

Behavioural Intentions to Embrace Technology: An Empirical Investigation of Orientation towards Usage of m-payment Methods

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Abstract: This research paper aims to innumerate the antecedents influencing mobile payment (m-payment) adoption intention in India by taking technology acceptance model as theoretical base. Along with the construct of TAM, two additional user-centric constructs i.e. subjective norms and perceived trust were incorporated to assess m-payment adoption intention. The analysis was done using descriptive analysis, Karl Pearson coefficient of correlation and stepwise regression on data collected from 397 m-payment service users, by an offline survey conducted via structured questionnaires. The results display that perceived ease of use, perceived usefulness, subjective norms, and perceived trust have a significant positive effect on m-payment adoption intentions. Results of this research portray valuable theoretical as well as practical implications, for both marketers and policy makers particularly for formulation of strategies keeping in view the key user-centric determinants influencing m-payment adoption.

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1. Introduction

The extensive usage and wide spread commercialisation of the Internet has paved the way of a dynamic e-commerce world. Internet, has absolutely transformed the servicescape by shifting the focus from passive one to one communication to dynamic e-service interactions. However, e-services provides plethora of benefits to consumers in shape of increased ease, lesser transaction expenses, wider consumer options, and enhanced service availability by diminishing

space and temporal restrictions (Rust and Kannan, 2003). Alongside, mobile phones have become an indispensable part and parcel of today's lifetime. It acts as a catalyst for individuals to enjoy the wide spectrum of both economic and societal happenings just at the click of their fingers. Mobile payments, received a sudden boost due to the burst of Internet and wireless technology along with mass acceptance of mobile devices, resulting in significant interest from academicians and researchers (Cao *et al.*, 2016) all over the globe.

As, mobile devices are a virtual dossier, containing personal information. It also facilitates consumers to not only communicate more effectively, but also do allied tasks such as pay bills, shop, and even have an access to real time information. Thereby, mobile phone companies are progressively innovating and paving way for new and endless opportunities for marketers to grow and bring forth bold and informed decisions (Deloitte's Global Telecom Report, 2017) to the cater the requirements of both individual entities and organisations as a whole (Phonthanukitithaworn *et al.*, 2015). India has been crowned as the safest haven for the world's fastest growing payment market. Since the dawn of the digital epoch in India, the millenniums have started entrusting the internet and grasped the importance of going digital. Many innovations, ideas, and inventions have been introduced to make the dream of Digital India "a truth". Perhaps the biggest and the boldest reason which led to the quick adoption of mobile payments (m-payments) was demonetization in November 2016, which drained the cash out of circulation and gave both consumers and merchants a hard time (Business Today, 2019). Due to this welcoming step initiated by the government, as a consequence, Indians gradually started embracing mobile money. As facts also substantiate that around 56% of adult internet users, often use m-payments (S & P, Global Market Intelligence, 2019). Though the Indian market for m-payment services is at nascent phase of adoption. So, it is critical for marketers to understand the pulse of consumer's attitudes towards m-payment technology. Further, there has been upsurge for adoption of latest technological advancements amongst plethora of digital avenues that are transforming both 'business-to-consumer' and the 'business-to-business' e-commerce models. However, under the existing digitalizing scenario, the present research seeks to add new insights to the prevailing facts and knowledge by weighing the latent antecedents of technology acceptance in

India. The study expands the technology acceptance model (TAM) by incorporating subjective norms (SN) and perceived trust (PT) into the model. The research, tries to access the effect of these constructs, in concurrence with perceived ease of use (PEOU) along with perceived usefulness (PU) on m-payment for behavioural intentions to adopt it.

2. Rationale of the Study

Prime motive of conducting this exploratory research was to understand the behavioural intentions for adoption of m-payments. The current study is also conducted to find the association between perceived usefulness (PU), perceived ease of use (PEOU), subjective norms (SN), perceived trust (PT) and behavioural intentions (BI) for adoption of m-payments, along with suggesting strategies to mitigate the consumers' concerns regarding adoption of m-payments.

