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Factors Affecting Mobile Banking Adoption Behavior in India

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Abstract

Purpose

The purpose of this paper is to explore factors affecting mobile banking (m-banking) adoption behavior of Indian consumers. Furthermore, the purpose is to identify which factors have a major influence on adoption intention in context with m-banking.

Design/methodology/approach

Data were collected through an online survey of mobile user respondents. A total of 248 utilizable cases were collected from m-banking users. Review of previous literature has been used to establish hypothesis, exploratory factor analysis and multiple regression analysis has been used to check the significant factors affecting adoption of m-banking in India.

Findings

A total of eight factors has been identified which affect m-banking adoption behavior in India. Usefulness has been found to be making the most impact with reference to m-banking adoption. However, social influence is identified as least influential factor

among all factors.

Originality/value
The study provides a comprehensive understanding of the factors which affect m-banking adoption behavior of consumers in India which may help banks to understand consumer intention and make strategy accordingly to ensure financial inclusion.

Keywords: **Mobile banking; Adoption intention; e-banking; Satisfaction**

INTRODUCTION

Indian culture is low risk taking culture, so banks are very important financial institution which protects the cash related risk of the general public. Emerging and fast growing innovations in information technology and globalization have changed the whole process of service providing organizations. Innovative information technology is the backbone of economic development of any country. Globalization, competitive pressure, and technology advancement change the whole process of banking industry. Brick and mortal system are now replaced by click and portal system. All banking services such as opening an account, transaction processing, record maintenance, queue management and information providing have been changed by using information technology. Technology enhancement changes batch processing system of the bank into the real-time processing system. ATM, Internet banking, mobile banking, and plastic money are some new emerging concept which changes mass services into customized services. Technological advancement helped banking organization in replacement of physical cash into cost effective and less risky flexible payment system [1].

The growth of every economy depends on various sectors like agriculture, manufacturing, education, Finance, etc. In India, after implementation of new economic policy in 1991, financial sector observed as a key element for the growth of the economy [2]. The government has also taken various steps towards this like financial inclusion, rural banking, etc. According to Indian brand equity foundation, the financial sector in India is primarily a banking sector with commercial banks covering more than 60 percent of the total financial assets held by the financial system. The resultant of above fast pace financial sector growth, Indian banking sector has observed significant reforms in recent times, like Automated Teller Machine (ATM), Green channels, Internet baking, mobile banking, etc. focused toward maximum profit, minimum cost and above all maximum satisfaction of the customer. In spite of these facilities, one critical problem was left behind i.e. Queue Yes, a daily long waiting line of the customer to be served is a common custom to see in banks. But long waiting line in banks is most annoying thing

being the public's most important units. So m-banking is a new innovative step taken by banks to resolve this issue. Cost-benefit analysis and usefulness are the key factors which affect adaptation of information technology by users [3,4]. Hadidi [5] argued that information technology based applications are fundamental requirements for all banks and there is a positive correlation between use of information technology and performance of banks. Hence, technology plays very important role in banking services, but in India people have still faith in personal contact with a service provider which is missing in self-services technology [6]. Factors which affect adaptation of electronic and m-banking in Indian context and impact of it on consumer behavior are desirable to examine. The emergence of mobile commerce which is consist of mobile payment, mobile marketing and m-banking [7,8]. The customer can enjoy many benefits by using m-banking such as mini statement, new account opening, insurance term payment, balance inquiry, banking transaction alert, cheque related functions, fund transfer, PIN management, bill payments, mobile recharge, commercial shopping, third party transfer and many more. Now banks are in the hand of the customer in the form of m-banking [9].

In this paper, firstly literature review has been carried out to know major factors which affecting mobile banking adoption behavior in different context. Secondly, we provide quantitative investigation to support stated hypothesis. Thereafter, results of reliability and validity test of constructs are provided. This article concludes with discussion of theoretical and practical implications of the findings followed by direction for future research.

