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Determinants of Customers' Adoption of Mobile Banking: An Empirical Study by Integrating Diffusion of Innovation with Attitude

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Abstract

Adoption of mobile technology as an alternate distribution channel in delivering the banking services to customer's shows prospective in the newly developed banking model all over world. Mobile banking is a new radical innovation in the excellence of service delivery to banks. Banks are mining this technology to empower the society containing both banked and un-banked customers as well as bringing profits to mobile network operators and reducing the operational cost for the banks. This research attempted to integrate the customer's attitude and social environmental factor i.e. mimetic force with Diffusion of Innovation (DOI) model by Roger's in widening the applicability to mobile banking in India. It explains the customers' attitude towards mobile banking in terms of innovation attributes i.e. Relative Advantage, Compatibility, Trialability, Observability and Institution theory i.e. mimetic pressure which leads to the formation of attitude towards adoption of mobile banking. It was found compatibility; trialability and mimetic force are the good predictors for attitude towards adoption of mobile banking in Indian context. The research has enhanced knowledge base on customer adoption of mobile banking and has identified the innovation attributes and mimetic force in explaining the customers' attitude in better understanding of the commercial likelihood of distribution channel.

Keywords: Mobile banking; Diffusion of Innovation; Roger's model; Radical Innovation

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INTRODUCTION

Technological innovation has rapidly changed every aspect of our lives and the way of banking business during the last decade. The smart devices are being used in delivering banking services. The integration of the internet technology and mobile network creates new opportunities and applications. Delivering the bank-related financial services through the mobile devices is known as mobile banking.

The services offered by mobile banking include non-financial transaction i.e. Cheque-Book request, mini statement/ balance enquiry, and financial transactions i.e. bill payments (utility bills, Credit cards, insurance premium), fund transfer, mobile recharge, merchant payments etc. Mobile banking provides the customer any time, any where banking facility with real-time transaction through the mobile device. Mobile network operators or service provider should ensure the security and threats that the customers may pose while doing the banking transactions. The voluntary nature of the decision to adopt it, perceived attributes of an innovation, social system in which the innovation to diffuse and the communication channels through which an innovation reaches the adopter are the key determinants of innovation adoption (Rogers, 1995).

Adoption is also depends on the people perceptions of innovation. Innovation adoption theory proposed by Tornatzky and Fleischer (1990) used typically to foresee mental approval rather than actual acceptance. Indian banks are eyeing on business

intelligence solutions to understand the behavioral pattern of customers and offer cross selling solution to customers, to cut operating costs, manage scale and increase their productivity. Present volatile economic state of affairs is also forcing banks to try various business models either to increase their base margin or risk management. Adoption of mobile banking and search for innovation to improve products and services is a challenge task for Indian banks. Bigger the challenge more is the need for the innovative attributes. The present research is an attempt to apply diffusion innovation theory attributes and institutional theory mimetic forces in exploring the customer attitude towards the use of mobile banking by statistical analysis and structural equation modeling.

MOBILE BANKING IN INDIA

Payment and Settlement Systems Act, 2007 has moved towards creating electronic payments and thereby creating a 'less-cash society'. In keeping view of the vision document by this act banks are promoting various modes of electronic payments i.e. credit card payment, mobile banking etc. The act ensures the safe, reliable, accessible and interoperable payments and settlement systems in India. Keeping in view of the growth of volume in RTGS as well value processed, retail electronic segment has shown significant growth of 35.2% in volume and 54.9% in value. Reserve Bank of India (RBI), issued the first guidelines regarding mobile banking in October 2008. Initially bank-led model was suitable for India, which stated offering services like balance enquiry, cheque book request, stop payment , mini transaction statement etc.