3. Theoretical Framework

Behavioural scientists across the globe have made substantial contribution in formulating various models to analyse consumer behaviour patterns, based upon the strong foundation of socio-psychology studies, as these facilitate in examining and envisaging the reasons that persuade for acceptance of new and improved information technology (Pavlou, 2002). However, the technology acceptance model (TAM), proposed by Davis (1989), is the most ideal and extensively acknowledged model across the globe (Safeena *et al.*, 2018). TAM is basically a derivative of Theory of Reasoned Action (TRA) advocated by Fishbein and Ajzen (1975). As m-payments compasses only financial transactions, so the current research has primarily taken the theoretical foundation from TAM, thereby incorporating the constructs like perceived trust

(PT) and subjective norms (SN) in it, to substantiate the nature of the research.

4. Review of Literature

The present study is focused to decipher the key drivers of behavioural intentions for adoption of m-payments. The various constructs used in our present research include:

4.1 Mobile Payments and Behavioural Intentions

Mobile payment (m-payments) is an integral constituent of global mobile banking services that conducts financial deals using a mobile device (Karjaluoto *et al.*, 2019). m-payments helps in well-organized and secured financial transactions between two entities i.e. service provider and service receiver (Ondrus and Pigneur, 2006). They encompass the commencement, endorsement and accomplishment of financial dealings via mobile phones (Mallat, 2007). Across the globe, m-payment services are expanding at an exponential rate as marketers have comprehended its innumerable benefits (Merritt, 2011) and its usage as an indispensable strategic weapon to gauge viable edge against the competitors (Ondrus and Pigneur, 2006). Whereas, behavioural intentions are guided by the combined efforts portrayed by usefulness, applicability and inclination towards a particular task. However, in case of m-payments the subjective possibility of behavioural inclination towards m-payments (Sobti, 2019). They are affected by the combined effect of individual's attitude and influence of subjective norms (Madden *et al.*, 1992). Thus, it becomes critical to innumerate factors shaping the behavioural intentions of the customers towards m-payments.

4.2 Perceived Ease of Use

Perceived ease of use is an important acceptance element for adoption of mobile applications (Venkatesh *et al.*, 2012). Sunny and George

(2018) highlighted its positive implication on behavioural intentions. However, consumers always go for evaluating the ease of use for adopting a new technology (Venkatesh and Davis, 1996). Fathima and Muthumani, (2015) in their research findings showcased that perceived ease of use is an essential element in determining e-banking acceptability. Alalwan *et al.*, (2016) highlighted that new technology will have deeper adoption if it's easy to use without any technicalities. Based upon the above discussion the following hypothesis is framed:

H1: Perceived Ease of Use significantly affects behavioural intentions towards m-payments.

4.3 Perceived Usefulness

Perceived usefulness is linked to person's innate belief that job performance can be enhanced manifoldly by incorporating particular technology into work methods (Venkatesh and Davis, 1996). However, in context of m-payments, an individual perceives that using m-payments would enhance the efficiency and effectiveness in conducting e-payments. It has been empirically illustrated that perceived usefulness positively influences online consumer behaviour (Gefen *et al.*, 2003). However, use of a technology will augment the capacity to buy irrespective of place and time hurdles (Ahuja, 2019). Phu *et al.*, (2018) pinpointed that customers often go for evaluating the rational benefits of using the technology. However, inclination for self-service technologies will further facilitate behavioural intentions for adoption of new technology (Roy *et al.*, 2018). Moreover, perceived ease of use also results in customers' willingness to use technology by facilitating the pre evaluation of perceived utilities (Alalwan *et al.*, 2016). However, consumers often do cognitive appraisal takes a rational decision whether to embrace the new technology or not (Tandon *et al.*, 2016). Therefore, the following hypothesis is formulated:

H2: Perceived Usefulness significantly affects behavioural intentions towards m-payments.

4.4 Subjective Norms

Subjective Norms pertains to the magnitude of perceived social factors which has an influence while taking a particular decision (Fishbein and Ajzen, 1975). Inexperienced customers often rest their opinions based upon the point of view of people who are linked in their social network (Hussain *et al.*, 2019). The underlying theory behind this mechanism, is that people tend to minimize any apprehension regarding technology acceptance by consulting in their social setup (Karahanna *et al.*, 1999). Chong *et al.*, (2012) validates a positive affiliation between of subjective norms and behavioural intention. However, on the flip side, social influences also work as a catalyst in diminishing the risk linked with adoption as it provides substantial reasons showcasing the validity and correctness of decision (Karahanna *et al.*, 1999.) Social networks and group affiliation, often results in adoption of m-payment quite easily (Phonthanakitithaworn *et al.*, 2015). Thereby, the following hypothesis is drafted:

H3: Subjective Norms significantly affects behavioural intentions towards m-payments.

