Determinants of Adoption Behaviour Towards mobile Banking Services – A Study of Indian Consumers

Deepa Verma

Research scholar

Maharshi Dayanand University, Rohtak

& Assistant Professor, S.D. P.G college, Panipat, India.

Vazir Singh Nehra

Professor

Maharshi Dayanand University,

Rohtak, India.

ABSTRACT   Mobile banking is a recent innovation in the telecommunication that have proven to be a boon for the banking sector and its customers: where customers interact with the bank through mobile phones and banks provide them the services like short message services, fund transfers, account details, issue of cheque book etc. At Present almost all the banks in the world have started providing their customers "Mobile Banking services". This paper focuses on defining the factors influencing mobile banking adoption, their impact and aims at forming a model which describes consumer behaviour patterns i.e., Perceived usefulness & ease of use, Perceived credibility & security, Perceived compatibility, Perceived service cost, Bank efforts, Knowledge based trust & belief, Perceived customer value, Technology perception, Reference group influence, Personal innovativeness, Perceived reliability, Attitude. An empirical study was conducted through questionnaire survey method. A sample of 600 Indian consumers was investigated with a structured questionnaire to study the various factors and their impact o mobile banking adoption behaviour. Multiple regression was applied to study the impact of these factors. In consequences, we are able to state what are the drivers and inhibitors of using mobile banking services via wireless delivery channel. The main purpose of this study is to understand the factors which contribute to user's intention to use the mobile banking services. Collectively, all the factors were found to explain the mobile banking adoption behaviour. Perceived Compatibility was found to be the most important factor affecting mobile banking adoption behaviour among all twelve factors under consideration. Perceived service cost, Reference group influence, attitude, perceived reliability are other important factors as per their magnitude of impact. Perceived usefulness & ease of use, Perceived credibility & security, Bank efforts, Personal innovativeness did not reveal a significant impact on mobile banking adoption behaviour. Marketing implications that can be drawn from the findings will assist service providers in understanding consumers better and making justified marketing decisions. Research findings make a contribution to the theoretical consumer behaviour modelling by extending a traditional theory to a new application area that may give new insights into the theory. Thus, the study contributes both to practice and theory.

Key Words: Perceived usefulness & ease of use, Perceived credibility & security, Perceived compatibility, Perceived service cost, Bank efforts, Knowledge based trust & belief, Perceived customer value, Technology perception, Reference group influence, Personal innovativeness, Perceived reliability, Adoption Behaviour

INTRODUCTION

The Mobile phone plays a very important role in the development of mobile commerce and mobile banking. In a dynamic environment, many banks seek new strategies that facilitate online information sharing and transactions. Linking banking business to customers through mobile devices such as mobile phones or PDAs is one of these competitive strategies. Mobile banking refers to using mobile devices to provide financial information, communication and transactions to customers such as checking account balances, transferring funds and transactions to customers such as checking account balances, transferring

funds and accessing other banking products and services from anywhere at any time. According to TRAI, mobile banking involves the use of mobile phones for banking transactions like fund transfer, balance check, etc. As per the extant guidelines of RBI, banks that are licensed, supervised and have a physical presence in India are permitted to offer mobile banking services. Mobile Banking policies in India aim to enable funds transfer from an account in any bank to any other account in the same or any other bank (interoperability) on a real time basis irrespective of the mobile network the customer has subscribed to (TRAI, 2013).

RESEARCH OBJECTIVE

This paper after reviewing the literature by identifying different articles, reports and research papers related to mobile banking. Different models are being used by many researchers like Technology Acceptance Model (TAM), Theory of Panned Behaviour (TPB) and Innovation Diffusion Theory (IDT) and these models are very helpful in determining the adoption of mobile banking services and later on Indian customers' behaviour was studied through structured questionnaire. The methodological approach in this study is exploratory cum descriptive, because we attempt to identify and explain variables that exist in a given situation and to describe the relationship that exists between these variables in order to provide a picture of a particular phenomenon, but to ferret out cause-effect relationships (Churchill & Iacobucci 2002). The phenomenon to be studied, mobile banking, is comparatively new in the field of academic research and thereby study aims at increasing the understanding of the current consumer behaviour pattern in electronic services era and to identify and measure the impact of some important factors on mobile banking adoption behaviour.

