1	5.15	1.641	0.823	0.891	0.893	0.625
	PE2	5.01	1.558	0.755			
	PE3	5.04	1.620	0.722			
	PE4	4.85	1.583	0.807			
	PE5	5.09	1.642	0.84			
Personal Innovativeness	PII1	4.86	1.690	0.79	0.882	0.881	0.554
	PII2	4.30	1.700	0.665			
	PII3	4.73	1.675	0.8			
	PII4	4.63	1.612	0.695			
	PII5	4.73	1.592	0.757			
	PII6	4.90	1.661	0.749			
Pace of	POI1	4.85	1.644	0.821	0.918	0.918	0.652

Innovation	POI2	4.77	1.676	0.772			
	POI3	4.59	1.602	0.786			
	POI4	4.74	1.669	0.818			
	POI5	4.66	1.668	0.805			
	POI6	4.68	1.636	0.841			
	Intention to Recommend	RI1	5.03	1.528	0.848	0.904	0.904
RI2		4.96	1.593	0.826			
RI3		5.07	1.529	0.821			
RI4		5.17	1.568	0.855			
Satisfaction	SAT1	5.13	1.498	0.83	0.892	0.893	0.625
	SAT2	5.03	1.560	0.72			
	SAT3	4.96	1.519	0.801			
	SAT4	5.13	1.519	0.775			
	SAT5	5.10	1.589	0.823			
Social Influence	SI1	4.67	1.670	0.853	0.912	0.912	0.676
	SI2	4.57	1.640	0.805			
	SI3	4.67	1.655	0.915			
	SI4	4.98	1.657	0.785			
	SI5	4.57	1.677	0.742			

Discriminant validity “is the degree to which a construct can truly be distinguished from other constructs.” (Hair et al 2013). Discriminant validity establishes the uniqueness of a construct. In order to ensure the presence of discriminant validity, the AVE of each construct should be greater than

its MSV estimate and the square root of AVE should be greater than the correlation of each construct with the remaining construct. The constructs' strong discriminant validity is demonstrated in Table 3.

Table 3: Discriminant validity (Fornell- Lacker)

	CI	EE	FC	RI	POI	PE	PI	SAT	SI
CI	0.797								
EE	0.624	0.815							
FC	0.662	0.685	0.749						
RI	0.761	0.569	0.567	0.837					
POI	0.75	0.802	0.657	0.66	0.807				
PE	0.518	0.647	0.64	0.512	0.624	0.791			
PI	0.677	0.605	0.601	0.599	0.632	0.561	0.744		
SAT	0.696	0.638	0.644	0.594	0.66	0.643	0.578	0.791	
SI	0.451	0.633	0.61	0.492	0.559	0.543	0.521	0.505	0.822

Table 4 and Fig. 2 display the findings of the hypothesis testing, including standardized path.

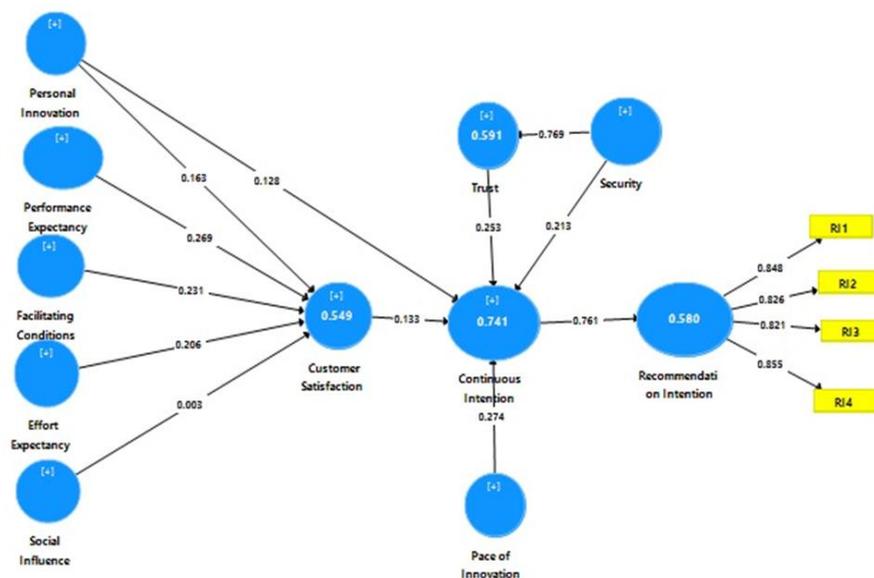


Figure 2: Results of hypothesis testing

Table 4: Results of the Hypotheses Testing.

Hypothesis	Endogenous Construct	Exogeneous Construct	Path Coefficients	Standard Deviation	T Stats	R ²	Result
“Effort Expectancy is positively related to user satisfaction.”	Customer Satisfaction	EE	0.206	0.063	3.269***	0.549	Supported
“Facilitating Conditions is positively related to user satisfaction”		FC	0.231	0.058	3.982***		Supported
“Performance Expectancy is positively related to user satisfaction”		PE	0.269	0.054	4.981***		Supported
“Personal Innovativeness is positively related to user satisfaction”		PI	0.163	0.053	3.075***		Supported
“Social Influence is positively related to user satisfaction”		SI	0.003	0.047	0.063		Not Supported
“Security in UPI is positively associated with continuance intention of using UPI”	Continuance Intention	Security	0.213	0.066	3.227***	0.741	Supported
“Trust is positively related to continuance intention”		Trust	0.253	0.065	3.892***		Supported
“The individuals’ pace of innovation has a positive and		Pace of Innovation	0.274	0.05	5.48***		Supported

significant effect on their continuous intention to use UPI”							
“Personal innovativeness is positively related to continuance intention.”		Personal Innovativeness	0.128	0.043	2.976***		Supported
“Customer Satisfaction is positively related to continuance intention.”		Customer Satisfaction	0.133	0.034	3.911***		Supported
“Continuance intention is positively related to Recommendation intention.”	Recommendation intention	Continuance Intention	0.761	0.039	19.512***	0.58	Supported
“Security is positively related to Trust.”	Trust	Security	0.769	0.028	27.464***	0.591	Supported

