

Mobile Payment Usage Intent in an Indian Context: An Exploratory Study

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Abstract: Mobile payments in emerging Asian markets can help create greater economic efficiencies and growth given high penetration of the mobile phones. Earlier studies focus on the Technology Adoption model which do not address social-cultural context or the business environment of countries like India. This study concludes that for mobile payments success, users must find it useful and compatible to their lifestyle/personality and that their peers influence their usage intent. Recommendations include using customer-brand advocates, creating like-minded groups to get frequency, value and volume transactions and develop applications which are intuitive, across vernacular languages and even icon/speech-driven for better access.

Key words: Technology adoption model, perceived usefulness, mobile payments, usage intention, India

INTRODUCTION

India has emerged as the second largest mobile telephony market globally and is also touted as the world's fastest growing smart-phone market. TRAI notes that India has over 996 million mobile phone subscribers and 315 million of them access internet solely or primarily through the handsets. Over 95% of mobile accounts are on a pre-paid basis. Shah, et al. in 2015 note that 'India's internet economy is at an inflexion point and it can triple to US\$ 200 billion in the next 5 year with significant benefit for consumers, businesses and society. It is projected that by the end of 2015 that there would be a billion-plus m-payment users globally and that mobile payment transactions would reach US\$ 1.3 trillion annually and by then 2+ billion users would have migrated to smart phones (Mulpuru *et al.*, 2011).

Markets like India hold great potential. This is in the context of falling prices and rising disposable income-enabling more people to own and use mobile technology along with the creation of business models such as pay-as-you-go plans, micro-top-up and the availability of low cost handsets. There is still the lack of economically viable alternatives for universal access to banking, finance and wired internet devices access. Mobile operators are leading the way in investing and developing and implementing new technologies and building infrastructure to serve rural and urban communities-recent forays by companies to launch 4G services is an example of this development. Issues of literacy is overcome by development of voice-driven applications and highly visual icon-based interface which ensures universal accessibility.

The current government is keen to reduce the unbanked population and has introduced special bank accounts for them to encourage financial inclusion and also to harness the power of technology to ensure direct transfer of subsidies and grants/benefits to the recipients directly. However, regulatory, socio-cultural issues, tradition and a large gap between traditional and modern methods of conducting retail businesses, the unique set of buyer behaviors and the competitive "money-business" of India mean that models which work or promise to work in developed markets will not necessarily adapt to this unique market. This research attempts to seek insights into the market and examines customers' perspectives on mobile payments.

Definitions of mobile payment: Consensus as to what is mobile payment is not universal Gartner in 2012 defines "mobile payment" as transactions conducted using a mobile phone and payment instruments that include banking instruments such as cash, bank account or debit/credit card and Stored Value Accounts (SVAs) such as transport card, gift card, paypal or mobile wallet and exclude transactions that use carrier billing using the telecom's billing system with no integration of the bank's payment infrastructure or tele-banking by using the mobile phone to call the service center via an Interactive Voice Response (IVR) system. However, IVR used in combination with other mobile channels such as Short Message Service (SMS) or Unstructured Service Data (USSD) is included. Bearing point in 2012 defines mobile payment as a payment process that is interrelated with a purchase through a mobile channel at the same time. The initiation, confirmation, authorization

or realization of the financial transaction requires a mobile, electronic means of communication. Academic researchers define mobile payments along similar lines: Zmijewska *et al.* (2004): "Payments in which at least one part of the transaction is conducted using a mobile device (such as a mobile phone, smartphone or personal digital Assistant) through a mobile telecommunications network or via various wireless technologies". Kreyer *et al.* (2004) "it is a type of electronic payment transaction procedure in which at least the payer employs mobile communication techniques in conjunction with mobile devices for the initiation, authorization or realization of payment". Au and Kauffman (2008): "As any payment where a mobile device is used to initiate, authorize and confirm an exchange of financial value in return for goods and services".

The broad consensus is, there is a payment occurring, a mobile device used, information is exchanged, fund transfer occurs and there is a communication process between the payer and payee and an intermediary (which can be either the operator or the financial institutions of both or a third party provider).