RESEARCH METHODOLOGY

SAMPLE SIZE

After the questionnaire was finalized, the size of the sample was determined on the basis of Cochran's (1963:75) equation, which he developed to concede a representative sample for proportion. As, there is a large population but we don't know the variability in the proportion that will adopt the practice of Mobile banking adoption behavior; therefore assuming p= 0.5 (maximum variability)at 95 percent confidence level and _+ 4.0 percent precision

(Malhotra, N.K., & Dash, S.(2010)The resulting sample size was taken as:

$$= (1.96)^2 (0.5) (0.5)/(0.04)^2 = 600$$
respondents

All the respondents were chosen via Quota sampling in which they were considered as categories both horizontally and vertically. Data was collected from 6 Districts in NCR i.e. Delhi, Gurgaon', Faridabad, Sonipat, Panipat, Rohtak (Haryana). The respondents were stratified amongst various age groups. Maximum respondents are in the age group of 22 years to 45 years (around 60%), as they are the ones who become financially dependent and are mostly on the way of expanding their families. The Income wise distribution of the respondents is depicted in the figure 5, which reveals that 27.79 percentage respondents belongs to the monthly income group of Rs. 50000 or more. The respondents were stratified amongst their marital status. Maximum respondents are married in the study (around 50%), and 47.11 percentage respondents were unmarried, 2.03 percentage respondents are widowed and 1.01 percentage respondents are divorced. Marital status of the respondents is depicted in figure 6. The persons engaged in services sectors out of working population were 58.25 percentages, whereas it was 41.74 % for industry. The educational profile of the sample is the respondents were included in the sample were from 12 or less to graduation, post graduation or holding an equivalent degree People from different strata's of life i.e. housewife, Business & self employee, Government employee, Private employee, Students and others were included in the study as revealed in figure 7. Housewife formed 12.03% of the sample, business & self employee formed 18.64% of the sample, Government employee formed 7.96% of the population, private employee formed 25.93% of the sample, Students formed 34.23% of the sample and others were 1.18% in the sample.

ANALYSIS AND FINDINGS

Exploratory Factor analysis is applied to all the 43 statements determining the adoption behaviour of respondents towards mobile banking. Factor analysis is a data reduction technique used to reduce a large number of variables to a few meaningful manageable factors. Before applying Exploratory Factor analysis, first step is to assess the appropriateness of factor analysis. For this, sample adequacy test is to be conducted. This can be done through Kaiser- Meyer-Olkin (KMO) statistic. Following table I show the results of Kaiser-Mayer-Olkin (KMO) measures of sampling Adequacy of the data.

Table II: (Factor Loading and Reliability)

No.	Name of Dimension	Variables	Factor Loading	Cronbach's Alpha
1.	Perceived usefulness & ease of use (PUEOU)	s2: Using mobile banking saves my time & energy	.822	.821
		s4: Learning skills to use mobile banking services has been easy for me	.786	
		s1: Mobile banking is useful for me	.747	
		s3: Using mobile banking enhances my effectiveness regarding banking transactions	.612	
2.	Perceived credibility & security (PCS)	s7: The security is maintained in mobile banking services.	.798	.837
		s6: I find mobile banking secure in requiring & receiving other information i.e, bank statements, etc,	.724	
		s5: Mobile banking will not divludge my personal information	.722	
		s8: Bank websites freezes after you put in all the information	.686	
3.	Perceived compatibility (PCOM)	s11: Mobile banking enhances my standard of doing bank transactions	.777	.845
		s9: Mobile banking fits to my life style	.736	
		s10: My mobile phone is compatible with mobile banking technology	.621	
4.	Perceived service cost (PSC)	s12: The bank charges for mobile banking are costly	.746	.754
		s13: The internet charges increases my cost of using mobile banking services	.661 (.416 in 8th Factor i.e. TP)	
		s14: The device (Smartphone) depreciates very fast and hence increases my cost of using mobile banking services	.612	
5.	Bank efforts (BE)	s18: I support banks efforts & controls to improve mobile banking services	.867	.812

		s15: banks are required to make more efforts for improving the usage rate of mobile banking services	.764	
		s17: Bank should emphasis on research & development for removing the threats and shortcomings	.711	
		s16: Banks should enforce proper safety measures and regulations regarding privacy of the transactions	.674	
6	**Knowledge based trust & belief (KBTB)**	s21: Mobile banking services are an improvement over traditional banking	.900	.802
		s19: I trust my mobile phone for conducting mobile banking	.892	
		s22: Mobile banking services do not match the technological advancement strategy of the banks	.856	
		s23: Mobile banking services are cost effective as the use of the services saves time, energy and accessibility	.735 (and .402 in 7th Factor i.e. PCV)	
		s20: I trust my telecommunication operators to provide secure data connections to conduct mobile banking	.486	
7	**Perceived customer value (PCV)**	s24: It is important to spread mobile banking awareness in India	.742	.923
		s26: Mobile banking is giving fast response to my queries	.736	
		s27: Bank provides full information on website too	.716	
		s25: It is possible to get all the information required by using mobile banking services	.711	
		s28: The bank handles requests, suggestions, complaints etc. promptly	.708	
8	**Technology perception (TP)**	s30: Bank has upto date equipment & technology for rendering mobile banking services	.894	.877
		s31: I am using latest technology to keep track with mobile banking services	.887	
		s29: The software available for using mobile banking services is quite suitable	.517	
9	**Reference group influence (RGI)**	s34: It is important that others like the banking services & banks i opt	.763	.887
		s32: While opting mobile banking services, I generally opt those services and banks that i think others will approve of	.740	
		s33: I opt only those banking services that others opt	.693	

