






User's Continuance Intention Towards Digital Payments: An Integrated Tripod Model DOI, TAM, TCT

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Abstract. Technology advancement have revolutionalised the financial service sector. Digital payment have motivating paperless, faceless and cash less transactions strengthening the country's economic growth. Access to financial services is deemed as one among the key factors to socioeconomic resilience in the pandemic period. Pandemic has catalysed the access and usage of financial services across the world transforming the way people made and received payments or borrowed and saved. Experts predicted that epidemic has accelerated adoption of digital platforms at rapid speed and repetitive usage could lead to continuance usage, but there is lack of study in discussing the motivators that leads to user's continuance intention. Hence, the study aims to undertake an empirical analysis and synthesise the users continuance usage of digital payments post pandemic with integration of tripod theories, namely technology acceptance model (TAM), Technology continuance model (TCT) and Diffusion of Innovation (DOI). Factors like perceived usefulness, perceived ease of use, confirmation, Compatibility, and trialability as the functions of satisfaction and continuance intention were considered. The study followed a quantitative research design approach, using a survey method data was collected from 250 respondents in Bengaluru. The research model was tested using SEM analysis. The findings of the study reveal that all the factors have a positive association with the user's intention to continue using digital payments.

Keywords: Continuance intention · Digital payments · SEM analysis

1 Introduction

Fintech is a fast-shepherding industry equipped with technology and swift processes, it is synthesis of finance and technology. Fintech has empowered consumers to access advanced financial services like online savings and investments, online payments, mobile payments, Peer to peer lending (P2P), Government to people (G2P), budgeting and financial planning, crowdfunding, Xie et al. (2021); smart contracts, robo advisors, e-aggregators, block chain technology, cloud computing, big data, etc., D Acunto et al.

(2019); Belanche et al. (2019). It is supplemented with a constellation of technologies that include internet, mobile networks, cloud computing, data analytics, big data, and artificial intelligence (AI), Horner and Cunnane (2017). Internet and Mobile Association of India (IAMA)-Kantar, based on ICUBE 2021 reported that usage of internet in rural India grew to 37% in 2021 from 31% in 2020, but urban India internet usage remained 66% and 69% since 2019. The concept of digital payment in India started flourishing through the launch of "Digital India" mission in the year 2016 motivating paperless, faceless and cash less transactions and strengthening the country's economic growth. Access to financial services is deemed as one among the key factors to socioeconomic resilience in the pandemic period, Al Nawayseh (2020); Karusala et al. (2019). It is a game changer that ensured a comprehensive economic growth during the pandemic. Pandemic had a negative impact on most industries, every other industry experienced a slump in the growth, but fintech boomed as covid protocols like curtailed physical movement, lockdowns, social distancing, etc., encouraged contactless transactions. The pandemic has given a push to the adoption of digital payments, as it created an instantaneous need for both online and offline transactions. According to Pwc study, 2021 the global cashless payments increased by 42%. Pandemic has catalysed the acceptance and usage of financial services across the world transforming the way people made and received payments or borrowed and saved.

Digital payments enable electronic mode of making payments, facilitating users transfer funds amid transaction accounts through electronic accounts, traditional banking accounts or any other payment instruments. Digital payments are based on mobile wallets which replicate the physical wallets in mobile devices like smart phones and tablets, Mumtaza et al. (2020); Kaur et al. (2020), provide provisions to transfer from person to business transfers (online or offline purchases), government to person, person to person and other forms of payment Bills /fees/penalty and many more, Nofie Iman (2018). With this backdrop, the study aims to undertake an empirical analysis and synthesise the attitude of users for continuance usage of digital payments post pandemic. Considering this discussion, the present study deems it suitable to take on a review of available literature to understand the results proved, identify the limitations and the research design suitable for the research before further empirical research and is presented as background and hypothesis development for proposed model in the Sect. 2; Sect. 3 reveals the methodology used in conducting the research; Sect. 4 discusses analysis of data and discussion; Sect. 5 unveils the conclusion, implications followed by directions for future research.