Research need and scope: Mobile phone penetration in India is fast reaching saturation point. Alongside, there is a greater emphasis on financial inclusivity for Indian citizens. The technology is in place to enable this inclusion in a highly cost-effective, transparent manner. Therefore, mobile payment industry perceives the Indian market to be of high value and mobile payments will impact retail, services and money transfer scenarios. Without the encumbrances of a banking infrastructure, the ability to offer last-mile financial and even banking solutions using the mobile phone is an attractive proposition. This is complemented by the fact that mobile internet penetration is now growing in double digits in India and the mobile phone is becoming the first/primary choice for customers to access the internet. The applications available for the device also become sophisticated and offer high usability with little or no learning curve. In the current scenario, potential mobile payment users can be loosely categorized into the following:

- People with credit/debit cards
- Who are at ease using that mode of payment but still prefer using Cash On Delivery (COD)
- People who do not have cards, so they have to use COD
- People who want to use COD but merchants do not deliver products to their geographies

Given the context that India is a large heterogenic market and perceptions, needs, adoption and utilization of technology and new processes will not be uniform,

research is needed to ascertain the drivers which will enable better and continued adoption of mobile payments in India. The government of India will be completing the biometric identification process (AADHAR) for the residents of India and have issued identity cards which is nationally accepted and being introduced for benefits delivery to the citizens. Mobile payments given that the mobile phone is a ubiquitous and personal device will be a useful mechanism for the government to deliver financial services and payments. Smartphone phone applications, phones with finger print locks are available. Research is needed not only as to the potential of mobile payments but also to understand the socio-cultural context of use, the unique barriers present in India to inhibit its use and how the adoption and use process takes place to improve the process substantially.

Review of literature: Consumer acceptance of mobile payments is a popular research topic. Substantive academic work has been undertaken in the area of mobile-commerce and specifically trying to validate or develop theoretical models to determine intent of use of mobile payments. The background is based on a set of models and which have evolved over the years to account for the changes and gap-analysis post-research. Post-2000, the Unified Theory of Acceptance and Use of Technology (UTAUT) by Venkatesh *et al.* (2003) has been widely used. The model revisions were an attempt to address the research concerns. Previous studies in the area of consumer acceptance and adoption have focused on for example security (Kreyer *et al.* 2004), convenience, cost and perceived ease of use and usefulness by Dewan and Chen (2005) and Zmijewska (2005).

The findings of most of these studies can be summarized by saying that in order for mobile payments to succeed, they must be secure (both in reality and consumer perception), convenient, easy to use and be offered at little or no additional cost to the consumer.

Straub and Jones (2007) and McCoy *et al.* (2007) concluded that TAM did not fit non-Western cultural attitudes and also concluded that perceived usefulness was less and perceived ease of use more important in non-Western cultures. Khan and Lees (2009) aver that research in mobile payments will need to control for factors such as cultural values and norms, age and experiences purchase context needs to be considered as the use of mobile payments when paying for infrequently purchased, expensive goods as opposed to frequent, routine, inexpensive items. Marangunic and Granic (2015) present four possible future directions for TAM research post review of key literature from 1980-2013. These include:

Table 1: Research methods and coverage: a chronological perspective

Years	Authors	Models	Method	Technical	Behavioral	Trust	Culture
2014	Alqahtani <i>et al.</i> (2013)	UTAUT	Survey	Yes	Yes	Yes	
2012	Andreev <i>et al.</i> (2012)	TAM	Survey	Yes	Yes	Yes	
2012	Yang <i>et al.</i> (2012)	TAM	Conceptual	Yes	Yes		Yes
2011	Lu <i>et al.</i> (2011)	IDT	Survey	Yes	Yes	Yes	
2010	Thair <i>et al.</i> (2010)		Survey	Yes	Yes	Yes	
2010	Srivastava <i>et al.</i> (2010)	TAM	Survey	Yes	Yes	Yes	
2009	Shin (2009)	TRA	Survey	Yes	Yes	Yes	