The results of the SEM analysis supported the hypothesis that “Selected factors (performance expectancy, effort expectancy, facilitating conditions, personal innovativeness and social influence) significantly influence the user satisfaction of UPI based payment practices” for the factors performance expectancy, effort expectancy, facilitating conditions, and personal innovativeness. According to path analysis, it can be concluded that all variables of the UTAUT model except social influence, and personal innovativeness have emerged as statistically significant antecedents of satisfaction in the research. The strongest influence was that of performance expectancy on satisfaction as it is evident from the path coefficients of the different factors influencing the user satisfaction of UPI based payment practices (performance expectancy = 0.269, effort expectancy = 0.205, facilitating conditions = 0.229, personal innovativeness = .0165). The results indicate that the user satisfaction towards the UPI payments can be explained by around 55 % with the help of this model. The table also reported the path coefficients of the different factors influencing the user continuance intention of using UPI based payment practices (security = .351, trust = .511; and path coefficient of security factor that affects trust is .769). Thus, it can be concluded that the selected factors security and trust significantly influenced on intention to continue using UPI and security also influenced users trust using UPI significantly. The results indicate that the continuance intentions towards the UPI payments can be

explained by around 66% (security and trust) with the help of this model. The table also reported the path coefficients of the pace of innovation = .459 and personal innovativeness = .414 influencing the user continuance intention of UPI based payment practices. Thus, it can be concluded that the selected factors pace of innovation and personal innovativeness significantly influenced the user continuance intention of using UPI based payment practices. Constant professional growth and progressing training are essential for successful and well-organized use ICT environment, digital and mobile learning resources (Camilleri&Camilleri, 2016; Prensky, 2005).

The results indicate that user satisfaction in UPI context has a significant effect on continuance intentions of users ($\beta = 0.133$, $p = 0.000$). Similarly, a positive and significant effect of continuance intentions on recommendation intentions is also confirmed ($\beta = 0.761$, $p = 0.000$). The results suggest that UPI user satisfaction is important for the continued use of payment platform, making it clear that service providers will have to work on customer satisfaction continuously. If service failures and other hindrances are there, users might switch to other alternatives. Similarly, to get recommendations from existing users it is vital to keep them using the payment platforms. It is quite natural because people usually recommend the product and services with they are currently using and are satisfied with.

Table 5: Bootstrapping analysis of the mediation effect of satisfaction.

Type of Effect	Relationship	Standardized Coefficient	P value	Remarks
Total Effect	Performance Expectancy □ Continuance intention	0.518	12.974***	Significant total effect
	Effort expectancy □ Continuance intention	0.626	16.748***	
	Social Influence □ Continuance intention	0.452	11.618***	
	Facilitating Conditions □ Continuance intention	0.664	19.844***	
	Personal Innovativeness □ Continuance intention	0.677	18.960***	
Indirect Effect	Performance expectancy □ User satisfaction □ Continuance intention	0.398	10.599***	Significant indirect effect found
	Effort expectanc □ User satisfaction □ Continuance intention	0.32	9.142***	
	Social Influence □ User satisfaction □ Continuance intention	0.317	8.75***	
	Facilitating Conditions □ User satisfaction □ Continuance intention	0.295	8.321***	
	Personal Innovativeness □ User satisfaction □ Continuance intention	0.265	7.470***	
Direct Effect	Performance Expectancy □ Continuance intention	0.12	2.630***	Significant direct effect found
	Effort expectancy □ Continuance intention	0.306	6.211***	
	Social Influence □ Continuance intention	0.135	3.003***	
	Facilitating Conditions □ Continuance intention	0.369	7.164***	
	Personal Innovativeness □ Continuance intention	0.413	7.654***	

Results of Table 5 supported the hypothesis that “User Satisfaction from using UPI- based payment system significantly mediates between social influence and continuance intention to use”. The mediation effect of user satisfaction is tested with the help of Baron & Kenny method and Bootstrapping algorithm in SMART-PLS software. The result of the mediation test indicates that the total effect of the performance expectancy, effort expectancy, facilitating conditions, social influence, and Personal Innovativeness on continuance intention is 0.518 (t stats = 12.974), 0.626(t stats = 16.748), 0.452 (t stats = 11.618), 0.664 (t stats = 19.844), 0.677(t stats = 18.960) respectively, significant at 5 % level of significance. Further, the indirect effect of performance expectancy, effort expectancy, facilitating conditions, social influence, and Personal Innovativeness on continuance intention from the mediating construct “user satisfaction” is found to be 0.398 (t stats = 10.599**), 0.32 (t stats = 9.142), 0.317 (t stats = 8.75), 0.295(t stats = 8.321), 0.265(t stats = 7.470) respectively, significant at 5 % level of significance. Thus, user satisfaction plays a significant mediating role between performance expectancy, effort expectancy, facilitating conditions, social influence, and Personal Innovativeness and continuance intention. To find out the nature of mediation, whether partial or full, the direct effect of