2 Background and Hypothesis Development

Technology acceptance model (TAM) descends from TRA (Theory of reasoned action) proposed by Fishbein et al. (1975). TAM, Davis (1989) one of the robust and most dominant theories of technology/innovation acceptance, Venkatesh et al. (2000). The theory established the causal association between perceived usefulness (PU), perceived ease of use (PEOU) with user's intention to use. Researchers have always proposed additional variables to TAM strengthening TAM. Extended TAM 2 incorporated wide range of external factors like social and cognitive factors, Venkatesh (2000). The Diffusion

innovation theory, Rogers (2003) represents as one of the most powerful theory in the literature of innovation adoption and used by most researchers to find insights on various technology contexts. Technology continuance theory (TCT) probes continuance intention of users towards technology/innovation; it encompasses factors embedded in TAM, ECM and cognitive model (COG), Liao et al. (2009); Expectation confirmation Model (ECM), Bhattacharjee (2001), evaluates three important determinants of technology continuance intention like confirmation, the perceived usefulness and the satisfaction.

2.1 Hypothesis Development for the Proposed Model

Using the theoretical background of tripod models namely, TAM, DOI and TCT, the study framed a research model that recognises some drivers and inhibitors of digital payment continuance intention. The basic notion hypothesised in the proposed research model is that digital payment user's continuance intention is determined in association with the perceived usefulness, the perceived ease of use, confirmation, Compatibility, and trialability, as the functions of satisfaction and continuance intention. Firstly, TAM elements namely, perceived ease of use and perceived usefulness are incorporated in the integrated model. Secondly, confirmation, satisfaction and continuance intention factors of TCT are featured. Finally compatibility and trialability factors of DOI are integrated.

Hypothesis Development

Confirmation is described as “realisation of expected benefits”, (Bhattacharjee 2001). There are numerous studies that examined the association between the confirmation and satisfaction of technology user, Hoehle et al., 2012; researchers like Zhou et al. (2018); Foroughi et al. (2019) established the association between confirmation and user's satisfaction. Likewise, studies by hoehle et al. (2012); Albuhi and Abdallah (2018), recognised significantly influence of confirmation and perceived usefulness on continuance intention of users. Hence, analysing the relationship between confirmation and satisfaction is relevant Perceived usefulness (PU) refers to the subjective assessment of users in understanding if the technology or system enhance job performance, Davis et al. (1989). It describes the magnitude to which the user trust that the technology could be a driving force in achieving his/her goals. PU affects the user's perceptions on satisfaction during acceptance or post acceptance phase, Bhattacharjee (2001b). Previous studies have reliably explained the positive association between perceived usefulness and satisfaction, Chen et al. (2013); Tam C et al. (2018); Dai et al. (2020). Perceived ease of use (PEOU) is the degree of conviction that users experience in using a technology effortless, Davis (1989). Studies relevant to Information technology unveils that perceived ease of use (PEOU) as a critical influencer on user's satisfaction, Shin et al. (2011); Joo et al. (2018). Hence, examining the perceived usefulness and perceived ease of use and its association with satisfaction is relevant. Trialability defines the degree to which the people deliberate that before adopting innovation they need to experience. With reference to the present study trialability implies how users view digital payments,

this is highly influenced by observability, Y H Lee (2007). Studies in the area of TAM and DOI has significant effect on PU on the observability, M M Yang (2007); L Y Huang (2004). Lin et al. (2017) supported empirically trailability and users intention. There seems to be scarcity in the literature integrating this concept, so the Traibility factor was included in the study. Compatibility envisages the fact that the technology/innovation is attuned with social/cultural values and beliefs, previously introduced ideas and with client needs.