LITERATURE REVIEW

Literature related to Indian banking sector and technology convergences into m-banking reviewed in this chapter. Adaptation of m-banking and challenge related to diffusion of m-baking were also disused which provide frame work of the study.

Banking in India

The banking sector of India has an annual growth rate of 23 percent, contributing nearly 6 percent of GDP and employing nearly 7.4 million people and has outperformed most banking indices in the world with highest total returns to shareholders at 36.76%. The new economic policy is a milestone in the path of banking industry development. Narasimham committee recommendation gave a new direction to Indian banking industry and many foreign banks were in the queue to invest in Indian banking sector. Kumbhar [10] has described the bi-directional correlation between the market condition and banking industry growth. He has also discussed the metamorphic growth of banking sector in the new millennium.

Mobile Penetration in India

India is the second-largest mobile phone user just behind china and contributes approx. 10% of total 900 million global users. 983.21 million People are using mobile device in India, in which 567.29 (57.69%) million users belong to urban area and 415.92 (42.31%) million users belong to rural area (Table 1).

Table 1: Telephone subscribers in India

Particular	Wireless	Wire line	Total
Total Telephone Subscribers (Million)	1,009.46	25.72	1,035.18
Urban Telephone Subscribers (Million)	577.84	21.08	598.92
Rural Telephone Subscribers (Million)	431.61	4.64	436.26
Overall Tele-density*	79.78	2.03	81.82
Urban Tele-density*	146.89	5.36	152.25
Rural Tele-density*	49.51	0.53	50.04
Share of Urban Subscribers	57.24%	81.94%	57.86%
Share of Rural Subscribers	42.76%	18.06%	42.14%
Broadband Subscribers (Million)	115.11	16.38	131.49

Source: TRAI, 30th November, 2015

*Based on the population projections from Census data published by the Office of Registrar General and Census Commissioner of India.

Mobile banking (m-banking)

Barnes et al. [11] suggest that M-banking is the result of recent telecommunication growth and innovation, which provide a new access point to the customer. M-banking is a kind of m-commerce in which bank customer interact with bank through mobile and enjoying all facilities and services provided by banks via mobile applications. M-banking services are being offered through many channels such as Short Messaging Services (SMS), Interactive Voice Response (IVR), Mobile Application, and Wireless Application Protocol (WAP), etc. Banks are taking advantages of mobile innovation to provide its services to customers economically and profitably. The introduction of m-banking helps banks to perform its activity efficiently which leads to consumer satisfaction and loyalty [12]. Cheong et al. [13] identified mobile provide customers many low cost and secure self-service channels for banking activity. Bank should expand their services to m-banking as next step of e-banking as it provides immediate and more controlled financial services to bank consumer. Now-a-days m-banking is replacing electronic banking as many customers are omitted e-banking after using m-banking. But there are so many issues also faces by m-banking users revenue sharing agreements is one of the major issue [14]. Large types of mobile phones and different operating systems are also a big challenge for banks, as it is very difficult for them to provide standardized applications. Convenience and security are two main factors which can motivate other

non-user to use technology-based banking services [15].

Mobile banking in India

ICICI bank is first private and union bank is first public sector bank which provides m-banking services to customers [16]. Indian banks are now targeting non-online user who is not having access to desktop but having mobile phone. So m-banking may future great potential in Indian banking system. Security and privacy issue is the main hurdle in the path of m-banking in India as Indian are less risk taker [17]. Unnithan [18] suggested that there is strong potential market for electronic banking in India, especially for m-banking. Increasing number of mobile users is good indication for development of m-banking in India. Lack of knowledge and awareness is major problem in adaptation of m-banking in India as major rural population is unaware about new technology. Introduction of 'Digital India', technological innovation and increasing number of mobile user is now changing the story and preparing ground for m-banking potential in India.