4.5 Perceived Trust

Trust is basically the readiness of purchaser to willingly allowing to ethically commencing actions on the behalf of another person. Mayer (1995) proposed a dyadic model which incorporated the features of both the trustor and trustee that lead to shaping up of trust. However, consumers are sceptical about dealing with mobilepayment service providers (Siau and Shen, 2003) particularly if there is a financial loss (Shin, 2010) due to privacy concerns. In m-payments, consumers are left in a susceptible situation as they have little control over their financial deals

(Xin *et al.*, 2015). Many researchers have pinpointed that trust is a necessary precondition for effective commercial transactions as clients always go for a trust worthy, well known and established seller (Shankar and Datta, 2019; Dachyar and Banjarnahor, 2017). Aithal (2015) illustrated in his study, that the key success factor in e-business in today's era, is the building trusted financial transaction mechanism wherein e-sellers creates a conducive atmosphere for the buyers to go for e-payments (Grabosky, 2001). Research also prostitutes that trust does not only influence users' intentions but fetches loyalty as well (Slade *et al.*, 2014). However, trust is not only the sole predictor for pre-purchase behaviour as consumers may take a dicey e-purchase decision without trust or with a minimum level of trust (Kim *et al.*, 2008) in the e-seller. It is also proclaimed by some researchers like Shin (2010) and Teo *et al.*, (2015) that intention to adopt m-payment is positively affected by perceived trust in the service provider. Therefore, the following hypothesis is proposed:

H4: Perceived Trust significantly effects behavioural intentions towards m-payments.

5. Research Methodology

5.1 Measurement instrument

A comprehensive multi item questionnaire was designed based upon the research models adapted from various research studies and adapted to match the Indian context. Table 2 shows the adapted sources of various constructs along with the relevant statements. To assess the hypothesis proposed for the study, 5-point Likert scale which ranged from "1" being strongly disagree and "5" being strongly agree was utilized. However, to understand the demographic profile of the respondents, few open-ended questions were also included.

5.2 Methodology

Non-probability purposive sampling technique was used to collect the empirical data for this research. Quantitative approach by means of self-administered questionnaire was adopted (Roland and Bee, 1999) for data collection. The responses were collected from August 2018 till October 2018. Pilot-testing of the questionnaire with 155 respondents who were regular users of m-payments for done. This helped in ensuring that the questionnaire was well crafted and redrafting the questionnaire if required, along with establishing the face and internal validity (Nunnally, 1978). 450 questionnaires were finally dispersed and 417 filled questionnaires were collected. After careful scrutiny and discarding partially filled responses, 397 were retained for final analysis. SPSS software was used to do the analysis.

6. Major Findings and Discussion

Table 1 shows the descriptive statistics of the respondents' which will help in identifying the demographic profile of the participants. However, this profile will assist m-payment service providers to roll out action strategies and tactics, keeping in view the requirements of the customers, so that they wholeheartedly embrace m-payments easily and effectively.

Educational Qualification		
Graduation	121	30.50
Post-Graduation	187	47.10
Professional Degree	89	22.41
Occupation		
Self employed	137	34.51
Salaried	169	42.57
Student	30	7.56
Homemaker	61	15.36
Annual Income (INR)		
Less than 3 lakh	52	13.10
3.1-7 lakh	103	25.94
7.1-10 lakh	151	38.04
More than 10 lakh	91	22.92
N=397		

In the next step, factor analysis using principal axis factoring along with varimax rotation to innumerate the key determinants which result in easy adoption of m-payment (Abdi, 2003) was used. Table 2 highlights that the Bartlett's test of sphericity was within permissible limits. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy for the independent variables were found to be at 0.851, which is greater than .06. Thereby, showcasing that it is appropriate to go for factor analysis. The five key factors found with eigen value >1.0. represented 77.861 percent of the variance. Table 2 represents the factor loading along with Cronbach Alpha and the adopted source for measurement items. All the constructs have alpha values more than the acceptable limit of 0.07 (Cortina, 1993). Moreover, to explore the antecedents of m-payments in Indian context, correlation along with stepwise regression analysis was used that linked m-payment behavioural intentions to perceived ease of use, perceived ease of use, subjective norms and perceived trust.