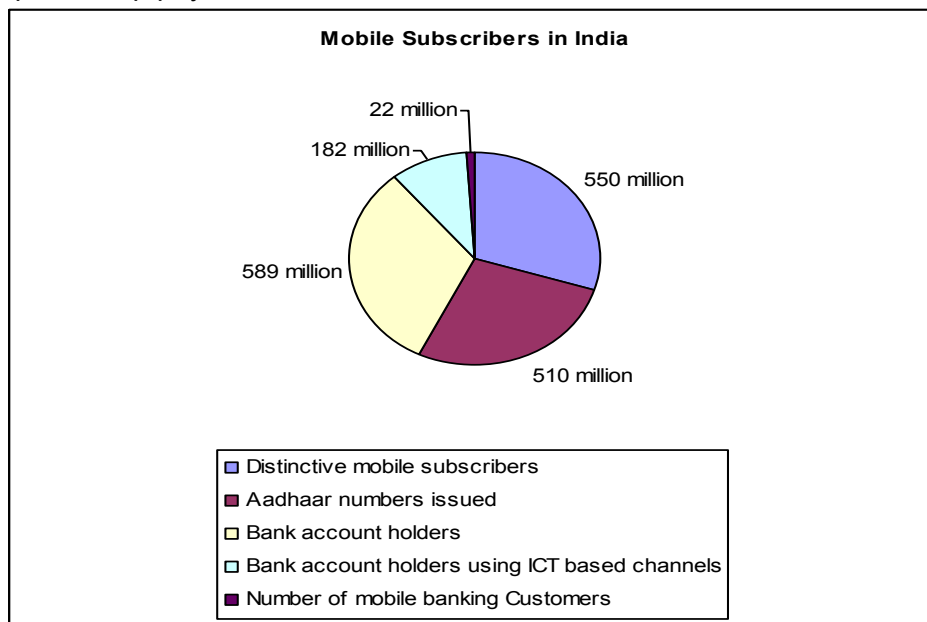


Fig-1 Statistics of Mobile Subscribers and mobile banking customers in India (Source: RBI, India (2014))

The larger base of mobile subscribers has not been tapped for financial inclusion. Mobile banking has been reflecting a growing trend since few years. Since last 3 year the trend in usage of mobile banking is as per the following figure:

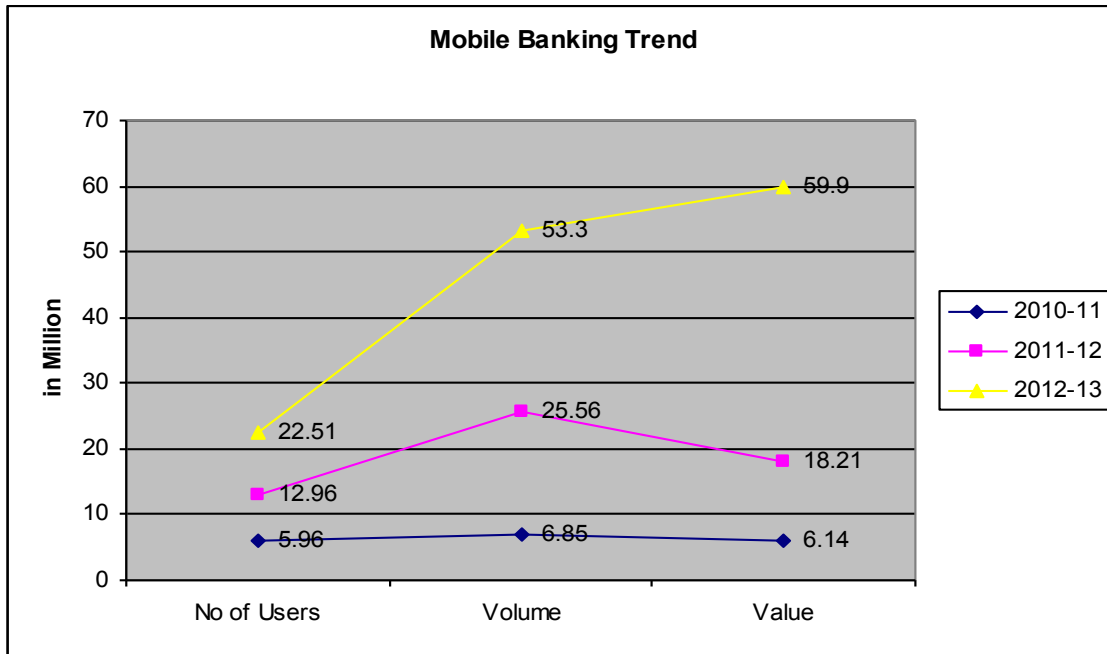


Fig-2 Mobile Banking Trends over 3 years in India (Source: RBI, India (2014))

As per the guide lines of RBI, banks are offering mobile banking services through various types of channel i.e. SMS channel, Unstructured Supplementary Service Data (USSD) channel, mobile banking application available in app stores like Apple, Google , Blackberry etc.