Performance expectancy, effort expectancy, facilitating conditions, social influence, and Personal Innovativeness on continuance intention is examined. The direct effect of performance expectancy on continuance intention is found to be 0.120 (t stat = 2.632), 0.306(t stat =6.211), 0.135(t stat =3.003), 0.369(t stat =7.164), 0.413(t stat =7.654) respectively significant at 5 % level of significance. Thus, the mediation effect of user satisfaction is said to partial in nature varying from moderately strong to very strong. This means that the performance expectancy, effort expectancy, facilitating conditions, social influence, and Personal Innovativeness of a UPI-based payment system not only influences the continuance intention directly, but also influences indirectly from user satisfaction.

Importance-performance analysis (IPMA)

In addition to measurement model assessment and path modeling, SmartPLS provided extended features such as IPMA (Importance Performance analysis) that takes the performance of each construct into account. It provides a very informative two-dimensional analysis of “importance” and “performance” of each construct used in structural model, which is particularly important for prioritizing managerial actions (Ringle&Sarstedt, 2016). Since continuous intentions are at the helm of the present study it

is selected as a variable of interest (target construct). Figure 4.9 provides a visual map of latent constructs along four quadrants (each quadrants represents a relative degree of performance and importance. Along with that, table 4.24 provides the scores for both dimensions. It is clear from the analysis that Trust has emerged as a significant factor on both dimensions (Imp- 0.268; Perf- 68.571), followed by Security (Imp- 0.372, Perf- 63.536). This means that a one-unit increase in the performance of trust in the UPI platform increases the intention to continue the total effect's value, which is 0.372, assuming ceteris paribus. Another significant construct that is important to induce continuance intentions among customers is pace of innovation (Imp- 0.25; Perf- 61.912). These are the factors which the managers should continue to develop and improve.

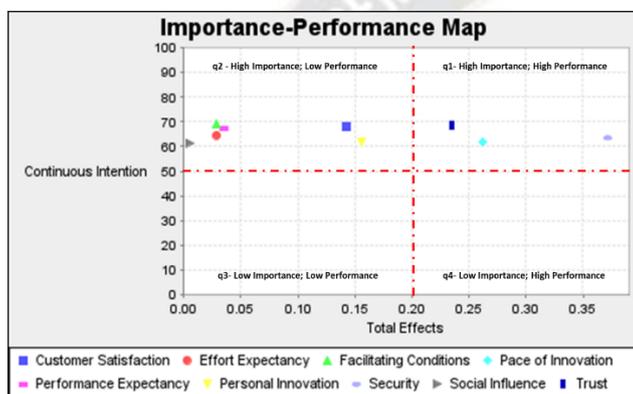


Figure 4.9: Importance performance map

Table 4.24: IPMA results for CI

Latent Variable	Continuous intentions	
	Total Effects (Importance)	Index Value (Performance)
Customer Satisfaction	0.147	67.870
Effort Expectancy	0.028	64.649
Facilitating Conditions	0.031	69.392
Pace of Innovation	0.250	61.912
Performance Expectancy	0.035	67.126
Personal Innovation	0.157	61.718
Security	0.372	63.536
Social Influence	0.005	61.530
Trust	0.268	68.571

VI. Practical implications of the study

In all business/commercial domain, technology plays a critical role. It is argued in this study that the application of appropriate technology is likely to aid in the development of digital payment services thereby, making financial services available to neglected and ignored segments of the population. The study has revealed various factors that should be considered not only in academic research but also in UPI service development by service providers. The results of the study will be vital for UPI service providers and banking institutions to provide targeted services to their users. The UPI service providers should focus on performance and effort expectations, facilitating conditions that enhance user satisfaction since a negative user encounter advances to a lack of desired post-adoptive behavior (i.e., continued intention and recommendations).

So as to enhance perceived security and trust, UPI service providers ought to look up their data protection methods, security of the system, transparent privacy, refund strategies, and confirmation messages after the transaction. UPI service providers should use a safe, secure, and trustworthy system so that unstudied intervention into the system can be prevented. If UPI service providers offer security and stability, updated and accurate information, and their services are of high quality that fulfil the user's expectations, they can minimize the user's uncertainties and build trust in UPI services. UPI service providers must provide good firewall technology to protect users' interests so that the privacy of their data can be maintained or data cannot be tempered. Such secrecy issues may be associated with collection and use of personal information of users. To strengthen the security and trust in electronic payments, it's necessary to protect the users of UPI technically.

Further, while UPI transactions are done on a digital platform, they involve the exchange of personal information, so UPI service providers must implement sophisticated encrypted methods for data protection not only during, but when it is stored on the system. In addition, verification methods on smartphones like fingerprint and face recognition are also helpful in making UPI transactions safe and more reliable in users' perception. The UPI service providers must provide advanced technology and infrastructure on the UPI platform. The effective and well-organized usage of UPI services is contingent on both ongoing professional development and progressive implementation on a continuous basis.