	N	%
Gender		
Female	241	60.71
Male	156	39.29
Age (in years)		
20-24	137	34.51
25-34	161	40.55
35-40	99	24.94

Table 2: Factor Analysis:Cronbach Alpha and Adopted Sources of Measurement Items

Construct	Statements	Adopted Sources	Factor Loading	Cronbach alpha(α)
Perceived Usefulness (PU)	PU1-Payments will be faster with m-Payments.	Davis, 1989; Lee, 2009	.863	.925
	PU2-Transactions are easier while using m-payments.		.831	
	PU3-Using m-payment would be beneficial.		.807	
	PU4- m-payments are a good possibility for me.		.797	
Perceived Ease of Use (PEOU)	PEOU1 - My abilities and skills will increase with m-payments.	Davis <i>et al.</i> , 1989; Taylor and Todd, 1995	.855	.912
	PEOU2 - m-payment services are easy to understand.		.831	
	PEOU3 - Steps of m- payments are easy to follow.		.807	
	PEOU4-Interaction becomes easy with m-payments.		.797	
Subjective Norms (SN)	SN1- Important people in my life suggest me to use m-payment.	Fishbein and Ajzen, 1975; Taylor and Todd, 1995	.799	.782
	SN2- People, who influence my behavior, ask me to adopt m-payment.		.749	
	SN3- My friends support me to use of m-payment services.		.698	
Perceived Trust (PT)	PT1- I believe that existing legal framework for m-payments are sufficient to protect consumers.	Chau <i>et al.</i> , 2007; Pavlou, 2003	.929	.884
	PT2 - I trust that my personal information will be used by m-payment service provider wisely and ethically.		.887	
	PT3 - I believe that m-payment service provider will act honestly while providing his services.		.882	
Behavioral Intentions (BI)	BI1 - If opportunity is provided, I will use m- payment.	Venkatesh <i>et al.</i> , 2012	.775	.910
	BI2 - I intent to use m-payment services in future.		.769	
	BI3- I am willing to use m- payment in future.		.747	
	BI4 - I expect to use m- payment services very shortly.		.743	
Kaiser–Meyer–Olkin Measure of Sample Adequacy				.851
Approx. Chi–Square				8077.833
Df				276
Sig.				.000

6.1 Relationship Analysis

Table 4 reveals Karl Pearson Correlation analysis, with the strongest relationship between behavioural intention to adopt m-payment services perceived ease of use ($r = 0.638$), followed by perceived usefulness ($r = 0.605$), subjective norms ($r = 0.437$), and lastly perceived trust ($r = 0.268$). Moreover, it was found that sampled data also fulfilled the assumptions of linearity and homoscedasticity.

Hypothesis	Relationship Hypothesized	Pearson Correlation Analysis Results
H1	Perceived Ease of Use & behavioural intentions to adopt m-payments →Positive	$r = 0.638$ $p \leq 0.05$
H2	Perceived Usefulness & behavioural intentions to adopt m-payments →Positive	$r = 0.605$ $p \leq 0.05$
H3	Subjective Norms & behavioural intentions to adopt m-payments →Positive	$r = 0.437$ $p \leq 0.05$
H4	Perceived Trust & behavioural intentions to adopt m-payments →Positive	$r = 0.268$ $p \leq 0.05$

Note: Sample Size = 397

6.2 Regression Analysis

Stepwise regression was used to determine the top antecedents of m-payment adoption behaviours. From the Table 5, it is ascertained that four factors i.e. perceived ease of use, perceived usefulness, subjective norms and perceived trust turned out to be the significant predictors for behavioural intentions to adopt m-payments, showcasing 51.5 % of the variance on dependent variable. Durbin Watson's value stood at 1.650, proving an independence of errors in the data (Durbin and Watson, 1971). The significance value of the F statistic < 0.05 , which attests that the variation in the research model is not due to chance. Values of VIF (Variance Inflation Factor) ranges from 1.045 to 1.564, which points out that it is much less than the threshold limit of 10. Moreover, the TV (Tolerance Value) for each independent variable is closer to threshold limit of 1, which shows that there is absence of multicollinearity in the data