The Interbank Mobile Payment Services(IMPS) has enhanced the efficiency of mobile banking by enabling real time transfer of funds between bank accounts and providing a centralized interbank settlement service for mobile banking transactions. The IMPS has also been enhanced to support merchant payments using mobile phones to promote less cash society. Mounting attractiveness of low charge channels i.e. e-banking, m-banking has been found wider acceptance by customers, which has given a wave of digital banking in reducing the bank operating costs. In Jan-2013 mobile banking transactions was 5.6 million in Jan-2013 in comparison to 2.8 million in Jan-2012 and the value of transactions is INR 625 cr(USD 105.73 million) in Jan-2013 which three times of the value of transactions in Jan-2012. .

LITERATURE REVIEW

In social systems how the diffusion of innovation is being undertaken is explained by Diffusion of innovation (DOI) model designed by Rogers (1983). Human being perceptions of attributes of an innovation affect the rate of adoption. According to DOI theory, individuals collect and synthesis information about an innovation and compiling this information forms their perception about an innovation. Based on theses perceptions, an individual may decide to accept or reject an innovation (Agarawal & Prasad, 1997; Moore & Benbasat, 1991). According to Rogers, individuals' perceptions of the attributes of an innovation and not the attributes as classified objectively by

experts or change agents, affect the rate of adoption.

Innovation attributes can explain the rate of innovation adoption. Tornatzy and Klein (1982) in their study have hypothesized, perceived innovation attributes can foresee the adoption and accomplishment of different innovations. Moore and Benbasat (1991) extended and refined Rogers model to develop an instrument that can be used across a variety of information system/technology innovation domains and at the same time robust enough to tap a variety of perceptions of innovations. They retained relative advantage, compatibility and trialability as original and renamed complexity as ease of use to be consistent with Davis's (1989) TAM. Agarwal & Prasad (1998), in their study stated Rogers (1983) innovation is more likely to be adopted if it is compatible with individual's value and social system. Lehman & Markman (2001) investigated the psychological processes involved in consumers' adoption decision and reported that prior product knowledge had a negative influence on adoption. Polatoglu & Ekin (2001), in their study in Turkey, found relative advantage as important factors affecting users' adoption decisions.

Gerrard and Cunningham (2003), defines compatibility as a gauge of the values or beliefs of individuals, ability of an innovation to meet their needs and the ideas adopted in the past, and Barnes. S. J & Corbett, B (2003) highlighted that the recent innovations in telecommunications helped the banks to provide mobile banking services to the customers and the customer to do banking service through a mobile phone. Clark (2008) focused in his research, mobile is being used as distribution channel for providing the banking services but simultaneously it provides challenges to the banks how they will be providing banking solutions to multi vendor mobile devices. Laukkanen and Kiviniemi (2010), relative advantage positively weight on the behavioral intention to adopt M-money in Finland.

Riddhima Gandhi (2010), states that mobile banking is not popular even within the urban area. Today less than 14 per cent of urban dwellers use mobile banking. He further states that the awareness level among the people regarding mobile banking is very less and lack of support in vernacular languages.

Archana Sharma (2011), stated, the huge base of mobile subscribers and wide spread coverage of mobile network operators have provided an opportunity for banks to utilize the platform for delivering their banking services to the banked and unbanked customers. states that the speedy increase in customers and broad exposure of mobile network have made this channel an important platform for extending banking services. Jaideep Ghosh (2011) opines that the mobile banking device can be an important tool to cover the large unbanked population in the country. Benoy CS (2011) states that, the Indian Banking Industry performed outstanding in the last few years, even during the times when the rest of the world was struggling with the financial meltdown.

