Integrated Model of UTAUT2 and TRI to Assess the Perception of Users towards EPS

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Abstract

Now-a-days EPS has become a very easy and well accepted mode of making the transactions or payment in which the user can make a payment by using internet. With the evidence of the pandemic, EPS systems got more and more popular amongst the Indian consumers and most of the payments were being done through digital mode by using EPS. During the Covid-19 pandemic, electronic payment systems and online markets have been considered as the most fast-growing sectors. The study was conducted with an intention to know the impact of Technology readiness on the PE and EE and the impact of the various dimensions of UTAUT2 on the perception towards EPS. In order to fulfill the objective initially confirmatory factor analysis was done considering TRI and UTAUT2 the structure equation modeling was done. The impact on the perception of EPS has been studied with the model developed. It was found from the studies that PE, EE have been significantly influenced by the optimism and innovativeness and in turn all the other dimensions of UTAUT2 are found to be significantly impacting the perception towards the usage of EPS.

Keywords: - EPS, UTAUT2, TRI, Adoption of Technology, Covid-19

Introduction

It is evident that there has been a substantial growth in the usage of Internet commerce in human life activities. With the development of internet, technology has made it accessible to anyone via browser or mobile phone. This is because the mobile has been not limiting itself to just communication but also can be used as a device to pay bill, buy goods or services (Bezhovski, 2016; Hassan et al., 2020; Yu et al., 2002). Now-a-days EPS has become a very easy and well accepted mode of making the transactions or payment in which the user can make a payment by using internet.

Electronic payment systems (EPS) or Digital payment refers to "the electronic consumer transactions, where in the payments for goods and services are done through the internet, mobile payments at point-of-sale (POS), through mobile apps and peer-to-peer transfers between private users and consumers" (Bezhovski, 2016; Hassan et al., 2020; Khamis et al., 2022; Yu et al., 2002). Transaction using the EPS are majorly done by using the credit cards as these online transactions need not require physical presence or credit card (Hassan et al., 2020). Electronic payment systems (EPS) or Digital payment refers to "the electronic consumer transactions, where in the payments for goods and services are done through the internet, mobile payments at point-of-sale (POS), through mobile apps and peer-to-peer transfers between private users and consumers". Having established a direct link between Digital India and the demonetarization the government of India has advanced towards a cashless economy. The aim of this concept is to connect the India with high-speed Internet network (Midha, 2016).

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The Government of India also took the initiatives to ensure that there is a wide popularity of these EPS amongst the masses, so that Digital India campaign can be a success. Initially EPS were used for e-commerce, but later these platforms are being widely used of transferring the payment and making online as well as paying the bills etc. With the evidence of the pandemic, EPS systems got more and more popular amongst the Indian consumers and most of the payments were being done through digital mode by using EPS. During the Covid-19 pandemic, electronic payment systems and online markets have been considered as the most fast-growing sectors (Athique, 2019; Nedungadi et al., 2018).
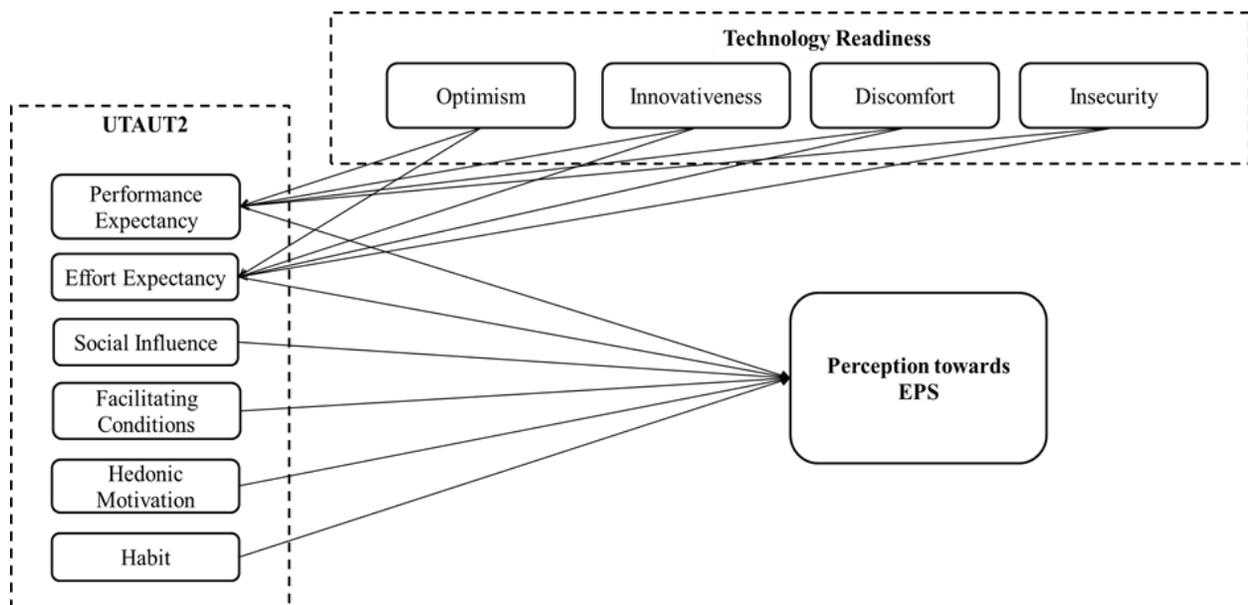
Literature Review