Factors affecting m-banking adoption

Mattila [19] found that internet facility, complexity, compatibility, awareness and interest play crucial role in m-banking adaptation. Lack of knowledge and technological skills and culture are also hurdle in development path of electronic m-banking [20]. Financial cost, usefulness, self-efficacy and credibility are the factors which influence consumer behavior regarding m-banking adaptation [21]. Cost of internet connection is another barrier in adaptation of m-banking. Zhou et al. [22] found that social impact, performance and task-technology fit affect speed of m-banking innovation adoption by consumers.

PROPOSED RESEARCH MODEL

Extensive literature review suggests that there are certain factors which are having significant impact on adaptation of m-banking in India. On the basis of present theories and studies a comprehensive research framework is formulated which is relevant to developing country like India (Figure 1).

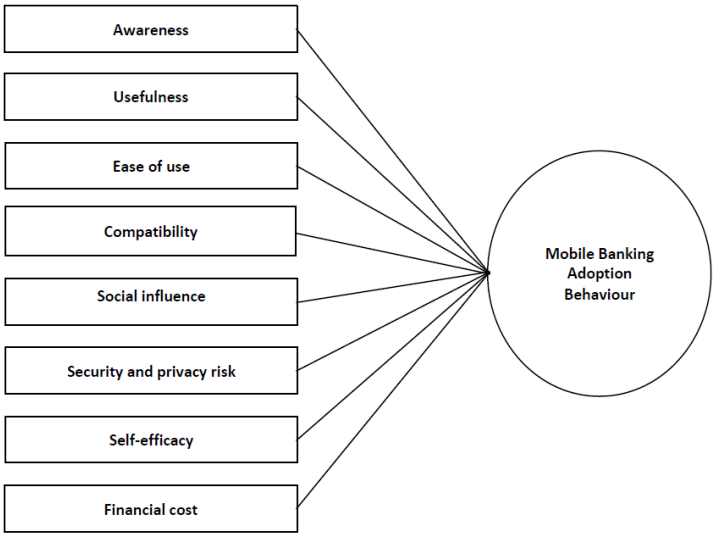

Figure1: Factors affecting m-banking adoption behavior.

Awareness

Technology related information about innovation play crucial role in consumer adoption behaviour [20,23]. Previous many studies exhibited that information regarding online services play crucial role in adoption of new services [24-27]. M-banking is new concept for Indian banking user, so bank should create awareness about it to speed up the adoption process. So it can be hypothesized that,
H1: Awareness has a significant positive impact on m-banking adoption.

Usefulness

Individuals adopt any innovation only when they perceive that using of particular technology is useful in daily life. Tan [28], Wang [29], and Hernandez [30] have also reported usefulness as important construct of electronic services adoption. If consumers perceive that use of m-banking technology provide them better and quality service then only they can accept new technology [31-33]. Above literature support the hypothesis,
H2: Usefulness has a significant positive impact on m-banking adoption.

Ease of use

Customers adopt technology which is not complex and consume less physical and mental effort to work with. If any technology is very complex and consumer not able to learn and use it easily, there is fewer chances of adoption [34]. Ease of use is a critical success factor in technology adoption in India as many people have less knowledge of

innovative and developed technology. Bradley [35], Kolodinsky [36], Eriksson [37], Mukherjee [38] Poon [39] have also reported in their studies about Ease of use as an important construct. So it can be hypothesized that,
H3: Ease of use of technology has a positive impact on m-banking adoption.

Compatibility

Technology should always compatible with the need of the user. M-banking can adopt by consumer only if it is compatible with banking activity needs of consumer. If technology is compatible and provides best solution to customers, there is higher chance of adoption [40]. Above facts support the hypothesis,
H4: Compatibility has positive impact on consumer adoption of m-banking.

Social influence

Ajzen [41] described that individual adoption decision making process is affected by belief and opinion of people around. Family, social group, social class and culture are having significant impact on consumer adoption of new technology. Opinions of society member affect consumer intention to use m-bank [42-46]. So it can be hypothesized that,
H5: Social influence has positive impact on consumer adoption of m-banking.