Studies opined that innovations that exhibit a higher compatibility and enables user's social and personal prominence are more likely to be acknowledged, Zilkepli et al. (2015). Covid-19 context digital payments have gained wide acceptance and adopted as it perceived compatibility where social distancing was highly encouraged, Sharma D et al. (2021). Earlier studies have deliberated the association between compatibility and behavioural intention, Lin T T C et al. (2017); but there are no studies incorporating the association of compatibility on satisfaction of users that leads to continuance usage. Hence, the study included Compatibility as inhibitor in the study. Satisfaction refers to the cumulative feelings due to multiple reactions in different contexts, San Martin et al. (2013). If users are not satisfied with the technology/system they discontinue its usage. Studies have revealed that satisfaction is one the key determinant of continuance usage, Zhou (2014); Lee et al. (2015). Based on the past literature, the study predicts a positive impact of satisfaction on user's continuance usage. The prevailing literature on user's continuance intention to use is evidenced that it is mainly influenced by satisfaction, Chen (2012). Wang et al. (2019) established the presence of significant impact between satisfaction and users intention to continue usage. With this back ground seven Hypothesis were framed and tested.

H1: Confirmation has a positive impact on satisfaction of users.

H2: Perceived usefulness has a positive impact on satisfaction of users.

H3: Perceived ease of use has a positive impact on satisfaction.

H4: Trailability has a positive impact on satisfaction.

H5: Compatibility has positive impact on satisfaction.

H6: Satisfaction has a positive impact on continuance intention.

2.2 Proposed Model

The casual relationship among the constructs is integrated into the proposed model and presented in the Fig. 1.

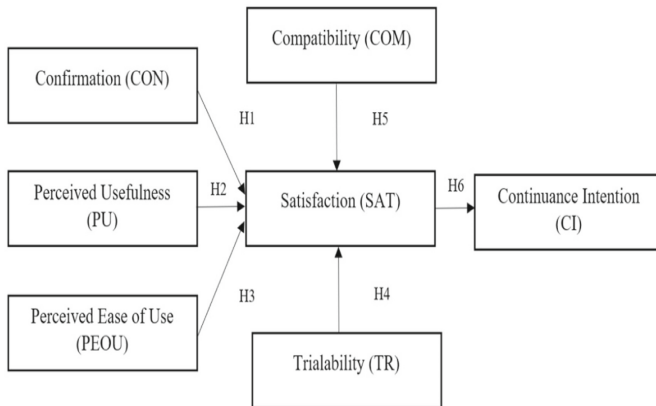


Fig. 1. A Tripod model of digital payment acceptance and continuance intention

3 Methodology

This study employed an exploratory one, used a survey method to test the hypothesis formulated in the previous section, the subsequent section discusses about the questionnaire development and data collection. The questionnaire entails two sections, the first part measures demographic aspects of the respondents, and the second part measures constructs using a five-point Likert's scale, anchored at 1 as strongly disagree and 5 as strongly agree to test theoretical model proposed. The constructs were adapted into digital payment continuance intention context. Four items measuring each perceived usefulness and perceived ease of use were adapted from Samar et al. (2017), three items measuring confirmation was adapted from Bhattacharjee (2001), Two items measuring compatibility and three items measuring trailability was included in the questionnaire; Three items measuring continuance adoption was adapted from Ghani et al. (2017).

As the research conducts is a multivariate analysis, the sampling size was derived at least 5 to 10 times the number of constructs, as suggested by Sugiyono (2018). The sample was chosen in the area of Bengaluru city, a sample of 280 respondents were provided with questionnaire through Google forms and social media platforms like WhatsApp and Instagram. 260 samples were received out of which 10 samples were rejected due to missing values and 250 samples were used for study. The demographic analysis in terms of gender and age showed that about 62.03% of them were male and 37.97% were female. Majority of them were in the age group of 21 and 30 (43.4%), 19.3% were below 20, and 37.3% of the respondents were in the age group above 30.

4 Data Analysis and Discussion

The hypothesis set were tested in three stages, firstly using SPSS 24.0 the instruments was tested for reliability to measure. Secondly, CFA was measured to check the indicator loadings for convergent and discriminant validity. Finally, SEM evaluated the coefficients of determination (R²), the path coefficients to arrive at the results and suggest implications. The Cronbach alpha estimated the reliability of the measures, and the values for

the constructs gratified the cut-off of 0.70, J C Nunnally et al. (1884); Gefen et al. (2000) satisfying the adequate levels of reliability.