- The moderating role of individual variables
- The incorporation of additional variables in the model
- The investigation of actual usage and the relationships between actual usage and objective outcome measures
- The target group of older adults. Currently, there is little research on these perspectives in the Indian context

As Bagozzi (2007) states: technology acceptance research has not considered group, cultural or social aspects of decision making and usage very much”. Ngai and Gunasekaran (2007) note that Cultural differences on adopting M-commerce could be an interesting area for investigation. For example, it would be of interest to examine the possible implications of cultural differences that stimulate the adoption of new mobile services based on new technologies that bring value to mobile users and create new business opportunities for the mobile industry. A newer, Less-Research model, Lazy User Model (LUM) by Tetard and Collan (2009) attempts to address several limitations of UTAUT (inability to deal with multiple technology options, cumbersome to use it in totality at a practical level and the sheer combinations of the variables contained in the model.

Focus on consumer perceptions and intention to use mobile payments: The operating environment for mobile payments is complex in India both in terms of market dynamics and regulations. Hence, any research in this domain has to have the involvement of multiple stakeholders and studied from multiple perspectives to achieve a rounded insight (Au and Zafar, 2008; Ondrus and Lyytinen, 2011). Most of the existing research remains focused on consumers (Bamasak, 2011; Dahlberg and Oorni, 2007; Dewan and Chen, 2005; Kim *et al.*, 2010; Lu *et al.*, 2011; Pousttchi, 2008; Yang *et al.*, 2012). The factors studied include both those which facilitate and those which inhibit mobile payment adoption. For example, perceived ease of use (Goeke and Pousttchi, 2010; Kim *et al.*, 2010), perceived usefulness (Kim *et al.*, 2010), compatibility (Chen, 2008; Lu *et al.*,

2011; Mallat *et al.*, 2007; Schierz *et al.*, 2010; Yang *et al.*, 2012), interest in m-payments (Gerpott and Kornmeier, 2009), social influence use context (Mallat, 2007), payment scenario (Goeke and Pousttchi, 2010) and trust. Inhibiting factors studied include risk (Chen, 2008; Lu *et al.*, 2011; Shin, 2010; Yang *et al.*, 2012) and attractiveness of alternative payment systems (Cheong and Park, 2005).

Ondrus *et al.* (2009) have listed 6 key identifiers for mobile payments to have an enduring competitive advantage. These include costs incurred (the transaction cost, communication cost and the cost of the mobile phone device), ease of use for an average customer, expressiveness (social acceptance/standing, customization) universality (the ability to use payment scheme anywhere) usefulness (responding to customer needs effectively) and trust (a high level is needed, especially when fraudulent financial activity is possible and frequent). Dahlberg *et al.* (2007) note that “Consumer perspective of mobile payments as well as technical security and trust are best covered by contemporary research. The impacts of social and cultural factors on mobile payments as well as comparisons between mobile and traditional payment services are entirely uninvestigated issue”. Prior research examples which includes behavior and/or culture as a factor (Table 1): the research outlines are adapted from Yang *et al.* (2012) and posits the following:

- To what extent individual perceptions of mobile payment is attributed to social influences and personal traits
- Whether behavioral beliefs such as positive utility and negative utility explain mobile payment adoption

Defining the research problem: Individual differences play an important role in how technology is used and perceived by consumers (Agarwal and Prasad, 1999; Kwon and Chidambaram, 2000; Venkatesh and Davis, 2000). Mobile users’ perceptions and intention to use m-commerce will be differentiated by variability of the users’ demographics, shopping motivations and media dependency. The research questions framed are:

Table 2: Overview of constructs used in the research

Subjective norm (peer advocacy)	Personal suitability	Usefulness	Intention to use
Referencing peers to validate intent to use of adoption of mobile payments. Taylor and Todd (1995), Venkatesh and Davis (2000)	M-payment consistent with the prospective user's lifestyle Chen (2008) Schiertz (2009) and Kim <i>et al.</i> (2009)	Bhattacharjee (2001), Taylor and Todd (1995), Venkatesh and Davis (2000), Chen (2008) Nysveen (2005) and Kim <i>et al.</i> (2009)	Gefen <i>et al.</i> (2003), Venkatesh and Davis (2000) and Bhattacharjee (2001)
People who are important to me would recommend using mobile payment services	Using mobile payment services fits well with my lifestyle	They allow for a faster usage of mobile applications, e.g., ticket purchase	Given the opportunity, I use/will use mobile payment services
People who are important to me would find using mobile payment services beneficial	Using mobile payment services fits well with the way I like to purchase products and services	Using these services makes the handling of payments easier; using mobile payments because device is always with me	I am likely to use mobile payment services in the near future
People who are important to me would find using mobile payment services a good idea	I would appreciate using mobile payment services instead of alternative modes of payment, e.g., credit card cash	By using these services, my choices as a consumer are improved	I intend to use mobile payment services when opportunity arises

- What are the identifying key elements of consumer perceptions vis-a-v-a intent to use mobile payments?
- How can we classify and examine the 3 key issues in usage perception relevant to the Indian context? Customers must find mobile payments:
 - Useful (perceived usefulness)
 - Suitable to their lifestyle/personality (personal suitability)
- Subjective norm labeled as peer advocacy for the study, the relevance of their peers views on adopting mobile payments

Teo (2009) defines subjective norm as “a person’s perception that most people who are important to him or her think(s) he should or should not perform the behavior in question. Yuen and Ma (2008) extend this by stating that “ a person perceives that the more others (who are important to him or her) think (s) he should perform a behavior, the more (s) he is willing to do so:

- What is the contribution of these three constructs towards customers intent to use mobile payments and the relative importance of the indicators used to measure them (Table 2)

MATERIALS AND METHODS

Sampling strategy: The research is a qualitative, exploratory research. A purposive sampling was employed in this qualitative investigation. The characteristics of individuals used as the basis of selection included ownership/possession of a working mobile phone device, age (15 or over), language proficiency, residence, education and profession to reflect the diversity and breadth of the sample population. We chose this to reflect the various stakeholders in the market and the mobile device penetration and use is high in the Indian context.

Whilst, a non-probability sampling has been used, care has been undertaken to ensure there is a reasonable representativeness in the sample and within the sample drawn, bias is mitigated as far as possible.

Data collection and analysis: A survey using a structured multiple-choice questionnaire printed in English and Tamil was conducted in metro and non-metro geographic locations (Coimbatore City and semi-rural Dharmapuri) over a period of 4 working days by two teams of trained management student-volunteers in the summer of 2015. Around 433 responses were collected and after an audit, 328 (city-based = 159, semi-rural based = 167) were found completed in full and were used for analysis. The questionnaire was in-depth and comprehensive since by then mobile payments were well promoted and available nationally in multiple platforms across India. The survey instrument is adapted from validated measures in the literature. All questions in the survey were measured on a 5 point Likert scale. Partial Least Square Structural Equation Modeling (PLS-SEM) was used to understand the outcomes for the research questions.

RESULTS

Demographics: As a purposive sampling method was used, care was taken to ensure there is representativeness across the surveyed sample. The city of Coimbatore and the surrounding rural areas enjoys good infrastructure, education and a wide range of occupations. The demographics indicate that the sampling objectives have been met effectively (Table 3 and 4).

Analyses of the respondents profile indicate the profiles covered adequately represent the market segments. A higher percentage of respondents in the age group 21-30 has arisen because Coimbatore is a city with a large college going population and has an Information