Security and privacy risk

Security and privacy is major concern while using m-banking. Security is major problem faced by consumer while making online transactions [47]. Consumers always try to avoid to share their personal information online because of online privacy issue [48]. Consumer trust is key factor in adoption of m-banking [49]. Daniel [50], Sathye [23] and Chiou [51] have also emphasized that Security and privacy is major concern while adopting e-services by consumers. Bank should develop trust with their customers to ensure secure online service, which will lead to better customer service and satisfaction. So it can be hypothesized that,
H6: Security and privacy risk has negative impact on m-banking adoption intention of consumers.

Self-efficacy

Self-efficacy is the belief of an individual on his or her ability to execute behavior which is mandatory for better performance in a particular situation [52,53]. Generally, there is a positive relationship between experience and technology uses. Above facts support the hypothesis,
H7: Self-efficacy has positive impact on m-banking adoption.

Financial cost

Cost benefit trade-off is an important factor, which affects m-banking technology adoption. Advancement of technology always adds some direct or indirect cost such as investment, operation and utilization cost [54]. Indian consumers take an account of this factor before adopting new technology. Affordability of mobile phone price has also a significant impact on m-banking adoption process [55]. Many authors reported channel cost or financial cost as independent variable in their studies [56-58]. So it can be hypothesized that

H8: Financial cost has negative impact on m-banking adoption intention of Indian consumers.

Mobile banking adoption

Adoption is a kind of decision about taking optimal use of any innovation. In this paper, factors which affecting m-banking in India has been explored. Many authors have defined adoption in term of intention, utilization, implementation and satisfaction. In many cases, they selected satisfaction as dependent variable especially in case of information technology [59-61]. Because of high degree of face validity satisfaction has used as measure of accomplishment by many authors [62,63]. So in this study satisfaction is used as substitute measure of m-banking adoption.

METHOD

A quantitative method was used in this study which provides better and wider view of the situations in a fast and more efficient manner [64]. The deductive approach was used as research objective establishes by using existing theory which was acquired from the research framework to test the research hypothesis [65]. In order to comprehensive understanding and solution of above problem, collection of data had done by both sources primary and secondary. Primary data has been collected by structured questionnaire. Secondary data has been collected from RBI and TRAI annual and monthly report to support the results of primary data of proposed data collection process. Convenient sampling technique was used in this study as objective of the study was to explore factor affecting m-banking adoption rather than provide point and interval estimates to variables [66]. A total of 248 usable responses were gathered from different individual how is having mobile phone and aware about m-banking. The questionnaires consist of close ended questions in order to have proper considerate, precise and authentic information about research problem. The respondents were given questionnaires through electronic mail having demographic questions as well as question related to latent construct of m-banking adoption. Items in the questionnaire were linked to a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). Exploratory factor analysis and multiple regressions have been used to check the significance of stated hypothesis and Cronbach's alpha has been used to check scale reliability. Content and discriminant validity have been used to check validity.

EMPIRICAL RESULTS

In order to achieve above objectives, data analysis were obtained into two parts. The first part contains descriptive statistics related to demographic characteristics of respondents and results of hypothesis testing have been discussed in second part.

Demographic Characteristics of respondents

The demographic descriptions consist of gender, age, occupation of respondent. Comparative demographical status between user and non-user of m-banking has also discussed for better understanding of demographical characteristics of respondents (Table 2).

Table 2: Demographical characteristics of respondents

Measure	**Item**	**N**	**%**
Gender	Male	148	59.68
	Female	100	40.32
Age	Below 20	14	5.65
	21-30	174	70.1
	31-40	44	17.74
	41-50	14	5.65
	Above 51	2	0.81
Occupation	Student	90	0.36
	Employee	136	0.55
	Business man	14	0.06
	Other	8	0.03
Education level	High school	16	6.45
	College/university	114	45.97
	Master	72	29.03
	PhD	46	18.55
Years using mobile banking	< 6 months	64	25.81
	6 months to 1 year	86	34.68
	1 to 3 years	66	26.61
	> 3 years	32	12.9
Frequencies using mobile banking	One time every day at least	20	8.06
	One time every week at least	126	50.81
	One time every month at least	78	31.45
	One time every year at least	24	9.68

Gender: The sample consists of 248 respondents in which 148 (59.68%) were male and 100 (40.32%) were female. The majority of m-banking users are male.