Today most of the banks in India provide various services such as net banking, ATMs, SMS banking and Mobile banking. Dikit.S.V, Shringarpur (2012) suggests mobile network operators should be tied up with banks in order to provide the services at a cheaper rate to the customers. As per study conducted by Riquelme and Rios (2010), Lin (2010), Puschel, Mazzon and Hernandez (2010), Cruz, Neto, Gallego and Laukkanen

(2010) relative advantage plays a major role in country like Singapore, Taiwan and Brazil. Papiés and Clement (2008), Liao et al.(1999), Vijayasarathy(2004) found compatibility, relative advantage and ease of use to be the major factors in influencing the users to adopt new electronic technologies. Prerna Sharma Bamoniya & Preeti Singh (2012) found the barriers, influencing factors and the preferred services to adoption of mobile banking. Gazelle Aggarwal & Harminder Kaur (2012) in their paper states that the major concern of all the customers is security and privacy related to mobile banking. Saikumar Rathod (2012), explains the mobile device provides wide opportunity in dispersal of financial services to the unbanked and banked customers of the country because of its feature of any time and any where access.

Many micro transactions can be carried out leading to the cutting down of transaction cost thereby increasing the profitability for the service providers and the banks. As per the study of Kim Chun & Song (2009), Taylor & Todd (1995), Yang & Yoo (2004), Bobbitt & Dabholkar (2001), they found attitude plays a major role in explaining the technology acceptance. Yang study conducted among university students in Taiwan found, location free conveniences, cost and customize banking needs are the motivation in adoption of mobile banking.

The barriers to adoption were system security and charges for mobile banking net connection, Attitude is the driver of consumer utility or attributes. Triandis (1979) described attitude as an individual's positive or negative behavior towards innovation adaptation. Polatoglu and Ekin (2001) suggested that customer attitude is composed of one's attribute beliefs about the object and perceived importance (weight) of that attribute in making the decision to adopt. Ibrahim M. Al-Jabri, Sadiq M. Sohail (2012), found that relative advantage, compatibility, and observability have positive impact on mobile banking adoption study conducted in Saudi Arabia.

Contrary to the findings in extant literature, trialability and complexity have no significant effect on adoption. Perceived risk has a negative impact on adoption. ChauShen Chen (2013), their analytical results demonstrate that mobile banking users with different behavioral patterns have dissimilar perceptions of innovation benefits and risk. Chung (2014) conducted study in Kazakhstan, revealed perceived risk, trustworthiness and Rogers' five innovation characteristics are important determinants towards adoption of mobile commerce. Perceived risk and trustworthiness are important determinants because of the high uncertainty avoidance characteristics of the Kazakh society. The institutional theory emphasizes the importance of institutional environments to attitudes and behaviours of social actors. Theory emphasis, in modern societies, social actors is typified as systems of rationally ordered rules and behaviours.

Three institutional pressures are coercive, normative and mimetic. Previous research has focused on the institutional pressure at the organizational level. Mimetic pressures force social actors to behave by seeking examples of established practices and behaviours to follow through voluntarily and consciously copying the same practices and behaviours of other successful and high-status actors. Customers mimic the course of action of those customers who are already using mobile banking and successful due to the belief that actions taken by successful customers will be more likely to have positive attitude. By imitating the successful customers in mobile banking, first adopters try to minimize the risk, cost and the experimentation they require for adoption of mobile

banking. In the mobile banking, individuals may selectively imitate the attitudes and behaviours that have been adopted by individuals. Therefore, it suggests that individuals will be more likely to adopt mobile banking if their social ties who they perceive as high-status have already adopted mobile banking. Wang et al. (2008), in the study found, normative and coercive pressures significantly influencing the attitude and intention of adopting Internet banking.

RESEARCH OBJECTIVES

In the present social environment, customer's attitude is volatile in nature and also innovations in different sectors are rapidly transforming the society. Banks are adopting the technological innovation i.e. mobile banking in delivering their banking services. Hence it is a need to study the innovation attributes and mimetic forces which leads to the attitude formation. The Research have emphasized on innovation attributes and mimetic force in determining the customers' adoption of mobile banking. One of the primary apprehensions of this research is to find out the innovation attributes affecting the attitude and mimetic force towards the acceptance of mobile banking in India.

METHODS

Sampling and data collection

The sample consists of customers' of private and public sector banks located in India which was surveyed through a structured questionnaire. A sample of 400 was extracted through the systematic sampling. The questionnaire contained questions concerning the dimensions of innovation attributes, mimetic force and the attitude statements. Seven-point Likert scale (1 Strongly disagree; 7 Strongly agree) was used in the questionnaire for measurements.