Table 3: Analysis of respondents profile

Demographics of the sample	Values	Percentage
Age group		
15-20	31	10
21-30	213	65
31-40	41	13
41-50	21	6
51-60	14	4
60 and Above	6	2
Gender		
Female	106	33
Male	220	67
Education		
BE/B.Tech/MBA/PG	161	49
Graduate	89	27
12th pass	38	12
10th pass	24	7
Below 10th class	14	4
Mobile ownership and usage profile; brand of phone owned		
Apple	25	8
Gionee	4	1
Karbonn	5	2
Lava	8	2
Micromax	22	7
Nokia	81	25
Others	57	17
Samsung	97	30
Sony	27	8
Smart phone ownership		
Yes	244	75
No	82	25
Type of account		
Pre-paid	262	80
Post-paid	64	20
SIM ownership		
Single SIM	272	83
Two or more	54	17
Internet data plan		
No	92	28
Yes 2G and less	77	24
Yes 3G	157	48
Monthly phone billing/Expense (RS.)		
Below 100	58	18
100-250	93	29
301-400	37	11
401 and Above	73	22

technology park too. Secondary data on usage also indicate that this is a group who are active users of mobile payments Smartphone ownership is also high as costs have come down and several national brands like Micromax have increased reach in rural areas. The 3G internet plans was popular amongst the 21-40 age segments and post-paid billing plans were more corporate plans. Personal phone owners tended to go for pre-paid plans. Professional backgrounds for the respondents included students, banking and Information technology professionals, small business owners, housewives, postal workers, unemployed, teachers and government workers. Many concepts in the survey could not be understood by the respondents whose language proficiency was not

Table 4: Respondents profession

Categories	Percentage
Banking and finance	4
Clerical/office/sales	12
Engineers/IT software	11
Farmers	2
Housewives	7
Mill workers	4
Professional CA/Docs./lawyers	6
Rural wage earners	5
Self-employed/small business	9
College students	21
Teachers	1
Skilled, e.g., plumber/electrician	5
Others	8

English during the pilot study. Therefore, a professionally translated Tamil questionnaire was designed to ensure comprehension and it enabled surveyors to also access non-metro and rural markets successfully.

Instrument reliability and validity: Partial Least Squares- Structural Equation Modeling (PLS-SEM) modeling is quite popular in management and is extended to many social sciences disciplines (Hair *et al.*, 2012a, b; Lee *et al.*, 2011; Sosik *et al.*, 2009). The PLS-SEM is appropriate for exploratory research. Hair *et al.* (2011) suggest that PLS-SEM is an appropriate method for theory development and prediction. In addition, PLS-SEM can accommodate both reflective and formative constructs (Gefen *et al.*, 2003) and can be used with fewer indicator variables (one or two) per construct (Hair *et al.*, 2012a, b). Convergent validity is generally achieved if three criteria are met (Fornell and Larcker, 1981):

- All item factor loadings should be significant and >0.70
- Average Variance Extracted (AVE; the amount of variance captured by a latent variable relative to the amount caused by measurement error) should be >0.50 (or square root of AVE>0.707)
- The composite reliability index for each construct should be >0.80

The loadings of the measurement items on their latent constructs (Table 5) and the quality criteria are reported in Appendix 1 and 2 tables. The values of the loadings range from 0.794-0.871, all values being above the recommended threshold of 0.70 indicating that the indicator reliability is acceptable. The Average Variance Extracted (AVE) recommend threshold is 0.50. The values of AVE range from 0.675-0.731 suggesting that the convergent reliability is acceptable. The values of the composite reliability range from 0.861-0.891 which are

Table 5: Factor structure matrix of loadings and cross-loadings scale items

Acceptable value (>0.7)	Intent to use mobile payments	Peer advocacy	Personal suitability	Perceived usefulness
Use when good opportunity arises	0.865			
Likely to use in near future	0.871			
Given opportunity I will use	0.831			
People important to me would find it beneficial		0.858		
People important to me would recommend		0.847		
People important to me would find it a good idea		0.826		
Provides an alternative form of payment			0.794	
Suits my lifestyle			0.843	
Suits my buying behavior			0.828	
Use as device always with me				0.848
Convenient to use				0.849
Quick to use				0.825
Improves payment choice				0.810

Table 6: The t-statistics of path coefficients (inner model)