VII. Theoretical implications of the study

The UTAUT model has been extended with additional variables such as personal innovativeness, the

pace of innovation, trust, security, continuance intentions, and intention to recommend. All the variables are described and classified into three components depending on the contextual setting *viz.* Cognitive (PE, SI, EE, FC, PI, POI, TR and SEC), affective (SAT), and Conative Factors (CI and IR). First, this study expands technology adoption theory by incorporating not only system-specific factors (PE, EE, FC) focusing on systems' features but also on potential determinant factors under individual contexts such as personal innovativeness which might also influence the affective constructs such as satisfaction which the information science (IS) researchers have been particularly interested in.

The UPI post-adoption research framework is further augmented by another cognitive component of disposition, trust, a psychological element that proved to be an important and distinct construct in explaining user behaviour. In general, cognitive trust is individual beliefs about reliability, dependability, and competence in absence of which a person does not feel driven toward that behavior (Perkins et. al., 1993). Furthermore, the model attempts to capture conative behavior which can be best described as the likeliness or propensity of a person to act or demonstrate certain actions (Wilkie, 1994). Conative behaviour, in other words, is an outward manifestation of a user's expressed intent that symbolizes the likeliness of acting in a special manner (Kim et al., 2013). Present research encompasses continuance intention and Intention to recommend as conative stage factors. In addition to continued use, this study includes the construct of Intention to recommend. Intention to recommend acts as a means of knowledge for several other customers, and it is frequently regarded as more reliable and has a bigger influence on a company's standing (Kim & Kim, 2010). Therefore, a comprehensive study framework has been drawn connecting user satisfaction, continuance intention, and intention to recommend.

The study suggests six potential determinant factors that should be taken into consideration when examining the recommendation intentions. In the perspective of UPI, the envisaged extensive research framework is empirically examined. The results provide support for the framework's validity and reliability. As a result, it is possible to argue that this comprehensive empirical structure could be used as a tool for investigating key variables in the decision to continue and recommend UPI and its related innovations. The Study has extended the UTAUT framework with additional variables in the UPI context. While the UTAUT model focuses on user IT acceptance in an enterprise context, the researchers have used the validated constructs from this model and extended the same to the UPI scenario. This study examines the impact of performance expectancy,

effort expectancy, social influence, facilitating conditions, and personal innovativeness on consumers' satisfaction. It examines the influence of trust and security, personal innovativeness, and pace of innovation on continued intentions. It also examined the influence of performance expectancy, effort expectancy, social influence, facilitating conditions, and personal innovativeness on the continuance intentions of the UPI system through the mediating role of user satisfaction. All variables have proved to be significant. The study has used the validated instrument which will be extremely useful for future researchers in understanding the users' retention and recommendation intentions.

VIII. Future scope for research and limitations

The use of predefined scales restricts the interpretation of the results and does not allow for an in-depth exploration of the issue, it is possible that future research will be able to resolve all of these problems by employing a qualitative methodology for the investigation and by favoring open-ended interrogations on UPI usage preferences. It is possible to use several affective, cognitive, and conative factors that are specific to UPI applications by asking questions about the reasons for satisfaction or dissatisfaction, continuation or discontinuation, recommendation or no recommendation. These factors can then be incorporated into future post-adoption models. Future research questions may embrace: "Why would you continue the use?" "Why would you discontinue use?" and "What factors would cause you to continue or discontinue use?" etc. Additionally, this research considered general users of UPI payment system. In future research the user behavior can be studied in more targeted user groups such as: a) commercial and non-commercial users; frequent and infrequent users; young adult users and senior citizens; user and non-users. Similarly, comparative studies can be done between diverse locales (such as rural and urban). This would not only validate the existing model but also give insight into usage, penetration and cultural influences. As present research uses a cross-sectional research design, it is limited by data collected at a single point of time. However, in future research longitudinal research designs can be implemented to better understand and examine and evaluate user behavior over a longer time period. Future research can also examine the proposed model. This study was planned in pre-pandemic (COVID-19) period, therefore could not incorporate it as an influencing factor. Future research can look at payment adoption and usage in light of sudden changes in business/social environment.

IX. Conclusion

Even though there is a lot of research on pre-adoption behaviour intentions in a variety of technology contexts,

there isn't much research on post-adoption behaviour, especially on how the technology is used continuously and how it is shared with other users. The contemporary literature also indicates that the prevailing acceptance frameworks are fragmented and are largely limited by technology typology and geographical locales (Arbain et al., 2018; Llewellyn & Brown, 2020). Moreover, the findings from existing studies are not easy to generalize as some research studies include only a few variables and completely disregard others. As a result, an extensive research framework that encompasses all potential facets has been used to properly understand post-adoption behaviors. This study investigated the cognitive, affective, and conative framework to evaluate technology usage that affect users' post-adoption continuation and recommendation intentions. PLS-SEM was used to test the postulated conceptual model. Since the study's focus is on the explanation and prediction of selected variables, PLS-SEM is the appropriate approach for this (Hair et al., 2014). The results indicate that satisfaction has significant impact on the intention to continue suggesting that users' first need is to be satisfied with the UPI in order to continue using and recommending the app. Companies developing smartphone apps for the payments sector must make user satisfaction their top priority. Managers who do not prioritise user satisfaction risk having an app that is downloaded just once before being deleted, as well as a capital investment that has not resulted in the enhanced user experience they had hoped for. The theoretical model also found support for the hypotheses based on personal innovativeness, the pace of technology innovation, trust, and security factors influencing the continuation intention of using UPI based payment practices. A thorough discussion on all the proposed hypotheses of the model suggests that cognitive and affective variables impact the conative process (behavioural intention) of user behaviour.