Measurement Scale

To ensure content validity, the measurement items are taken from scales validated in previous research in context of different country. As per Cronbach's alpha test, scale of reliability for the study is .8036, which indicates a good enough higher reliability. The reliability result and Cronbach's Alpha test result show n below:

Table-1 Reliability Analysis and Cronbach Alpha Test Results

Reliability Analysis				
No of Samples:	400	Alpha=.8036	No of Statements:	19
Cronbach Alpha Test Results				
Items			Cronbach's Alpha	
Relative Advantage			.815	
Triability			.716	
Attitude			.764	
Mimetic			.762	
Observability			.735	
Compatibility			.812	

RESEARCH FINDINGS

Table-2 Socio-economic /demographic profile of respondents

Variable	Description	Frequency	Percent
Sex	Male	312	78
	Female	88	22
Occupation	Service	67	16.75
	Business	78	19.5
	Student	49	12.25
	Professional	130	32.5
Age	21-30	78	19.5
	31-40	156	39
	41-50	93	23.25
	51-60	56	14
	Above 60	17	4.25
Education	Under Graduate	57	14.25
	Graduate	196	49
	Post Graduate	147	36.75
Income	20,000-30,000	35	8.75
	30,001-40,000	156	39
	40,001-50,000	127	31.75
	Above 50,000	82	20.5

From the demographic profile it can be interpreted, maximum of the customer belong to the age of 31-40 years, which indicate the masses of the is age are having a positive attitude towards the adoption of the innovation in banking channel. The customers adopting are also educated and well conversed with the terminology in mobile banking. The incomes of the many customers are also in the rage from 30,000 to 50,000.

Table-3 Financial and Non-Financial Mobile banking Transaction carried out by customers

		Percent
Valid	Mini Statements And Check Balance	50.0
	Bill Payment Processing	20.0
	Portfolio Mgmt Services	10.0
	Cheque Book Request	14.0
	Content Services	6.0
	Total	100.0

Factor analysis is a multivariate statistical technique is used to summarise the information contained in large number of variables into smaller number of subset or factors. Principal Component analysis with varimax rotation is used in analysis of factor. The Kaiser-Meyer-Olkin (KMO) measure of Sampling Adequacy is .818 indicating that the present data are suitable for factor analysis. Bartlett's Test of Sphericity is significant ($p < .001$), indicating sufficient correlation exists, between variables for the factor analysis. The Bartlett's Test statistics is accepted. The first 6 components i.e. factors in the above table have an Eigen values over 1 and they account for about 72 percent of the observed variation in the customer attitude towards mobile banking.

According Kaiser Criterion, only the first 6 factors should be used because other Eigen values are more than one

Table 4 Factor Loadings with Rotated Component Matrix

	Component					
	1	2	3	4	5	6
ATT1						.521
ATT4						.701
ATT3						.779
RA1	.916					
RA2	.883					
RA3	.896					
RA4	.694					
CA1		.913				
CA2		.864				
OB1				.728		
OB2				.781		
OB3				.765		
OB4				.694		
OB5				.724		
TRI2					.651	
IMG1			.702			
IMG2			.638			
IMG3			.552			
TRI1					.785	

Extraction Method: Principal Component Analysis. Rotation Method: Varimax.

From the above table, the attributes like RA1,RA2,RA3,RA4 have high loadings .916,883,.896,.694 on factor 1.This concludes that factor1 is a grouping of these 4 variables. Therefore the factor can be interpreted as Relative Advantage. The attributes like CA1 and CA2 have a high loading i.e. .913,.864 indicating that factor 2 is a grouping of these variables. These variables are combined into a dimension called compatibility. The attributes like IMG1, IMG2 and IMG3 have a high loading i.e. .702, .638,.552 indicating that dimension 3 is a combination of these variables. These variables are combined into a dimension called Mimetic force. The variables OB1, OB2, OB3, OB4 and OB5 have a high loading i.e. .728, .781, .765, .694,.724 indicating the dimension is a combination of these variables. These variables can be combined to into a dimension called as Observability. The variables TRI1 and TRI2 have loading i.e. .785, .751 indicating the factor is a combination of these variables. These variables can be combined to into a dimension called as Trialbility .The variables ATT1, ATT3, ATT4 have loading i.e. .521, .701, 779 indicating the factor is a combination of these variables. These variables can be combined to into a dimension called as customer attitude.