Total effects	Sample mean (m)	SD	t-statistics (o/stdev)	p-values
Peer advocacy->intent to use mobile payments	0.334	0.041	8.106	0.000
Peer advocacy->perceived ease of use	0.279	0.072	3.863	0.000
Peer advocacy->personal suitability	0.588	0.049	12.063	0.000
Perceived ease of use->intent to use mobile payments	0.238	0.078	3.038	0.002
Perceived ease of use->personal suitability	0.159	0.068	2.323	0.020
Personal suitability->intent to use mobile payments	0.488	0.060	8.146	0.000

above the acceptable value of 0.70 indicating that internal consistency is confirmed. Cronbach α ranges between 0.758-0.822 for the constructs which is acceptable for an exploratory study and satisfies the internal consistency and scale reliability of the survey instrument. For the discriminant validity, we check the Heterotrait-Monotrait Ratio (HTMT) of each construct and If HTMT value is below 0.90, discriminant validity has been established between two reflective constructs.

Structural model: The constructs and the indicators used indicate a t-statistic of values ranging from 2.232-12.063 with all p-values being <0.05. Therefore, all path coefficients have been validated at 5% confidence level (Table 6).

Explanation of target endogenous variable variance: The coefficient of determination, R^2 is 0.732 for the Intent to use mobile payment (endogenous latent variable). This means that the three latent variables (perceived usefulness, personal suitability and peer advocacy) explain 73.2% of the variance in intent to use mobile payment.

Inner model structural model path coefficient sizes and significance: The inner model suggests that personal suitability has the strongest effect on intent to use mobile payment (0.528) followed by perceived usefulness (0.282).

The path relationship between personal suitability and intent to use mobile payment is statistically significant. The path relationship between perceived

usefulness and intent to use mobile payment is statistically significant. This is because its standardized path coefficient (0.189) is >0.1.

Thus, we can conclude that personal suitability and perceived usefulness are both moderately strong predictors of intent to use.

Role of peer advocacy, the inner model suggests that peer advocacy has the strongest effect on personal suitability (0.528), followed by perceived usefulness (0.282). The path relationship between peer advocacy and personal suitability is statistically significant. The path relationship between peer advocacy and perceived usefulness is statistically significant. Thus, we can conclude that peer advocacy moderately is a moderately strong predictors towards personal suitability and perceived usefulness.

Outer model measurement model loadings. In Table 5 all of the t-statistics for reflective indicators included in the study for the latent variables and the formative indicators used for the target variable are >1.96 (sig. level 5%), so we can say that the outer model loadings are highly significant.

DISCUSSION

The three constructs considered in this study (Fig. 1) account for 73.1% towards intention to use mobile payment. All the reflective indicators are significant. Intent to use mobile payments indicators (formative) all show +0.8 value which is suggestive if personal suitability and perceived usefulness is perceived as important then there is a good possibility that the customer may indeed adopt mobile payments.