(Hair *et al.*, 1995). Based upon the analysis the following regression equation was framed to test the hypothesis:

$$\text{Behavioural intentions to adopt m-payments} = 0.983 + 0.436 \times \text{Perceived Ease of Use} + 0.380 \times \text{Perceived usefulness} + 0.170 \times \text{Subjective norms} + 0.076 \times \text{Perceived Trust}.$$

Independent Variable	Standardized Regression Coefficients*	T-value**	Significance Probability	TV	VIF
Constant	0.983(.201)	4.888	.000		
Perceived Ease of Use	0.436	10.116	.000	0.660	1.515
Perceived Usefulness	0.380	8.682	.000	0.639	1.564
Subjective Norms	0.170	4.677	.000	0.931	1.074
Multiple R	0.721				
R ²	0.519				
Adjusted R ²	0.515				
Durbin-Watson Test	1.650				
F	105.943				

Sample Size = 397

* Beta co-efficient is the standardised regression co-efficient which allows comparison of the relatives on the dependent variable of each independent variable.

** t-statistics help to determine the relative importance of each variable in the model

7. Discussion

The results of our study demonstrate the universality of TAM model and its significant contribution towards behavioural intentions for m-payment adoption. The results emphasize that perceived ease of use, perceived usefulness, subjective norms and perceived trust has substantial bearing on adoption behaviour. These findings provide a well-defined path for m-payment service provider to recognize consumers' priorities while framing appropriate strategies to enhance the adoption process. The results of our empirical study highlight that perceived ease of use is the foremost essential antecedent for adoption of m-payment services in

India. Before going for adoption of new technology, consumers need to critically assess pros and cons of using it. Moreover, m-payment service providers need to recognize the user-centric cues that would make m-payments indispensable for consumers. They also need to emphasize upon the usefulness of the technology and motivate consumers to adopt m-payment services. These facts are insync with the extant literature too (Hasan *et al.*, 2019). The next crucial factor is perceived usefulness which is highlighted in the study. Marketers need to highlight the comparative advantage of using m-payment services viz-a-viz offline mode of payment. Markets along with financial institutions need to come up with consumer awareness campaigns for mitigate any apprehensions linked with m-payment usage. The finding of our study is insync with the research done by Duane *et al.*, (2014). The third most important factor revealed by the results is the effect of social influences in m-payment adoption. As social influences acts as a cushion in reducing the perceived risk of adoption along with providing acceptability and aptness of the adoption decision (Geber *et al.*, 2019). Positive word of mouth regarding m-payment services especially from the near and dear would motivate the masses in adopting of m-payments. Thus, marketers need to strategically manage word of mouth for creating awareness among users for adoption of m-payments (Liébana-Cabanillas *et al.*, 2018). Last but not the least, the results depicts that trust too is a controlling factor particularly in case of m-payments adoption. Consumer's trust minimizes the customer apparent risk which results in quick acceptance (Sharma *et al.*, 2019) of m-payments. The marketers ought to facilitate consumers by linking themselves with recognized financial portal (Shankar and Datta, 2018) renowned brand ambassadors (Hu *et al.*, 2019) and robust structural assurances (Al-Amri *et al.*, 2018) for security and privacy concerns (Marriott *et al.*, 2017). Markets ought to work as a catalyst in dispersing crucial

information to third party and banks to roll out plans and strategies for quick m-payment adoption.

8. Limitations

The study highlighted certain critical factors which would aid in quick and easy adoption of m-payment. But unlike any research study, our study too has few limitations which would provide valuable insights for future research. The current research has incorporated only few critical factors overlooking other important factors like perceived risk (Wang, 2019), perceived security (Park *et al.*, 2019), self-efficacy (Ghazali *et al.*, 2018) etc. The respondents taken in this study are those who are using m-payment. So, in future difference in perception level of current and non-users of m-payment could also be incorporated to widen the scope of research. Moreover, longitudinal study would also help in better exploration of key factors influencing m-payment adoption intentions.

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