Structural Equation Modeling

Structural equation modeling (SEM) consists of an integration of two models, including the measurement model, which explains the relationships between latent variables and

observed variables, and the structural model, which defines causal relationships among those latent factors (Jitlung, 2009). Modification indices (MI) are often used to assess the overall model fit (Moss, 2009). Path analysis is a subset of Structural Equation Modeling (SEM), the multivariate procedure that, as defined by Ullman (1996), “allows examination of a set of relationships between one or more independent variables, either continuous or discrete, and one or more dependent variables, either continuous or discrete.” SEM deals with measured and latent variables. To assess direct and indirect relationships among the variables path analysis has been used to perform these analyses. The fit indices are Root mean square error of approximation (RMSEA), CMIN/DF, Comparative Fit Index (CFI), Goodness of fit (GFI), and NFI (Kohn et al., 2011). The value of RMSEA of 0.1 or less, CMIN/DF of less than two, and CFI and NFI of 0.80 or more represent the model as a good fit (Browne and Cudeck, 1993; Garson, 2006). The above study demonstrates the power of structural equation modeling for modeling diffusion of innovation attributes in mobile banking adoption and also identifying the reliable measured variables. The base line model; was analyzed with SEM. The fit indices as shown in table revealed the best –fit measurement model Measurement model was assessed by Confirmatory factor Analysis. The Ch-square was significant at $p < .01$ with 429.91, $df=189$, $\chi^2/df= 2.27$. GFI is 0.94 greater than the .9 recommended (Joreskog and Sorbom, 1996). The model fit index is at accepted level indicating the data fits the model.

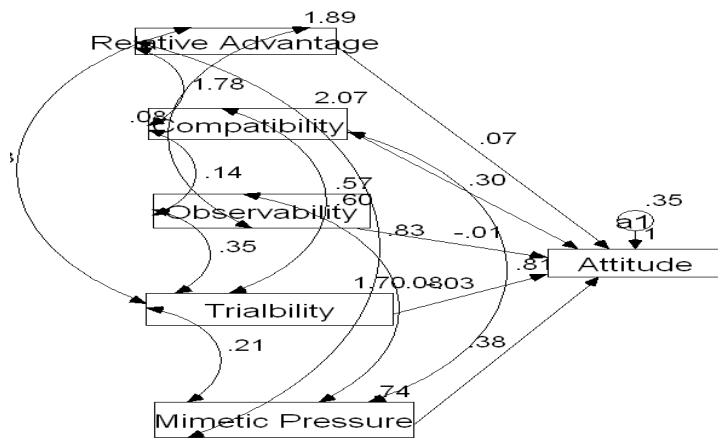


Fig-4 Path Analysis

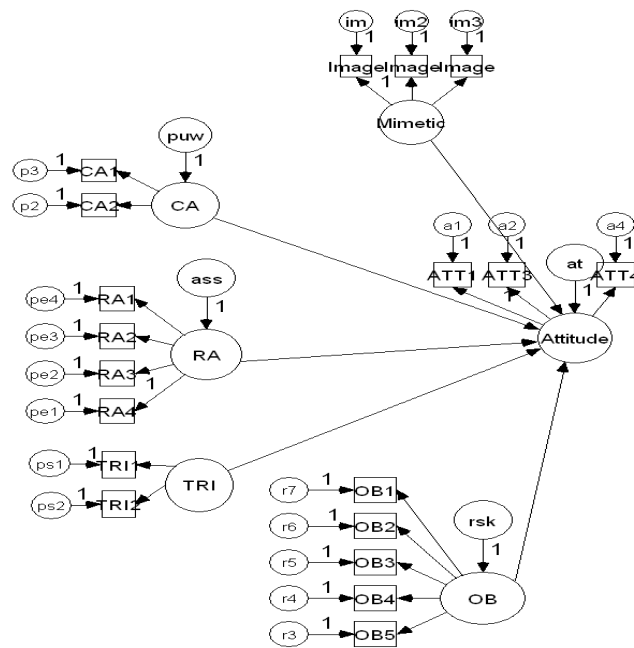


Fig-3 Research Structural Model

Table 5 Model Fit Summary

Fit Index	Accepted Standard	Structural Model Fit
RMSEA	0.05-0.08	0.07
CMIN/DF	<2.00	1.43
CFI	>=0.8	0.98
NFI	>=0.8	0.97
GFI	>=0.8	0.94