References

- [1]. Agarwal, R., & Dhar, V. (2014). Editorial —Big Data, Data Science, and Analytics: The Opportunity and Challenge for IS Research. *Information Systems Research*, 25(3), 443–448. <https://doi.org/10.1287/isre.2014.0546>
- [2]. Agrebi S, Jallais J. Explain the intention to use smartphones for mobile shopping. *Journal of Retailing and Consumer Services*. 2015;22:16-23. doi:10.1016/j.jretconser.2014.09.003
- [3]. Al-Marroof S Rana, Alhumaid K, Salloum S. The Continuous Intention to Use E-Learning, from Two Different Perspectives. *Education Sciences*. 2020;11(1):6. doi:10.3390/educsci11010006
- [4]. Arfi WB, Nasr IB, Kondrateva G, Hikkerova L. The role of trust in intention to use the IoT in eHealth: Application of the modified UTAUT in a consumer context. *Technological Forecasting and Social Change*. 2021;167:120688. doi:10.1016/j.techfore.2021.120688.
- [5]. Arkorful, V., & Abaidoo, N. (2015). The role of e-learning, advantages and disadvantages of its adoption in higher education. *International journal of instructional technology and distance learning*, 12(1), 29-42.
- [6]. Bhattacharjee A. Understanding Information Systems Continuance: An Expectation-Confirmation Model. *MIS Quarterly*. 2001;25(3):351. doi:10.2307/3250921
- [7]. Byrne, D., Oliner, S. D., & Sichel, D. E. (2017). Prices of high-tech products, mismeasurement, and the pace of innovation. *Business Economics*, 52(2), 103–113. <https://doi.org/10.1057/s11369-017-0034-4>
- [8]. Camilleri MA. Measuring the hoteliers' interactive engagement through social media. In 14th European Conference on Innovation and Entrepreneurship (ECIE2019), University of Peloponnese, Kalamata, Greece 2019 Sep 19.
- [9]. Camilleri, M. A., & Camilleri, A. C. (2017). Digital learning resources and ubiquitous technologies in education. *Technology, Knowledge and Learning*, 22(1), 65-82.
- [10]. Cao X, Yu L, Liu Z, Gong M, Adeel L. Understanding mobile payment users' continuance intention: a trust transfer perspective. *Internet Research*. 2018;28(2):456-476. doi:10.1108/IntR-11-2016-0359
- [11]. Chao CM. Factors determining the behavioral intention to use mobile learning: An application and extension of the UTAUT model. *Frontiers in psychology*. 2019;10:1652.
- [12]. Chen, S.-C., Yen, D. C., & Hwang, M. I. (2012). Factors influencing the continuance intention to the usage of Web 2.0: An empirical study. *Computers in Human Behavior*, 28(3), 933- 941
- [13]. Choi, M., Han, K., & Choi, J. (2015). The effects of product attributes and service quality of transportation card solutions on service user's continuance and word-of-mouth intention. *Service Business*, 9(3), 463–490. <https://doi.org/10.1007/s11628-014-0235-0>
- [14]. Chong AYL. Predicting m-commerce adoption determinants: A neural network approach. *Expert Systems with Applications*. 2013;40(2):523-530. doi:10.1016/j.eswa.2012.07.068
- [15]. Deng, Z., Lu, Y., Wei, K. K., & Zhang, J. (2010). Understanding customer satisfaction and loyalty: An empirical study of mobile instant messages in China. *International journal of information management*, 30(4), 289-300.
- [16]. Dixit, S., Maurya, M., Sharma, N., & Zaidi, N. (2022). Payments Process Privilege: Leveraging Fintech with TAM. *2022 8th International Conference on Advanced Computing and Communication Systems (ICACCS)*, 1668–1673. <https://doi.org/10.1109/ICACCS54159.2022.9785136>