Age: The majority of respondents were age of 21-30 years as this age group was consisting of 174 (70.16%) respondents. In the age group of 31 to 40 there were 44 (17.74%). There were fewer respondents from age group of Below 20 years (14), between age group of 41 and 50 years (14) and above 51 years (2).

Occupation: The majority of respondents were employee (136) who contributed 54.84% of total respondent, followed by students (90), who were contributed 45% of respondents. Businessman (14) which contributed 5.65% and a total of 8 (3.23%) respondents were from other category. So it is found that majority of m-banking users were male, employee and between age of 21 and 30 years. It is also found that majority (150) of m-banking users are new, and they are starting use it before 1 year only. Frequencies of using m-banking in India still very less and majority of respondents use it once in a week.

Exploratory Factor Analysis

On the basis of literature review, eight variables (i.e. Awareness; usefulness; ease of use; compatibility; social influence; security and privacy risk; self-efficacy, and Financial cost) were identified which affect m-banking adoption. Factor analysis has been conducted in order to reduce factors and group them into unidimensional clusters. Exploratory factor analysis via Principal component analysis with orthogonal varimax rotation has been used. Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett Test of Sphericity have been used to check the validity of factor analysis. Result indicate that value of KMO (.0.863) and Bartlett's Test of Sphericity is significant as value of Approx. Chi-Square is 2653 and degree of freedom is 248, so its validate conduction of factor analysis. Cut off factor loading for retention of different variables are varying in different study. Loading of .5 and more has been retained in this study [67,68]. Three items are measuring the awareness with a variance of 11.84%, four items measuring usefulness with variance of 10.49%. Three items measuring Ease of use with variance of 10.07%, Compatibility has four items with explaining variance of 10.01%. Four items measuring social influence with variance of 9.82% and three items of security and privacy risk loaded with variance of 9.64%. Two items measuring both self-efficacy and financial cost with a variance of 8.53% and 8.23% respectively. These all eight factors collectively are explaining 78.66% of total variance (Table 3).

Reliability and validity

Internal consistency using Cronbach's Alpha analysis has been computed to check the reliability of each factor. Coefficients are between 0.783 and 0.922. Self-efficacy is having highest coefficients (.0922) and Compatibility (.783) lowest coefficient. All the

coefficient values are greater than 0.6 [69]. Results indicate that all factors have significantly reliable coefficient (Table 3).

Table 3: Exploratory factor analysis

Items	Awareness	Usefulness	Ease of use	Compatibility	Social influence	Security and privacy risk	Self-efficacy	Financial cost
AW1	0.879							
AW2	0.721							
AW3	0.709							
US1		0.866						
US2		0.746						
US3		0.852						
US4		0.657						
ETU1			0.866					
ETU2			0.773					
ETU3			0.865					
CO1				0.897				
CO2				0.871				
CO3				0.742				
CO4				0.702				
SI1					0.747			
SI2					0.762			
SI3					0.86			
SI4					0.756			
SAPR1						0.758		
SAPR2						0.756		
SAPR3						0.741		
SE1							0.712	
SE2							0.781	
FC1								0.816
FC2								0.846

Eigen value	4.15	3.89	3.05	2.86	2.58	2.08	1.87	1.46
Variance explained (%)	11.87	10.49	10.07	10.01	9.82	9.64	8.53	8.23
Cumulative variance explained (%)	11.87	22.36	32.43	42.44	52.26	61.9	70.43	78.66

Content validity: Content validity refers to extent to which measurement elements are representative and related to desired measured construct [70]. Content validity has been examined by two banking technology experts and three faculties having expertise in banking and technology (Table 4).