The study intends to find out the relationship between UTAUT2 and the perception of users on EPS. Extant studies have proved that there is a relationship between PU on EPS security and customers' PI. Further, cost of using and perceived security are valuable additions to the old-fashioned UTAUT2 model, while PI is a key predecessor to users' actual usage of e-cash (Qu et al., 2022). Study conducted by (Rahadi et al., 2022) found that performance expectancy, social influence, and facilitating conditions impacted the AU of e-payment. But it was also revealed that, EE was not significant with the actual usage. Performance expectancy has been considered as significant in building perception towards EPS and extant studies have shown that PE has impacted the usage of EPS (Rahadi et al., 2022). PE denotes to "the degree to which an individual perceives that using a system will help him or her to attain a gain in job performance". Extant studies have proved that there exists a positive relationship between optimism and Facilitation conditions and performance expectancy in case of E-fashion retailing (Qasem, 2021). Another study conducted by (Al-Dmour et al., 2021) revealed that ease of use and PU are the key determinants of adoption of EPS. A study on block chain technology found that except social Influence all other predictors were namely performance & effort expectancy, facilitating condition, optimism, innovativeness, discomfort, and insecurity were influencing the intention behavior of user in accepting blockchain technology (Ng & Siew Hoong Lee, 2021). Further, PEOU too has a significantly indirect effect, through EPS security, on e-com customers PI. Additionally, understanding the usability and the ease of the security aspects of the payment influences e-com consumers' PI. Similarly, another study where the two models were integrated as TRUTAUT model has clearly indicated that that there exists a relationship between the PE, FC and EE and optimism (Napitupulu et al., 2020). (Lubis & Irawan, 2020) indicated that EE, FC, habit, compatibility, and security perceived technology are significant factors that influence customers' intention to adopt Gopay in Indonesia. Also, the outcomes given an increased awareness of security in the electronic transactions (Noor Ardiansah et al., 2020). Some studies have taken demography as a key variable and found that the research shows that adoption readiness, internet banking and income, impact usage behavior, and education and age indirectly influence on adoption of EPS (Chaveesuk et al., 2019; Sikdar et al., 2019). (Indrawati & Putri, 2018) found that factors influence intention of usage and adoption of Go-Pay are dependent on Habit, Hedonic Motivation, and Social Influence, money Saving Orientation, Trust, and PE. Similarly in India too it was found that PE, SI, EE, trust of government, trust in internet, computer apprehension and optimism bias all have an impact on usage intention of a government electronic tax filing system Ashutosh Nigam & Sima Kumari (2018) study explored the adoption of BHIM among Gen Y users for relationship of four constructs namely perceived usefulness, perceived ease of use, attitude towards using and behavior intensions were identified in the