- [17]. Engeström, Y. (1987). An activity-theoretical approach to developmental research. *Learning by Expanding*.
- [18]. F. Hair Jr, J., Sarstedt, M., Hopkins, L., & G. Kuppelwieser, V. (2014). Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research. *European Business Review*, 26(2), 106–121. <https://doi.org/10.1108/EBR-10-2013-0128>
- [19]. Faaeq MK, Alqasa K, Al-Matari EM. Technology adoption and innovation of E-Government in Republic of Iraq. *Asian Social Science*. 2014;11(3):135-45.
- [20]. Fornell C, Larcker DF. Structural Equation Models with Unobservable Variables and Measurement Error: Algebra and Statistics. *Journal of Marketing Research*. 1981;18(3):382-388. doi:10.1177/002224378101800313.
- [21]. Fouillet C, Guérin I, Servet JM. Demonetization and digitalization: The Indian government's hidden agenda. *Telecommunications Policy*. 2021;45(2):102079. doi:10.1016/j.telpol.2020.102079
- [22]. Gao L, Waechter KA, Bai X. Understanding consumers' continuance intention towards mobile purchase: A theoretical framework and empirical study – A case of China. *Computers in Human Behavior*. 2015; 53:249-262. doi:10.1016/j.chb.2015.07.014
- [23]. Gholami R, Ogun A, Koh E, Lim J. Factors affecting e-payment adoption in Nigeria. *Journal of Electronic Commerce in Organizations (JECO)*. 2010;8(4):51-67.
- [24]. Godambe AC. Unified Payments Interface (UPI)-Advantages and Challenges. *International Research Journal of Engineering and Technology*. 2020; 7(12): 971-973
- [25]. Goldsmith RE, Hofacker CF. Measuring consumer innovativeness. *Journal of the academy of marketing science*. 1991 Jun;19(3):209-21.
- [26]. Hair JF, Hult GTM, Ringle CM, Sarstedt M, Danks NP, Ray S. *Partial Least Squares Structural Equation Modeling (PLS-SEM) Using R: A Workbook*. Springer International Publishing; 2021. doi:10.1007/978-3-030-80519-7.
- [27]. Han DI, tom Dieck MC, Jung T. User experience model for augmented reality applications in urban heritage tourism. *Journal of Heritage Tourism*. 2018;13(1):46-61.
- [28]. Hsiao CH, Chang JJ, Tang KY. Exploring the influential factors in continuance usage of mobile social Apps: Satisfaction, habit, and customer value perspectives. *Telematics and Informatics*. 2016;33(2):342-55.
- [29]. Hung, M. C., Yang, S. T., & Hsieh, T. C. (2012). An examination of the determinants of mobile shopping continuance. *International Journal of Electronic Business Management*, 10(1), 29.
- [30]. Kamboj S, Joshi R. Examining the factors influencing smartphone apps use at tourism destinations: a UTAUT model perspective. *IJTC*. 2021;7(1):135-157. doi:10.1108/IJTC-05-2020-0094.
- [31]. Khanra, S., Joseph, R. P., Dhir, A., & Kaur, P. (2020). Antecedents of the Barriers Toward the Adoption of Unified Payment Interface. In S. K. Sharma, Y. K. Dwivedi, B. Metri, & N. P. Rana (Eds.), *Re-imagining Diffusion and Adoption of Information Technology and Systems: A Continuing Conversation* (Vol. 618, pp. 608–625). Springer International Publishing. https://doi.org/10.1007/978-3-030-64861-9_53
- [32]. Kim DJ, Kim GJ (2010) A comparative study between product and service for process to form intent of repeat-visit and word-of-mouth: case of family restaurants in Daegu region. *Korean J Hotel Adm* 19(3):131–146
- [33]. Kim J, Lee KS. Conceptual model to predict Filipino teachers' adoption of ICT-based instruction in class: using the UTAUT model. *Asia Pacific Journal of Education*. 2020 Jun 20:1-5.
- [34]. Kim MJ, Chung N, Lee CK, Preis MW. Motivations and Use Context in Mobile Tourism Shopping: Applying Contingency and Task-Technology Fit Theories: Motivations and Use Context in Mobile Tourism Shopping. *International Journal of Tourism Research*. 2015;17(1):13-24. doi:10.1002/jtr.1957
- [35]. Kim S, Bae J, Jeon H. Continuous Intention on Accommodation Apps: Integrated Value-Based Adoption and Expectation–Confirmation Model Analysis. *Sustainability*. 2019;11(6):1578. doi:10.3390/su11061578.
- [36]. Kim, Y. H., Kim, D. J., & Wachter, K. (2013). A study of mobile user engagement (MoEN): Engagement motivations, perceived value, satisfaction, and continued engagement intention. *Decision Support Systems*, 56, 361–370. <https://doi.org/10.1016/j.dss.2013.07.002>
- [37]. Kumar A, Upadhyay P, Sharma SK, Gupta P. Role of Intrinsic and Extrinsic Factors Affecting Continuance Intentions of Digital Payment Services. In: Sharma SK, Dwivedi YK, Metri B, Rana NP, eds. *Re-Imagining Diffusion and Adoption of Information Technology and Systems: A Continuing Conversation*. Vol 618. IFIP Advances in Information and Communication Technology. Springer International Publishing; 2020:544-555. doi:10.1007/978-3-030-64861-9_48
- [38]. Kuo YF, Wu CM, Deng WJ. The relationships among service quality, perceived value, customer satisfaction, and post-purchase intention in mobile value-added services. *Computers in human behavior*. 2009;25(4):887-96.
- [39]. Leavitt C, Walton J. Development of a scale for innovativeness. *ACR North American Advances*. 1975.
- [40]. Lee CY, Tsao CH, Chang WC. The relationship between attitude toward using and customer satisfaction with mobile application services: An empirical study from the life insurance industry. *Journal of Enterprise Information Management*. 2015;28(5):680-697. doi:10.1108/JEIM-07-2014-0077
- [41]. Li H, Liu J, Zhang D, Liu H. Examining the relationships between cognitive activation, self-efficacy, socioeconomic status, and achievement in