Table 4: Descriptive statistics

Dimensions	**No. of Item**	**Mean**	**Standard Deviation**	**Cronbach's alpha**
Awareness	3	3.81	0.77	0.908
Usefulness	4	3.71	0.79	0.883
Ease of use	3	3.79	0.81	0.843
Compatibility	4	3.86	0.64	0.783
Social influence	4	3.37	0.72	0.858
Security and privacy risk	3	3.88	0.59	0.839
Self-efficacy	2	3.62	0.66	0.922
Financial cost	2	3.14	0.82	0.811
Satisfaction	5	3.51	0.89	0.869

Discriminant validity: Discriminant validity has been used to check the construct validity of model. The extent to which a construct is different from other constructs of the measurement scale [67]. For achieving discriminant validity AVE of a latent variable

should be higher than squared inter-construct correlation. Here model result is satisfying the required criteria for discriminant validity as square root of average variance is greater than squared inter-construct correlation between items of two constructs (Table 5).

Table 5: Discriminant validity

Construct	Awareness	Useful-ness	Ease of use	Compatibility	Social influence	Security and privacy risk	Self-efficacy	Financ cost
Awareness	0.879							
Usefulness	0.411	0.906						
Ease to use	0.243	0.568	0.823					
Compatibility	0.314	0.369	0.621	0.897				
Social influence	0.412	0.426	0.352	0.603	0.747			
Security and privacy risk	-0.561	-0.23	-0.126	-0.357	-0.487	0.86		
Self-efficacy	0.441	0.512	0.462	0.196	0.302	-0.44	0.846	
Financial cost	-0.321	-0.61	-0.322	-0.239	-0.481	-0.328	-0.511	0.8
Satisfaction	0.632	0.596	0.483	0.558	0.45	-0.602	0.48	-0.3

DISCUSSION

In the multiple regression analysis satisfaction has been used as dependent variable as substitute of m-banking adoption. B coefficient value more than .3 is significant to prove any hypothesis [71]. Result exhibits that all eight factors have significant impact on m-banking adoption as all B coefficient value is more than .3.Security and privacy risk, as well as Financial cost, have negative impact and others variables have positive impact. The F statistic for the regression model is 40.2 (with a p-value of 0.000). Value of R2 is 0.526, which report that 52.6% m-banking adoption explained by these factors. The variance inflation factor (VIF), exhibit that there is no multicollinearity between constructs, as all VIF is less than or equal to 10 (i.e. tolerance > 0.1) suggested by many authors [72]. Hypothesis H1, level of awareness have positive impact on m-banking adoption is supported ($t = 4.265$, $p \leq 0.001$). This is consistent with previous research findings related to mobile services. As in India technology in developing stage so technology related information play crucial roles in adoption of m-banking services. Non-awareness of customers is biggest issue in front of banks in India in significant development of m-banking.

Usefulness is most crucial factor among all related factors and significant positive impact on m-banking adoption ($t = 4.925$, $p \leq 0.001$) as H2 is supported. This result is also as findings of many authors. This implies that customer who got relative advantages tend to adopt it.

H3 is also supported ($t = 4.817$, $p \leq 0.001$) which report that Ease of use is having positive impact on m-banking adoption in India, this factor is also supported by many authors [34,73]. Because of less technological literacy in India customer adopt m-banking service only when it is less complex and easy to handle all financial truncation efficiently (Table 6).

Result also report that compatibility has positive impact on m-banking adoption as H4 is significant ($t = 4.304$, $p \leq 0.001$). Result is similar to findings of previous mobile service related study [74,75]. Consumer only can adopt any technology when it is suitable to their lifestyle and working only. If customer perceives that adoption of m-banking is more suitable and fit with their lifestyle, then they tend to adopt it.

Result of this study found that social influence has positive impact on m-banking adaptation ($t = 3.987$, $p \leq 0.001$) as H5 is also supported by results of previous researchers. It implies that approval from friends and family significantly affects decision-related to adoption of m-banking.