proposed model and its outcomes were found supporting the model. (Balmi, 2016). Aarti Sharma (2016) The unique Unified Payments Interface got benefitted the Banking Sector,

the customers and to the economy as a whole by providing convenience and security, in digitized transactions and reducing the use of currency notes and mobile wallets. Roopali Batra & Neha Kalra (2016) the study made a valuable contribution to research in the area of finance, by exploring digital payment systems in India, an emerging concept. Sangeeta Arora & Supreet Sandhu (2014) The banks have successfully replicated and improved traditional banking services over electronic media, but they have yet to exploit full potential of IT in terms of new or advanced services. Sunita Mehla & Suman Ghalawat (2013) the customers were found satisfied with the factors like social status, customer satisfaction, user-output and service quality while going for internet banking. On the same grounds results of (Carter et al., 2012) indicate that PE, SI, EE, trust of government, trust in internet, computer apprehension optimism bias, and risk and perceived reputation all have a significant impact on e-government usage. Another study in US on e-file, it has been indicated PE, SI, FC, and optimism bias all are significantly impact on e-file intention (Schaupp et al., 2010).

Conceptual and Hypotheses Development

Perception on EPS is largely dependent on the how the technology is innovated and eco-friendly and it directly impacts the adoption of such IT-enabled services. On the basis of the review of literature it was found that the components of Technology readiness viz. optimism, Innovation Discomfort insecurity are influencing PE and EE as well the perception towards EPS. Similarly, the parameters of UTAUT2 namely PE, EE, SI, FC, HM and habit impact the perception towards EPS. So, the study was conducted with an intention to know the impact of Technology readiness on the PE and EE and the impact of the various dimensions of UTAUT2 on the perception towards EPS. Based on the review of literature done the theoretical concept proposed is as under: -

Source: Author Own Source

On the basis of the above review of literature it has been posit that: -

H1: PE has been significantly impacting Electronic Payment System adoption.
H2: EE has been significantly impacting adoption of Electronic Payment System.

H3: Social Influence significantly impacts adoption of Electronic Payment System.
H4: FC has been significantly impacting adoption of Electronic Payment System.
H5: Hedonic Motivation has been significantly impacting adoption of Electronic Payment System.
H6: Habit has been significantly impacting adoption of Electronic Payment System.
H7: Optimism has been significantly impacting PE.
H8: Optimism has been significantly impacting EE.
H9: Innovativeness has been significantly impacting PE.
H10: Innovativeness has been significantly impacting Effort expectancy.
H11: Discomfort has been significantly impacting PE.
H12: Discomfort has been significantly impacting effort expectancy.
H13: Insecurity has been significantly impacting PE.
H14: Insecurity has been significantly impacting effort expectancy.

Research Methodology
A validated multi-item scale has been incorporated in this study to prove the objective undertaken. A questionnaire was culturally modified into mobile-payment context comprising of 47 items, with Technology readiness with 27 items by (Parasuraman & Colby, 2015) 20 items of UTAUT2 model along with perception towards EPS have been clubbed into items namely, Optimism, Innovativeness, Discomfort, Insecurity, PE, Effort Expectancy, SI, FC, Hedonic Motives & Habit and perception towards EPS. All the items have been marked on a scale of 1 to 5 where (1=strongly disagree while 5 = strongly agree). The initial instrument was prepared was distributed amongst 30 respondents who have accessed EPS and any changes regarding the language or statement was duly incorporated in the final instrument.