10	Personal innovativeness (PI)	s37: I am using mobile banking services because I like technology up gradation in banking	.883	.795
		s36: I am willing to opt new advancement in technology	.827	
		s35: I like innovations	.808	
11	Perceived reliability (PR)	s40: Privacy & confidentiality is maintained while using mobile banking services	.798	.869
		s39: I experienced some wrong transactions & reduced balance automatically	.775	
		s38:The process of making transactions through mobile banking is reliable	.757	
12	Attitude (ATT)	s42: I feel using Mobile banking services is beneficial to conduct banking transactions	.781	.769
		s41: I feel using mobile banking is a good idea	.736	
		s43: I have positive attitude towards mobile banking services	.700	
Extraction Method: Principal Component Analysis. **Rotation Method: Varimax with Kaiser Normalization.[a]**				

Multiple Regression Method:

Multiple Regression is most effect at identifying relationship between a dependent variable and a combination of independent variables.

To run the regression model following main assumptions should be fulfilled:

1. Model Fit: F is significant
2. No autocorrelation
3. Significance of independent variables.
4. No Multicollinearity
5. Normality of residuals
6. Homoskedasticity

In order to run the multiple regression in SPSS Adoption behavior towards Mobile banking is taken as dependent variable. Stepwise regression is used to fit a model.

The results of multiple regression (step-wise) are as follows:

1. **Model fit**:

ANOVA[a]						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	33.584	1	33.584	108.521	**.000[b]**
	Residual	90.056	291	.309		
	Total	123.640	292			
2	Regression	38.370	2	19.185	65.248	**.000[c]**
	Residual	85.270	290	.294		
	Total	123.640	292			
3	Regression	43.903	3	14.634	53.040	**.000[d]**

	Residual	79.738	289	.276		
	Total	123.640	292			
4	Regression	45.689	4	11.422	42.201	**.000ᵉ**
	Residual	77.951	288	.271		
	Total	123.640	292			
5	Regression	47.121	5	9.424	35.348	**.000ᶠ**
	Residual	76.519	287	.267		
	Total	123.640	292			
a. Dependent Variable: Adoption Behaviour towards Mobile Banking						
b. Predictors: (Constant), PCOM						
c. Predictors: (Constant), PCOM, PSC						
d. Predictors: (Constant), PCOM, PSC, RGI						
e. Predictors: (Constant), PCOM, PSC, RGI, ATT						
f. Predictors: (Constant), PCOM, PSC, RGI, ATT, PR						

The table given above depicted that regression model is fit for all the data set because probability of F-statistic is highly significant at 5 percent level of significance for all the five models.

1. No multicollinarity:

While fitting a model, there should not exists multicollinearity between predictors. Multicollinearity makes it difficult to assess the individual importance of a predictor (Field A., 2005). The Pearson's correlation between each pair of independent variables should not exceed 0.80 (Bryman and Cramer, 1997) and (Kennedy, 1985) or more than 0.90 (Tabachnick and Fidell, 1996); otherwise independent variables with a coefficient in excess of 0.80 may be suspected of exhibiting multicollinearity. The results indicated that most cross-correlation terms for the explanatory variables are fairly small, because the VIF value is less than 10 which is giving no cause for concern about the problem of multicollinearity among the explanatory variables.

DISCUSSIONS AND CONCLUSIONS

1. It can be concluded from the study that Perceived Compatibility (PCOM) has a significant and positive impact on the adoption behaviour of customers towards Mobile Banking. Almost 45.8% variations in adoption behaviour are explained by the perceived compatibility. In the other words, it can be said that adoption behaviour is influenced by the perceived compatibility and customers are adopting mobile banking because they think that it suits their life style.

2. It can be concluded from the study that Perceived Service Cost (PSC) has a significant and negative impact on the adoption behaviour of customers towards Mobile Banking. Almost 31% variations in adoption behaviour are explained by the perceived service cost. It means consumers think that using the mobile banking is very costly and it has a negative impact on the adoption behaviour of customers towards Mobile Banking.

3. It can be concluded from the study that Reference Group Influence (RGI) has a significant and positive impact on the adoption behaviour of customers towards Mobile Banking. Almost 13.9% variations in adoption behaviour are explained by the reference group influence. It means customers are adopting the mobile banking under the influence of the others.