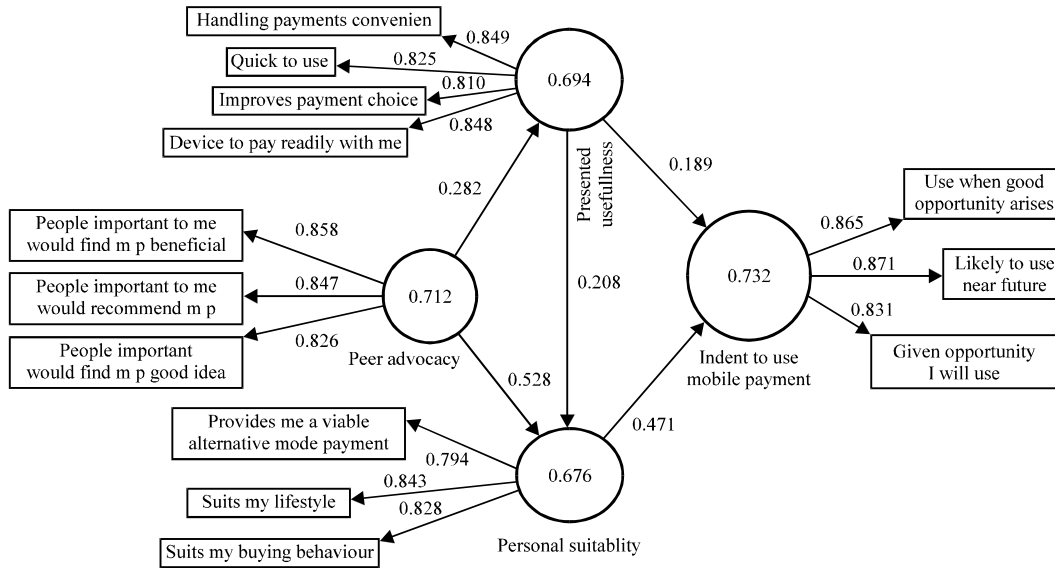


Fig. 1: PLS mapping

Peer advocacy was initially included as a latent variable both showed poor path co-efficient and t-statistics. In a collectivistic (non-Western) culture, one would expect others’ opinions to have more impact on the individual because of face saving and group conformity also a higher power distance would invoke a more influential role for peers. Several studies did find a stronger influence of subjective norm on the intention to perform a focal behavior in non-Western cultures (Choi and Geistfield, 2004; Lee and Green, 1991). Furthermore, perceived usefulness seemed important in Western cultures, while perceived ease of use had more relevance in non-Western studies (Schepers and Wetzels, 2007).

Teo (2009) defines subjective norm as “a person’s perception that most people who are important to him or her think (s) he should or should not perform the behavior in question. Yuen and Ma (2008) extend this by stating that “a person perceives that the more others (who are important to him or her) think (s) he should perform a behavior, the more (s) he is willing to do so.

CONCLUSION

Indicators used to reflect perceived usefulness is show a high loading. Respondents confirm their expectations of mobile payment processes to be quick, improve their payment choices (possible anticipation of deal-making and the ubiquity of the device making an always-on payment platform available useful. Personal suitability indicators confirm that there is a potential of acceptance and intent to use if it fits the customer’s lifestyle and the buying behavior.

IMPLICATIONS

The growing number of players trying to get the market share of mobile payments is indicative of a market churn where customer acquisition costs will be high and customer retention cost will be a challenge. Several focus- group discussions have summated that initial adoption of mobile payment is primarily is deal-seeking and not a habit based on other perceived benefits. India is still a cash driven economy and it is estimated that the black economy of India is as much as 75% of the GDP (Mehra, 2014). Therefore, even if all facilitating conditions for mobile payment is fulfilled, issues remain in the areas of regulation, taxation and the tendency to avoid creating an accounting trail for payments, especially in the higher order.

Nevertheless, mobile payment service providers must strategize their marketing strategies to ensure that traction is gained both in terms of value and volume of transaction by ensure tie-ups with multiple merchants/business-to-commerce touch-points so that the customer can perceive multiple benefits and show greater intent to use and indeed use it. The marketers must also create customer networks in an aligned manner by tapping applications like Whatsapp and Face book and identify advocates who can then in turn share their mobile payment experience and change/influence the user or the potential user towards greater frequency, range and value of transactions. Personal suitability has emerged as a key driver for intent to adopt mobile payments in this study. Applications and transaction technology and communications must become highly predictive, lean and able to close the transaction loops in a minimal time. The

big promise mobile payments deliver is that the mobile phone is an unchained device and ubiquitous and a personal accessory and thus an extension of a person's social image and connectivity. Offers and incentives in partnerships with leading brands are already in the market. This will reflect in his lifestyle choices. Credit and debit cards are tying up with retailers. both online and off-line to capture this indicator. Several key players are even offering initial savings to customer who move from the company websites to customizable mobile applications provided by them. Smart-phones are fast replacing the tradition mobiles in the Indian market both in urban and rural areas and the prices are coming down rapidly. The interface these phones provide and the applications which can be customized are indicative of how mobile payment service providers can improve personal suitability for customers.

LIMITATIONS

The study cannot be extrapolated to other geographies of India as it is heterogenic market. Hence, the findings remain relevant only to the area covered by the study. A larger sample size and an advanced sampling frame could have highlighted the model efficacy better. More exhaustive data gathering techniques could have been used using simulation or real-time transaction behavior analysis and post- transaction response study.