The population of this research is very large and enumeration of all the members is nearly impossible. (M.K.Jain, 2012) on situations and circumstances when it is not possible, practically or theoretically, to do random sampling in applied social sciences researches. Therefore, Purposive sampling of non-probability technique has been used to select the respondents. This technique is often used for exploratory research work in social science where population is very large (Babbie, 1090); (Zikmund, 1997). The data was collected from sample of 374 respondent and 320 finalized and totally filled questionnaire was received which was found to be fit for data analysis. According to Hair et.al, the sample size can be the number of items multiplied by 5. 52*5 = 250. The instrument was finalized on the basis of the various scales developed and adopted by different authors as shown in the Table1.

Table1: Sources of various items

Construct	Source
PE	"Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et. al., 2003)"

EE	"Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et. al., 2003)"
SI	"Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et. al., 2003), E-Money Payment: Customers' Adopting Factors and the Implication for Open Innovation - Widayat Widayat 1, * , Ilyas Masudin 2 and Novita Ratna Satiti"
FC	"Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et. al., 2003)"
Optimism	"Technology Readiness Theory (TR) (Parasuraman, 2000)"
Innovativeness	"Technology Readiness Theory (TR) (Parasuraman, 2000)"
Discomfort	"Technology Readiness Theory (TR) (Parasuraman, 2000)"
Insecurity	"Technology Readiness Theory (TR) (Parasuraman, 2000)"
Perception to EPS	"Factors affecting consumers' perception of electronic payment: an empirical analysis - Wendy Ming-Yen Teoh"
Voluntariness of Use	"(THE ROLE OF VOLUNTARINESS IN DISTANCE EDUCATION STUDENTS' USAGE OF A COURSE WEBSITE T. RAMAYAH), (SI , voluntariness, experience and the internet acceptance - An extension of technology acceptance model within a south-Asian country context)"
Hedonic Motivation	"What drives customer satisfaction and word of mouth in mobile commerce services? A UTAUT2-based analytical approach- Zoran Kalinić and Veljko Marinković," "Consumer adoption of smartphone fitness apps: an extended UTAUT2 perspective - Neeraj Dhiman, Neelika Arora, Nikita Dogra, Anil Gupta), Mobile banking usage and gamification: the moderating effect of generational cohorts Gentjan Çera, Ina Pagria, Khurram Ajaz Khan, Lindita Muarem"
Habit	"Venkatesh et al. (2012), Consumer adoption of smartphone fitness apps: an extended UTAUT2 perspective – (Neeraj Dhiman, Neelika Arora, Nikita Dogra, Anil Gupta)"

Source: Authors own

Measurement Model

To begin with CFA was run to verify the model fit indices of the two models namely Technology readiness, UTAUT2 with Perception towards EPS and it was found that all the models were within the threshold limits. The model developed based on the conceptual mode was found to be fit as the Chi-square was significant (CMIN/DF= 1.75, P = 0.00), and the fit indices were found to be within their threshold values as such GFI = 0.88, NFI = 0.791, CFI = 0.896 and RMSEA = 0.05 for perceived service quality, similarly for service quality the Chi-square was significant (CMIN/DF= 2.455, P = 0.00) GFI = 0.88, NFI = 0.791, CFI = 0.896 and RMSEA = 0.05 and for expectation continuation model the Chi-square was significant (CMIN/DF= 1.49, P = 0.00) and the fit indices of the model developed were within their threshold values as such GFI = 0.97, NFI = 0.912, CFI = 0.968 and RMSEA = 0.04.

Table 2 Model Fit Indices

	Technology Readiness Index	UTAUT2	Perception towards EPS
CMIN/DF	1.759	2.455	1.495
GFI	.885	.814	.973
NFI	.791	.819	.912
CFI	.896	.883	.968
RMSEA	.052	.072	.042

Source: Author's own

	CR	AVE	IS	OP	IN	DC	PEPS
IS	0.744	0.875	**0.718**				
OP	0.777	0.808	0.458	**0.755**			
IN	0.747	0.877	0.226	0.551	**0.614**		
DC	0.721	0.964	0.942	0.098	0.022	**0.705**	
PEPS	0.839	0.968	0.440	1.045	0.559	0.046	**0.884**