CFA and SEM Analysis

SEM analysis a multivariate statistical tool, that accommodates multiple interrelated dependence among the constructs in a model, J F Hair et al. (1998); J Anderson (1998) is used in the study. All the constructs of the model's factor loading signposts that all the loading are significant to their respective factors with p values < 0.05 at 5% LoS. The proposed model fit indices bared an overall fit and is statistically and theoretically fit. The fit measures valued are presented in the below table (Table 1).

Table 1. Results of model fit indices

χ^2	P	GFI (Goodness of fit index)	AGFI (Adjusted Goodness of fit index)	CFI (Comparative fit index)	IFI (Incremental fit index)	RMR (Root mean square residual)
232.764	< 0.05	0.870	0.850	0.918	0.913	0.052

The Fig. 2 represents the SEM analysis integrating TAM, DOI and TCT with the result. The seven hypothesis relationship between the constructs are tested and the results of the relationship is significantly supported.

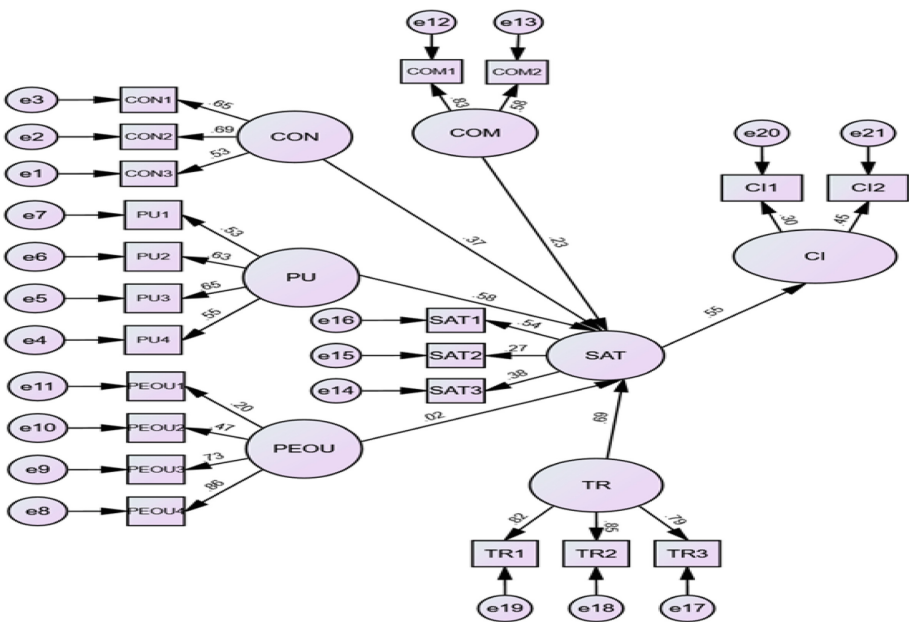


Fig. 2. SEM-Tripod model of digital-payment acceptance and continuance intention

5 Result Discussion

Confirmation and Satisfaction Towards Digital-Payment System

The one of the features in e-payment system Confirmation has an influence towards customer satisfaction with β value 0.37 and p is less than 0.05 of e-payment system. The respondent's perceived experience regarding using of e-payments was better option for them during the Covid-19, which was more than what they expected, the features of e-payments such as cash back offer, redeemable coupons, extended warranties, freebies, and discount offers meet the respondent's expectation and confirms their satisfaction. This result support the study by various researchers (Rahi 2020; Foroughi, 2019) proved that confirmation affects user's satisfaction. The majority of e-wallet applications offer a user-friendly design that makes it easy for users to understand how each feature works (Puspitasari 2021). These characteristics validate users' expectations of an electronic wallet, which impact user attitudes, perceived app benefits, and general contentment.