Traditionally academics have been using the variants of the Technology Adoption model to study mobile

payments and theory building is engaged around that. This is to the point that Bagozzi (2007) points out that "the study of technology adoption/acceptance/ rejection is reaching a stage of chaos and knowledge is becoming increasingly fragmented with little coherent integration". The latest version of the model (Venkatesh *et al.*, 2003) has 41 independent variables for predicting intentions and at least eight independent variables for predicting behavior which makes it cumbersome for both academic and industry research. On top of that, technology acceptance research has not substantively considered group, cultural or social aspects of decision making and usage this is crucial, especially in the Asian context.

RECOMMENDATIONS

Per se, one observation from this research is that mobile payment is one option a customer has amongst multiple choices of payment ranging from credit, checks, cards cash and the like. In cash driven economy like India, a unidirectional study solely focusing on one payment system will not be able to embrace the entire choice matrix a customer has. Tetrad and Collan's Lazy User model (2009) addresses many of these concerns and opens up a new paradigm for Indian researchers.

This may be a new area of research for the Indian market. Nevertheless, mobile payments will remain choice-based for Indian consumers and how this choice is made and under what circumstances calls for extended research.

APPENDIX

Appendix 1: Quality criteria 1

Average variance extracted (Ave) [>0.5 accepted]	Sample Mean (M)	SD	t-statistics (O/SD)	p-values
Intent to use mobile payments	0.731	0.026	28.286	0
Peer advocacy	0.712	0.031	23.112	0
Perceived ease of use	0.737	0.028	26.819	0
Personal suitability	0.675	0.031	21.974	0
Composite reliability [>0.8 acceptable]				
Intent to use mobile payments	0.891	0.013	68.966	0
Peer advocacy	0.881	0.016	55.489	0
Perceived ease of use	0.893	0.014	65.691	0
Personal suitability	0.861	0.017	50.838	0
Cronbach's alpha [>0.7 acceptable]				
Intent to use mobile payments	0.816	0.025	33.264	0
Peer advocacy	0.797	0.030	26.285	0
Perceived ease of use	0.822	0.025	32.382	0
Personal suitability	0.758	0.034	22.230	0
Heterotrait-monotrait ratio (HTMT) [< 0.9 acceptable]				
Peer advocacy->intent to use mobile payments	0.475	0.067	7.138	0
Perceived ease of use->intent to use mobile payments	0.377	0.096	3.900	0
Perceived ease of use->peer advocacy	0.345	0.088	3.916	0
Personal suitability->intent to use mobile payments	0.681	0.061	11.133	0
Personal suitability->peer advocacy	0.748	0.061	12.271	0
Personal suitability->perceived ease of use	0.385	0.094	4.071	0

Appendix 2: Quality criteria 2

Discriminant validity (Fornell-Larcker criterion (square root of each construct must be larger than the correlation values below them)	Intent to use mobile payments	Peer advocacy	Perceived ease of use	Personal suitability
Intent to use mobile payments	0.856			
Peer advocacy	0.387	0.844		
Perceived ease of use	0.310	0.277	0.859	
Personal suitability	0.538	0.586	0.308	0.822
Collinearity statistic (VIF) Variance in Frequency Outer model, VIF of 5 or lower acceptable, intent to use mobile payments				
Peer advocacy			1.000	1.083
Perceived ease of use	1.104			1.083
Personal suitability	1.104			
Collinearity statistic (VIF) Inner model				
VIF of 5 or lower acceptable				VIF
Use when good opportunity arises				2.011
Likely to use in near future				2.039
Given opportunity I will use				1.592
People important to me would find it beneficial				1.736
People important to me would recommend				1.670
People important to me would find it a good idea				1.707
Provides an alternative form of payment				1.473
Suits my lifestyle				1.566
Suits my buying behavior				1.590
Use as device always with me				1.928
Convenient to use				2.145
Quick to use				2.037
Improves payment choice				1.944

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