Regression Analysis:

Table 6(A) Results of Multiple Linear Regressions: Innovation Attributes Vs Customers' Attitude Model Summary

Mode I	R	R Square	Adjusted R Square	Std. Error of the Estimate

1	.794(a)	.630	.624	.601
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a Predictors: (Constant), IMG,OB, TRI,CA, RA

The table shows that the independent variables are able to explain 63.0% of the variation in the dependent variable which is the attitude towards adoption of mobile banking. That R^2 is 0.630, which specify IMG (Mimetic), OB (Observability), TRI (Trialability), CA (Compatibility) and RA (Relative Advantage) explains 63% of variance of Attitude. In conclusion we can suggest it is a good model fit of Diffusion of Innovation (DOI) for measuring the innovation attributes on attitude towards mobile banking.

Table 6 (B) ANOVA (b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	177.844	5	35.569	98.432	.000(a)
	Residual	104.432	289	.361		
	Total	282.276	294			

a Predictors: (Constant), IMG, OB, TRI,CA,RA

b Dependent Variable: ATTITUDE

The F statistics for the model is significant at 95% confidence level as can be seen from the ANOVA table, which proves that the model is statistically significant at 95% confidence level.

Table 6 (C) Coefficients (a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.886	.321		5.872	.000
	RA	.073	.062	.103	1.190	.235
	CA	.301	.057	.443	5.296	.000
	OB	-.012	.050	-.010	-.250	.803
	TRI	-.027	.030	-.035	-.879	.038
	IMG	.383	.058	.336	6.601	.000

a Dependent Variable: ATTITUDE

The above table represents the coefficients of multiple regression models for attitude towards mobile banking adoption. Some evidence regarding the relative importance of each variable in this model is provided by t statistic. Three dimension compatibility, trialability and mimetic where statistically significant where other dimension like relative advantage and observability were statistically not significant. Using t statistic, it is found that all only 3 coefficients were included in the regression model. Therefore, multiple regression models for attitude towards mobile banking among the adopters is illustrated

by

$$Y(\text{Attitude}) = 1.886 + 0.301 X_2(\text{COMPATIBILITY}) + (-0.027) X_4(\text{TRIALABILITY}) + 0.383 X_5(\text{Mimetic Force}) + e$$

Where: Y = value of attitude towards mobile banking among adopters;

X₂ = Value of Compatibility;

X₄ = Value of Trial ability;

X₅ = Value of Mimetic;

DISCUSSION AND CONCLUSION

The study examined from the theoretical point of view shows, significance of innovation attributes towards the customer's attitude for the acceptance of mobile banking.

The proposed framework was based on DOI and institutional theory at the individual level which establishes the relation between innovation attributes, mimetic forces and attitude.

The study found, innovation attributes i.e. trialability and compatibility has significant impact on the attitude whereas the relative advantage is not significant in the Indian context as previous research carried out in different country have revealed the significance of relative advantage toward the attitude.

Trialability may be an apprehension which has emerged among the customers in consideration to the adoption of mobile banking reflects customers want to take time before the actual use of mobile banking. Customers demonstrate a propensity towards late adopter rather than early adopter of the innovation. They want to enrich knowledge of how to use, experiment and then built an attitude towards use of mobile banking. Tech savvy customers will be the early adopters as they can quickly learn and may try for actual use than the non tech savvy customers. Media influence creates an impulse transacting behavior among the customers to trial how banking transactions are being carried out in mobile.