Table 3 Discriminant Validity (TRI+PEPS)

Source: Author's own

Table 4 Discriminant Validity (UTAUT2)

	CR	AVE	PE	EE	SI	FC	HM	Habit
PE	0.831	0.632	**0.782**					
EE	0.803	0.642	0.760	**0.665**				
SI	0.833	0.660	0.642	0.798	**0.678**			
FC	0.839	0.667	0.615	0.668	-0.090	**0.683**		
HM	0.852	0.696	0.810	0.762	-0.139	0.758	**0.704**	
Habit	0.838	0.664	0.454	0.456	-0.065	0.479	0.562	**0.681**

Source: Author's own

Table 5. Hypothesis test results of the test model

Hypothesis	Variables	p Value	Result

| H1 | IN☐PE | *** | **Accepted** |

H2	IN☐EE	***	Accepted
H3	OP☐PE	***	Accepted
H4	OP☐EE	***	Accepted
H5	PE☐PEP	***	Accepted
H6	EE☐PEP	.017	Accepted
H7	SI☐PEP	.035	Accepted
H8	FC☐PEP	***	Accepted
H9	HM☐PEP	***	Accepted
H10	HB☐PEP	***	Accepted

Source: Author's own

All the hypotheses from H1 till H17 were accepted at 95% confidence level and it was evident from the table 2 that there is significant impact of technology readiness on dimensions of UTAUT2 and the perception towards EPS.

Discussions
The study was conducted with an intention to know the impact of Technology readiness on the PE and EE and the impact of the various dimensions of UTAUT2 on the perception towards EPS. In order to fulfill the objective initially confirmatory factor analysis was done considering TRI and UTAUT2 the structure equation modeling was done. The impact on the perception of EPS has been studied with the model developed. It was found from the studies that PE, EE have been significantly influenced by the optimism and innovativeness and in turn all the other dimensions of UTAUT2 are found to be significantly impacting the perception towards the usage of EPS. The results have in corroboration to the extant studies done on governmental portal like e-file and block chain also. Further some studies have shown the insignificant association of SI but in the present study the association of SI has been found significant. This clearly implies that optimism and innovativeness plays a significant role in developing the perception in the usage of EPS and they significantly impact PE and effort expectancy. This indicates that use of technology is being adopted when there is optimism for using a technology which can be developed through trust and innovativeness will enable the user in getting advantage in respect to ease and time. Innovativeness has always been a key for the success of any technology which has been proved in many studies, here also innovativeness will enhance the PE and the EE of the user while using EPS.

Scope for Future Studies
Though the study tried to fulfil the objectives but still there are many issues which remain untouched, in this section all the area which are untouched or unattended are being listed in scope for future studies. Firstly, the study confined itself to perception of EPS while studies can be undertaken considering the intention to use EPS or continuous usage of EPS. Secondly, the impact of optimism and innovativeness has been studied but the mediation impact of these on the perception of EPS has not been undertaken in this study. Thirdly, in every study demography plays a vital role in deciding the result in other words demography significantly impact the results but in the present study the demographic variable is not considered. Finally, the study has undertaken UTAUT2 and TRI for studying the impact EPS's perception, other models like DOI TAM etc. can be considered to draw newer insights into dimension of EPS's Perception.

Theoretical Contribution

The study contributes to the present literature in manifolds. Initially it adds newer insights to the theory UTAUT2 as well as technology readiness. Further the Integration of UTAUT2 and TRI for

EPS adds newer insight in the literature of adoption of EPS above all there is a paucity of literature which is underpinning the literation revolving around integration of the two models. In addition, e-file, e-government portals have been studies by the researchers but EPS has not been touched, so the study will contribute to the avenues of integrated model of UTAUT2 and TRI with respect to EPS. Apart from this the study also contributes to the literature of behavioral intention EPS wherein the study laid the foundation for future studies in the direction of intention to use.

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