Security and privacy risk has negative significant effect on m-banking adoption as result support ($t = -4.333$, $p \leq 0.001$) hypothesis H6. Previous research findings [76,77] also supported this result. Banking consumers are having fear that their PIN and other private information can share publically, if they will use m-banking. Customers concern that their transaction password could be known and misused by others.

Hypothesis H7, Self-efficacy has positive impact on m-banking adoption is also supported (t = 3.332, p ≤ 0.001) this result is similar to findings. If consumers think that they have sufficient experience and expertise to handle the financial transaction on mobile, then tend to adopt m-banking services.

Table 6: Multiple Regression Analysis

Independent Variables	β	Standard Error	T	p-value	Collinearity Statistics	
					Tolerances	VIF
Awareness	0.376	0.062	4.265	0.000***	0.554	1.806
Usefulness	0.42	0.065	4.925	0.000***	0.509	1.964
Ease to use	0.394	0.061	4.817	0.000***	0.573	1.745
Compatibility	0.357	0.063	4.304	0.000***	0.526	1.878
Social influence	0.345	0.056	3.987	0.000***	0.658	1.421
Security and privacy risk	-0.381	0.053	-4.333	0.000***	0.701	1.408
Self-efficacy	0.321	0.059	3.332	0.000***	0.611	1.662
Financial cost	-0.306	0.057	-3.856	0.000***	0.652	1.566

(P ≤ 0.001)***

Present study found that Financial cost has negative significant impact on m-banking adoption (t = -3.856, p ≤ 0.001) similar as findings of many related study [78,79]. In m-banking customers have difficulties to ask for compensation and adoption of mobile service provides some extra financial cost, so many customers avoid adopting m-banking services in India.

THEORETICAL AND PRACTICAL IMPLICATIONS

Taking responses of m-banking users only is uniqueness of this study as previously most of the studies potential consumers were also used as respondent. Technology development has revolutionized banking services, so this study may identify some new dimensions which were not identified in previous m-banking related study. This study will help banks in understand and implementing strategy for adoption process, which can enable them to provide better services to customers. This study provides several

theoretical as well as managerial implications in the field of m-banking.

Technology is changing rapidly so this study is only a milestone in continuous long journey, not a final say. This study enriches m-banking related literature by exploring different factors which affect adoption process. This study also contributes mobile adoption literature for better understanding of factors affecting m-banking adoption behavior. Finding suggests that consumers will use m-banking if banks can provide services as per customer expectations. In order to explain this research domain we empirically test the theoretical assumption, which will provide base for future research in this field.

This study provides crucial strategic guidelines to bankers and proposed framework can use as tool to increase m-banking users. Finding of this study will help commercial banks operating within India toward providing better customer service through m-banking. Banks can make policy to promote m-banking and create suitable environment to speed consumer adoption process. Findings also suggest that bank should not only keep financial cost into control but also provide some benefit in term of offers to m-banking customers, so customer can shift from tradition banking channel to m-banking. M-banking services should be user-friendly and customized. Banks should also take care of privacy and security concerns of consumers related to financial transactions. They should provide information regarding hacking, phishing and unauthorized data encryption. Most of the customers are not using m-banking because they are not aware of this, so bank should organize awareness program to motivate customers for adopting it. Security and privacy is major concern of customers while adopting new technology, bank should provide m-banking facility on trial basis without using their own account to develop trust. Bank should provide quick and accurate information to potential customers as well as later adopters to accelerate m-banking adoption. In short-term bank should use alternative channel of advertisement to increase awareness among customers. In long run bank should take care of all factors which affect adoption process and try to fulfill need and expectations of consumers. Complexity of technological services uses is another constraint in adoption process so bank should provide services which should ease of use and should compatible to users. The findings of this study may provide a direction to the banks and government to ensure finical inclusion in India.