4. It can be concluded from the study that Attitude (ATT) has a significant and positive impact on the adoption behaviour of customers towards Mobile Banking. Almost 12.8% variations in adoption behaviour are explained by the attitude. The customers who are having positive attitude towards Mobile Banking are adopting the Mobile Banking.

5. It can be concluded from the study that Perceived Reliability (PR) has a significant and positive impact on the adoption behaviour of customers towards Mobile Banking. Almost 11.6% variations in adoption behaviour are explained by the Perceived Reliability. It means customers believe that process of

making transactions through mobile banking is reliable and Privacy & confidentiality is maintained while using mobile banking services.

Among all of the above 5 significant factors it is pertinent to mention that which factor is most influencing the adoption behaviour of customers towards Mobile Banking. It is clear from the following standardised estimated drawn from the model:

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
Model 5	(Constant)	1.206	.229		5.268	**.000**
	PCOM	.458	.072	**.402**	6.327	**.000**
	PSC	-.310	.055	**-.331**	-5.618	**.000**
	RGI	.139	.052	**.181**	2.677	**.008**
	ATT	.128	.052	**.144**	2.446	**.015**
	PR	.116	.050	**.142**	2.317	**.021**

It is clear from the above table that perceived compatibility is the one of the strongest factor influencing the adoption behaviour followed by Perceived Service Cost (PSC), Attitude (ATT), Perceived Reliability (PR) and Reference Group Influence (RGI) respectively.

REFERENCES

1. AL-Majali, M., & Mat, N. K. (2011). Modeling the antecedents of internet banking service adoption (IBSA) in Jordan: A Structural Equation Modeling (SEM) approach. *Journal of Internet Banking and Commerce*, 1-16.

2. Alpesh Patel. (2013). *M-Banking and M-Payments:The Next Frontier.* Delhi: Deloitte.

3. Bhatti, T. (2007). Exploring Factors Influencing the Adoption of Mobile Commerce. *Journal of Internet Banking and Commerce*, 1-13.

4. Chaipoopirutana, S., Combs, H., Chatchawanwan, Y., & Vij, V. (2009). Diffusion of innovation in Asia: A study of Internet banking in Thailand and India. *Innovative Marketing*, 27-31.

5. Chugh, V. (2014, 02 17). *Reserve bank of india.* Retrieved from RBI Website: http://www.rbi.org.in/Scripts/bs_viewcontent.aspx?Id=1660

6. Kalakota, R., & Robinson, M. (2001). *M-Business: The Race to Mobility.* New York: McGraw-Hill Companies.

7. Kapania, H. (2012-13). *COAI Annual Report 2012-13.* Delhi: Cellular Operators Asociation of India.

8. Kim, G., Shin, B., & Lee, H. G. (2007). Understanding dynamics between initial trust and usage intentions of mobile banking. *Information Systems Journal*, 283–311.

9. Mr. V. Vaidyanathan. (2008). *ICICI Bank launches iMobile: First bank in India to introduce complete.* MUMBAI: ICICI Bank.

10. *Reserve Bank of India.* (2014, 02 17). Retrieved from RBI Website:

    http://www.rbi.org.in/scripts/bs_viewcontent.aspx?Id=2463

11. Rogers, E. M. (2003). *Diffusion of Innovations.* New York: Free Press.

12. S.Samudra, M., & Phadtare, M. (2012). Factors Influencing the Adoption of Mobile Banking with Special Reference to Pune City. *ASCI Journal of Management*, 51-65.

13. Sadi, A., & Noordin, M. F. (2011). Factors influencing the adoption of M-commerce: An exploratory Analysis. *International Conference on Industrial Engineering and Operations Management*, (pp. 492-498). malaysia.

14. Safeena, R., Date, H., Kammani, A., & Hundewale, N. (2012). Technology Adoption and Indian Consumers: Study on.

International Journal of Computer Theory and Engineering, 1020-1024.

15. Sahin, I. (2006). DETAILED REVIEW OF ROGER'S DIFFUSION OF INNOVATIONS THEORY AND EDUCATIONAL TECHNOLOGY-RELATED STUDIES BASED ON ROGERS. *The Turkish Online Journal of Educational Technology*, 14-22.

16. Singh, S., Srivastava, V., & Srivastav, R. (2010). Customer Acceptance of Mobile Banking: A Conceptual Framework. *SIES Journal of Management*, 55-64.

17. TRAI. (2013). *The Indian Telecom Services Performance Indicators.* Delhi: Telecom Regulatory Authority of India.

18. Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User Acceptance of Information Technology: Toward a Unified View. *MIS Quarterly*, 425-478.

19. Vinayagamoorthy, A., & Sankar, C. (2012). Mobile Banking –An Overview. *Advances In Management, 5*(10), 24-29.

The function of wisdom is to discriminate between good and evil.

~ Cicero