- mathematics: A multi-level analysis. *British Journal of Educational Psychology*. 2021;91(1):101-26.
- [42]. Li W, Xue L. Analyzing the Critical Factors Influencing Post-Use Trust and Its Impact on Citizens' Continuous-Use Intention of E-Government: Evidence from Chinese Municipalities. *Sustainability*. 2021;13(14):7698. doi:10.3390/su13147698.
- [43]. Liang TP, Lai CY, Hsu PH, Chiu CM, Hsieh CT. Factors affecting satisfaction and brand loyalty to smartphone systems: a perceived benefits perspective. *IJMC*. 2018;16(5):513. doi:10.1504/IJMC.2018.094353
- [44]. Liébana-Cabanillas F, Marinković V, Kalinić Z. A SEM-neural network approach for predicting antecedents of m-commerce acceptance. *International Journal of Information Management*. 2017;37(2):14-24.
- [45]. Llewellyn, R. S., & Brown, B. (2020). Predicting adoption of innovations by farmers: What is different in smallholder agriculture?. *Applied Economic Perspectives and Policy*, 42(1), 100-112.
- [46]. Lu J. Are personal innovativeness and social influence critical to continue with mobile commerce? *Internet Research*. 2014;24(2):134-159. doi:10.1108/IntR-05-2012-0100
- [47]. Madwana, Y., Khadse, M., & Chandavarkar, B. R. (2021). Security Issues of Unified Payments Interface and Challenges: Case Study. *2021 2nd International Conference on Secure Cyber Computing and Communications (ICSCCC)*, 150–154. <https://doi.org/10.1109/ICSCCC51823.2021.9478078>
- [48]. Mani, S., & Dhingra, T. (2012). Diffusion of innovation model of consumer behaviour – Ideas to accelerate adoption of renewable energy sources by consumer communities in India. *Renewable Energy*, 39(1), 162–165. <https://doi.org/10.1016/j.renene.2011.07.036>
- [49]. Marinković V, Đorđević A, Kalinić Z. The moderating effects of gender on customer satisfaction and continuance intention in mobile commerce: a UTAUT-based perspective. *Technology Analysis & Strategic Management*. 2020;32(3):306-318. doi:10.1080/09537325.2019.1655537
- [50]. Marinković V, Đorđević A, Kalinić Z. The moderating effects of gender on customer satisfaction and continuance intention in mobile commerce: a UTAUT-based perspective. *Technology Analysis & Strategic Management*. 2020;32(3):306-18.
- [51]. Mishra, KD. A Review on Unified Payment Interface [UPI]. *International Research Journal of Engineering and Technology*. 2017;4(6): 5620-5623
- [52]. Mubarakah, I., & Hidayanto, A. N. (2020, November). Analysis of Continuance Use Intention and Satisfaction on Implementation of ALKI (Internal Activity Report Application) in Ministry of Industry. In *2020 International Conference on Informatics, Multimedia, Cyber and Information System (ICIMCIS)* (pp. 307-312). IEEE.
- [53]. Nielsen, P., & Sahay, S. (2022). A critical review of the role of technology and context in digital health research. *DIGITAL HEALTH*, 8, 20552076221109554. <https://doi.org/10.1177/20552076221109554>
- [54]. Olatubosun O, Madhava Rao KS. Empirical study of the readiness of public servants on the adoption of e-government. *International Journal of Information Systems and Change Management*. 2012;6(1):17-37.
- [55]. Pappas, I. O., Kourouthanassis, P. E., Giannakos, M. N., & Chrissikopoulos, V. (2016). Explaining online shopping behavior with fsQCA: The role of cognitive and affective perceptions. *Journal of Business Research*, 69(2), 794–803. <https://doi.org/10.1016/j.jbusres.2015.07.010>
- [56]. Park, K., & Koh, J. (2017). Exploring the relationship between perceived pace of technology change and adoption resistance to convergence products. *Computers in Human Behavior*, 69, 142-150.
- [57]. Perkins, D. N., Jay, E., & Tishman, S. (1993). Beyond Abilities: A Dispositional Theory of Thinking. *Merrill-Palmer Quarterly*, 39(1), 1–21. <http://www.jstor.org/stable/23087298>
- [58]. Plotzky C, Lindwedel U, Sorber M, et al. Virtual reality simulations in nurse education: A systematic mapping review. *Nurse Education Today*. 2021;101:104868. doi:10.1016/j.nedt.2021.104868.
- [59]. Prensky, M. (2005). Computer games and learning: Digital game-based learning. *Handbook of computer game studies*, 18, 97-122
- [60]. Putra RL, Setiawan M, Hussein AS, Yuniarinto A. Perceived Digital Value Toward Continuous Intention to Use Among Mobile Payment Users During Pandemic Outbreak. *Frontiers in Psychology*. 2022;13.
- [61]. PwC (2021), Report, *The Indian payments handbook – 2021–2026*.
- [62]. Rai, A., Lang, S. S., & Welker, R. B. (2002). Assessing the validity of IS success models: An empirical test and theoretical analysis. *Information systems research*, 13(1), 50-69
- [63]. Rezaei, S., & Valaei, N. (2017). Branding in a multichannel retail environment: Online stores vs app stores and the effect of product type. *Information Technology & People*, 30(4), 853–886. <https://doi.org/10.1108/ITP-12-2015-0308>
- [64]. Safeena R, Kammani A, Date H. Exploratory Study of Internet Banking Technology Adoption: *International Journal of E-Services and Mobile Applications*. 2017;9(2):23-43. doi:10.4018/IJESMA.2017040102
- [65]. Salim, T. A., El Barachi, M., Onyia, O. P., & Mathew, S. S. (2020). Effects of smart city service channel-and user-characteristics on user satisfaction and continuance intention. *Information Technology & People*
- [66]. Sandeep kaur and Rupinder Katoch. Factors Influencing Continuance Intentions of Unified Payment Interface (UPI) users, 19 August 2022, PREPRINT (Version 1) available at Research Square [<https://doi.org/10.21203/rs.3.rs-1966920/v1>]
- [67]. San-Martin S, Jimenez N, Liebana-Cabanillas F. Tourism value VS barriers to booking trips online.