CONCLUSION AND FUTURE RESEARCH

Banking services have shifted from branch banking to virtual banking because of technological and telecommunication development. Now-a-days m-banking is a main focused strategy of banks as well as mobile service provider [80,81]. The speed of m-banking services diffusion is a major concern for the banking industry, and it is major challenges in front of all bankers.

This paper examines some empirical evidence about factor affecting m-banking adoption intention in India. A proposed research framework was established on the

basis of relevant literature review and was found that awareness, usefulness, ease of use, compatibility, self-efficacy, security and privacy risk, social influence and financial cost are having a significant impact on m-banking adoption intention of consumer in India. On the basis of AVE usefulness has major impact on consumer adoption rate (0.906), followed by compatibility (0.897), awareness (0.879), security and privacy risk (0.860), self-efficacy (0.846), ease of use (0.823), financial cost (0.816) and social influence (0.747). Among all factors, usefulness has a major impact and social influence has the least impact on consumer adoption rate. Other than security, privacy risk, and financial cost all factors have a positive impact on mobile adoption behavior. This research findings are consistent with other studies in past [82,83]. Now-a-days due to technology convergence e-banking is replaced by m-banking and increasing growth in wireless phone users indicates bright future of m-banking in India. M-banking provides mutual benefit to bank as well as customer. It helps banks to reduce its service delivery cost and also reduces transaction cost. Pradhan Mantri Jan-DhanYojana (PMJDY) and digital India schemes encourage rural people to online banking services, which play a crucial role in growth banking sector in India. Use of m-banking gives benefit to both consumers as well banks. Efficient use of m-banking reduces manpower and cost of banking services which leads to high turnover and net profit. Consumers get prompt services in minimum cost by using m-banking. However, security and privacy are a major concern of consumers while using m-banking, bank can reduce this issue by introducing arranging different awareness program. Information technology advancement and increasing rate of Tele-density are providing a base for the m-banking adoption in India, but people are not very much aware of m-banking services. Bank should promote m-banking services to increase awareness among consumers. Result indicated that social norms have also crucial impact on adoption process as customers take advice from family members and friends while adopting m-banking. Bank should use social media as tool to make them aware about m-banking services.

Juniper Research reported that m-banking adoption rate is about 60-70 percent in India and China. Other countries have similar demographics of m-banking user as in India. Because of similarity in user demographics all around the globe, finding of this study can be implemented in others country too. Result reviled that usefulness and privacy and security risk were major concerns of consumer while adopting m-banking. Customer can switch to m-banking if they found some benefit of using it. Additionally, they are having a fear of personal information disclosure related to password and financial transaction. Bank should ensure safety and security of transactions performed via mobile phones. Other than these factors technology infrastructure development and illiteracy were also major external concern in front of banks. Most of the banking user in India is not aware of m-banking services offered by banks, so bank has to make effort to promote m-banking to acquire new customers. Result also demonstrated that channel cost in not very important factor while adopting m-banking, customer can pay extra money if they get quality banking services.

This study has many significant contributions to m-banking literature by providing light on factors affection consumer adoption behavior in developing country. Geographically

it is very difficult for banks to deliver its services to every citizen with the help of branch banking. So banks can use m-banking as a strategic tool to increase its reach to the consumers and provide banking services efficiently and effectively. This study may help banks to understand the m-commerce market and provide them direction to promote m-banking to acquire new customers. In conclusion, the bank should look after all the factors which affect m-banking adoption and should make strategies accordingly to fulfill need and expectations of potential and existing customers and ensure financial inclusion. Banks should take care of all factors while making m-banking related strategies.

M-banking concept is new in India, so there is a lack of relevant literature review in Indian perspective so most of the literature are on other countries originated, which may not an accurate reflector of m-banking adoption due to cultural differences. Use of close-ended questions with Likert scale in the questionnaire is not given freedom to the respondents to express their own opinion. It would be desirable if this study has used another statistical model such as exponential and polynomial regression model to measure the degree of change in consumer adoption behavior in India. Demographical variables such as age, education, experience and income may use as moderating variables in future to the exploration of m-banking.

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