Perceived Usefulness and Satisfaction Towards Digital-Payment System

Customers' perceived usefulness of e-payment system shows a positive influence towards customer satisfaction with β value 0.58 and p is less than 0.05 of e-payment system. There are many useful attributes of e-payment system satisfies the respondents. It helps them to track their spending through e-payments, it generates the financial report and further helps them to manage their personal finance very effectively. In line with earlier studies, the researcher found that perceived usefulness significantly influenced users' satisfaction. Further, it suggests that consumers' continued usage of digital wallets is determined by their attitude toward them and their perception of their utility, Daneji (2019). According to earlier research, perceived utility and PEOU are the one of the most significant predictors of a respondent's attitude and intention to engage in a given behaviour, Davis (1989); Vijayasathy (2004).

Perceived Ease of Use and Satisfaction Towards Digital-Payment System

The perceived ease of use e-payment system influences customer satisfaction with β value 0.37 and the $p < 0.05$. Various benefits of e-payments such as very easy to use, how convenient they are, and how easily they can be handled, influence respondents' satisfaction with them. This finding conflicts with the findings of a research by Daragmeh et al. (2021) who discovered insignificance between customers' perceived ease of use and their happiness with the use of e-wallets. According to some of the other studies, perceived ease of use is one of the primary influences on behaviour when it comes to the adoption of information systems (Davis, 1989). According to Velicia-Martin et al., COVID-19 affected respondents' decision to use a mobile app that showed whether or not they had contact with COVID-19-infected people.

Compatibility and Satisfaction Towards Digital-Payment System

Compatibility of e-payments, influences customer satisfaction with β value 0.23 ($p < 0.05$). As, the features in e-payment systems are makes the people comfortable in their daily financial transactions, further it is suitable for their lifestyle. These kind of comfortable features influences the respondents towards the satisfaction of e-payments. The

result of the study lines are supported by a research (Sebetci, 2018) on customer satisfaction through technology compatibility, which is considered that one of the important factors influencing overall satisfaction, was technology compatibility.

Trialability and Satisfaction Towards Digital Payment System

Trialability of e-payments influences customer satisfaction with β value of 0.69 ($p < 0.05$). COVID-19, pushed the people to use e-payment system in their day to day life. The trialability features such as “respondents’ wish to e-payments option for a certain period of time”, “to test some features of e-payment system during the trial period” and “Based on trial, it helps the respondent to decide whether to use the option or not” influenced them to accept and satisfy with the new technology. The result of the study is in the line with the earlier study (Puspitasari, 2021), proved that increased trialability increases consumer satisfaction. A fully functional application is available in the trial version for the customer to test before deployment. It is anticipated that the user would be satisfied with the e-wallet programme when he or she chooses to use it.

Satisfaction on Usage of Digital Payments and Continuance Intention

One of the key ideas in accepting any technology is satisfaction, which is described as the reaction of users to a technology. Users’ intentions to continue using any technology are influenced by their contentment with prior usage and the technology’s perceived value. The result of the path satisfaction towards e-payments influences the customer to show continuance intention towards its usage with the β value of 0.55 ($p < 0.05$) of e-payment system. Most of them started using this e-payments and made it as their daily habit. This finding was substantiated by a research provided by Basak and Calisir (2015).

6 Conclusion

The present study aimed to investigate the user’s continuance intention towards digital payments with integration of tripod models namely, TAM, TCT and DOI. A schematic review of literature suggested existence of several studies on initial adoption of technology/innovation from various contexts. Post-adoption behaviour is yet to be tested. Thus, the study anticipated a cohesive model to explore the continuance intention among the users towards the digital payments. The new proposed model was verified with the SEM analysis. The study verdict suggests user’s continuance intention is jointly anticipated by perceived usefulness, perceived ease of use, confirmation, compatibility, and trialability positively influenced satisfaction, leading the users intention. However, the study has few limitations, the study outcomes cannot be generalised for external validity as the results were derived from a single study and specific region because of differences in culture, a research in future determining if verdict of the study could be generalised is suggested. Also, future studies can include user’s personal characteristics and feelings like innovative marketing that could impact user’s continuance intention. A follow up study could be conducted in future with moderating variables to analyse the moderating or mediating effect.

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