Banks should create workshop or virtual environment for customers in different public places or shopping malls or educational institutes or market places to give hand on practice in banking transaction through mobile to build an attitude formation towards this alternative channel for delivering banking services. Customers are already doing their banking transactions either through internet or visiting the bank branch so the banking services what they want to perform is not new, only they want to adopt the innovative concept in improving their efficiency in terms of time and cost. There are familiar with all the terminology to be carried out in banking or familiar with existing banking services, the potential adopters have experience of internet or branch banking, now with the mobile devices in their hand and compatible with exiting values and experiences they form attitude towards taking the advantage of this innovation in an improved productive manner. Customers' are inclined to adopt mobile technology as they are already using the latest mobile technology in their mobile devices and are being well versed with the latest mobile techno-innovation, so these customers will be the early adopter for the mobile banking which forms a positive attitude towards the adoption as per the study.

The adopter of the latest mobile technology will be the first adopter than the category of user not versed with the latest mobile technology. Relative advantage is not significant as per the study because the some customers may be thinking the adoption is not giving much benefits or not superior than branch banking or internet banking. It is meaningless unless it doesn't offer much flexibility and advantage over the branch banking or internet banking. Further mimetic pressure has significant impact on the attitude towards the adoption of mobile banking. Customers are trying to adopt the mobile banking by copying the practices and by seeing the behaviors of others who are using the mobile banking.

Compatibility, mimetic forces and trialability factor have significant impact on the attitude towards mobile banking while other research carried out in different country had shown relative advantage, compatibility and observability have significant impact on attitude. Customers are more inclined towards the behaviour of other users or they want to want to observe or they want to go for trial or demo before the actual adoption of the mobile banking in India context.

Target marketing should carried out by banks rather than mass marketing focusing on those customers equipped with mobile devices with latest technology and should advertise features i.e. ease of use, secure ,cost, time and safer banking through the smart devices. DOI model has proven to be useful framework for explaining the attitude towards mobile banking adoption and is also aligned with innovation attributes which will be helpful for the banks to know the customer pattern of adoption and they will have a differential strategy to remain competitive in the market Weihua , Shambare, and Wang (2008), in their study on the adoption of internet banking had studied from the institutional theory perspective found normative and coercive pressure significantly influencing the attitude to adopt internet banking while the mimetic pressure do not.

Attitude plays a role between the mimetic force and attitude for adoption of mobile banking. In mobile banking context mimetic pressure is significant whereas in the internet banking as per previous research the coercive and normative pressure were significant. It indicates the adoption by the higher profile influence the adoption of the lower profile customers. So segmenting of the customers is need in case of mobile banking. This research has applied the institutional theory at the individual level rather than applying at the organization level.

MANAGERIAL IMPLICATION

The study suggests, banks should develop sustainable strategy to address the issues of relative advantage, observability compatibility and social influence to increase customer migration towards the mobile banking. Improvement in the level of security, and making the customer aware about the security features and technical terminology will be great concern for the banks. Security of transactions is major concern for customers in the usage of mobile banking services, in India, if customers want to take the advantage of greater security, the handset has to be GPRS enabled which are challenges for the banks in attracting those customers. Banks should be careful about the customers complaints and grievances to be addressed, who will be accountable for any fault in the transaction whether the bank or the service provider. Banks staff should be well versed with the technical terms and various aspect of the mobile banking so that it will be helpful for the customers in handling their transaction related problems.

Customer awareness of various aspects of mobile banking and educating the customers and widespread advertising and marketing promotion of mobile banking has to be carried out by banks. The mobile application used by the banks has to be compatible with operating system and handset being used by the customers.

LIMITATIONS AND FUTURE RESEARCH

The sample taken for the study may not be the representative of the whole population of bank customers. Analytical result has limited practicality or its use may arise regarding the generalizability of the findings. Further the study has not taken into consideration of the actual usage of mobile banking by customers. The sample is from India only, it should be validated in other country and there may be cultural differences in other countries regarding the adoption of mobile banking. The social classes can be divided into different group and these groups may compare because different social classes will have different attitude towards the adoption of mobile banking. Future research should address the issue of risk, security, trust issues and should clarify the factors influencing the attitude. It should also use longitudinal data to found the stability of the relationship over time. Future work should explore the factors like security, risk, social influence in the acceptance of mobile banking. Attitude plays a mediating role between mobile banking adoption and institutional forces. Further the outcome of the research can go for cross-cultural study and could clarify the extent to which the effect of continued use of mobile banking may differ.

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