- Journal of Retailing and Consumer Services. 2020;53:101957.
- [68]. Saparudin M, Rahayu A, Hurriyati R, Sultan Mokha, Ramdan AM. Consumers' Continuance Intention Use of Mobile Banking in Jakarta: Extending UTAUT Models with Trust. In: *2020 International Conference on Information Management and*
- [69]. Sarabadani J, Jafarzadeh H, ShamiZanjani M. Towards Understanding the Determinants of Employees' E-Learning Adoption in Workplace: A Unified Theory of Acceptance and Use of Technology (UTAUT) View. *International Journal of Enterprise Information Systems (IJEIS)*. 2017;13(1):38-49.
- [70]. Saxena S. Role of "perceived risks" in adopting mobile government (m-government) services in India. *Foresight*. 2018;20(2):190-205. doi:10.1108/FS-08-2017-0040.
- [71]. Setiani N, Aditya BR, Wijayanto I, Wijaya A. Acceptance and Usage of Bibliographic Management Software in Higher Education: The Student and Teacher Point of View. In: *2020 IEEE Conference on E-Learning, e-Management and e-Services (IC3e)*. IEEE; 2020:55-60. doi:10.1109/IC3e50159.2020.9288437
- [72]. Shaikh, A. A., & Karjaluo, H. (2015). Mobile banking adoption: A literature review. *Telematics and informatics*, 32(1), 129-142.
- [73]. Shang D, Wu W. Understanding mobile shopping consumers' continuance intention. *IMDS*. 2017;117(1):213-227. doi:10.1108/IMDS-02-2016-0052
- [74]. Shao Yeh Y, Li Y. Building trust in m-commerce: contributions from quality and satisfaction. *Online Information Review*. 2009;33(6):1066-1086. doi:10.1108/14684520911011016.
- [75]. Shao, Z.; Zhang, L.; Li, X.; Guo, Y. Antecedents of Trust and Continuance Intention in Mobile Payment Platforms: The Moderating Effect of Gender. *Electron. Commer. Res. Appl.* 2018, 33, 100823. [CrossRef]
- [76]. Shehryar, O., & Hunt, D. M. (2005). Buyer behavior and procedural fairness in pricing: Exploring the moderating role of product familiarity. *Journal of Product & Brand Management*, 14(4), 271-276. <https://doi.org/10.1108/10610420510609294>
- [77]. Sreejesh S, Sarkar JG, Sarkar A. Digital healthcare retail: role of presence in creating patients' experience. *IJRDM*. 2022;50(1):36-54. doi:10.1108/IJRDM-12-2020-0514.
- [78]. Susanto A, Chang Y, Ha Y. Determinants of continuance intention to use the smartphone banking services: An extension to the expectation-confirmation model. *Industrial Management & Data Systems*. 2016;116(3):508-25.
- [79]. Tan GW, Ooi KB. Gender and age: Do they really moderate mobile tourism shopping behavior? *Telematics and Informatics*. 2018;35(6):1617-42.
- [80]. *Technology (ICIMTech)*. IEEE; 2020:50-54. doi:10.1109/ICIMTech50083.2020.9211188
- [81]. Turan A, Tunç AÖ, Zehir C. A theoretical model proposal: Personal innovativeness and user involvement as antecedents of unified theory of acceptance and use of technology. *Procedia-Social and Behavioral Sciences*. 2015;210:43-51.
- [82]. Upadhyay, P., Kumar, A., Dwivedi, Y. K., & Adlakha, A. (2022). Continual usage intention of platform-based governance services: A study from an emerging economy. *Government Information Quarterly*, 39(1), 101651. <https://doi.org/10.1016/j.giq.2021.101651>
- [83]. Usman O, Monoarfa T, Marsofiyati M. E-Banking and mobile banking effects on customer satisfaction. *Accounting*. 2020;6(6):1117-28.
- [84]. Venkatesh V, Morris MG, Davis GB, Davis FD. User acceptance of information technology: Toward a unified view. *MIS quarterly*. 2003:425-78.
- [85]. Wan L, Xie S, Shu A. Toward an understanding of university students' continued intention to use MOOCs: When UTAUT model meets TTF model. *Sage Open*. 2020;10(3):2158244020941858.
- [86]. Wan, L., Xie, S., & Shu, A. (2020). Toward an understanding of university students' continued intention to use MOOCs: When UTAUT model meets TTF model. *Sage Open*, 10(3), 2158244020941858.
- [87]. Wang, W. T., Ou, W. M., & Chen, W. Y. (2019). The impact of inertia and user satisfaction on the continuance intentions to use mobile communication applications: A mobile service quality perspective. *International Journal of Information Management*, 44, 178-193.
- [88]. Wilkie, W. L. (1994). *Consumer behavior*. Wiley.
- [89]. Wong CH, Tan GW, Tan BI, Ooi KB. Mobile advertising: the changing landscape of the advertising industry. *Telematics and Informatics*. 2015;32(4):720-34.
- [90]. Zhang, P. (2013). The Affective Response Model: A Theoretical Framework of Affective Concepts and Their Relationships in the ICT Context. *MIS Quarterly*, 37(1), 247-274. <https://doi.org/10.25300/MISQ/2013/37.1.11>
- [91]. Zhou T, Lu Y, Wang B. Integrating TTF and UTAUT to explain mobile banking user adoption. *Computers in Human Behavior*. 2010;26(4):760-767. doi:10.1016/j.chb.2010.01.013.