

# **Impact of Technical Factors on the Adoption of Mobile payment Services**

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## **ABSTRACT**

21st century is illustrated by the use of ICT which has revolutionized our living patterns. A new era of banking, termed “e-banking” or “Internet banking” has emerged, where customers can perform their financial transactions electronically over the internet through their personal computer or laptop at a time convenient to them, without having to be restricted to regular branch operating hours. Over the last few years, the mobile and wireless market has been one of the fastest growing markets in the world and it is still growing at a rapid pace. This opens up huge markets for financial institutions interested in offering value added services. With mobile technology, banks can offer a wide range of services to their customers such as doing funds transfer while traveling, receiving online updates of stock price or even performing stock trading while being stuck in traffic. The aim of this paper is to examine the basic concepts, services offered, technology adopted and impact of technical factors on adoption of M-payment services.

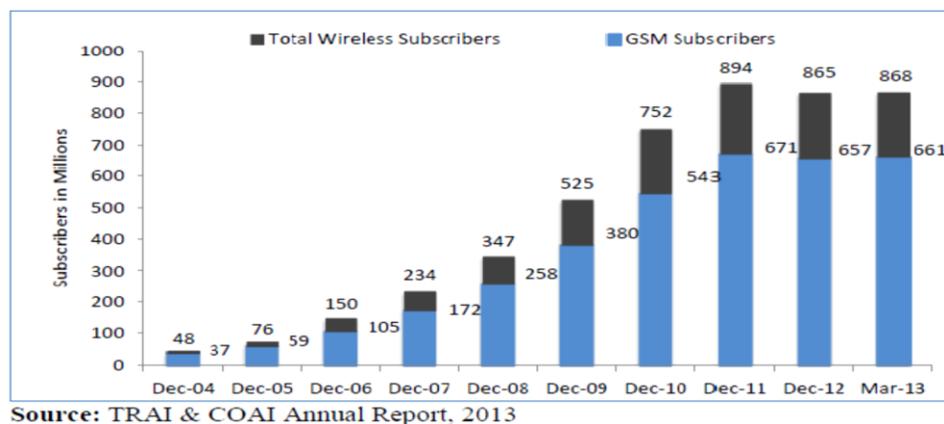
**Keywords: ICT, Mobile banking, M-Services**

## **1. Introduction**

Today, most of the people adopt new generation technologies. In this changing scenario, the banking sector is not an exception. Recent innovations in telecommunications have enabled the launch of new access methods for banking services through various e- channels like, ATMs, credit/debit cards, internet banking, mobile banking, tele-banking, EFT etc. One of these is mobile banking; whereby a

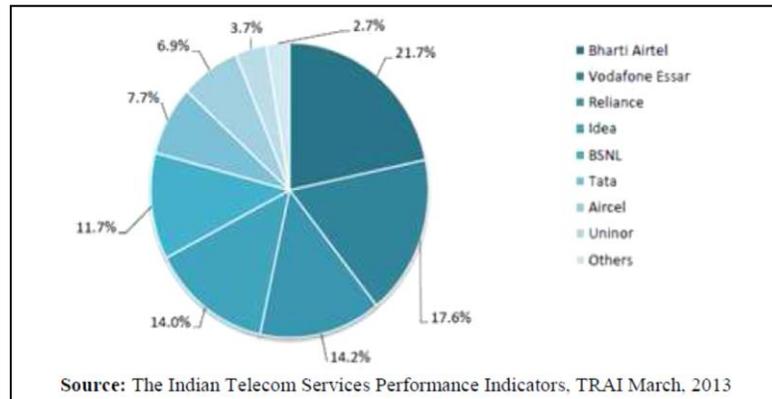
customer interacts with a bank via mobile phone. Mobile Banking refers to provision of banking and financial services with the help of mobile telecommunication devices. These days many E-commerce transactions are conducted through mobile devices (e.g., cellular phones, hand-held or palm-sized computers, and even vehicle-mounted interfaces) using wireless telecommunications networks and other wired E-commerce technologies. They are referred to as mobile commerce (M-commerce). 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). The Mobile phone plays a very important role in the development of mobile commerce and mobile banking.

At present wireless mobile phone subscribers are 867 Million i.e. it has almost doubled in the last four years. With the advancement in the operating systems of the mobile phones and mobile technology like 2G, 3G, 4G has brought a significant change in the way of working of mobile banking services providers. Since the introduction of 2G and the subsequently 3G, the demand for mobile phone has increased many folds. This can be interpreted by a rapid increase in the number of mobile phone subscribers (Figure 1).



**Figure 1: All India Total Cellular and GSM Cellular Subscriber Base**

There are many wireless operators in India but Bharati Airtel has got the maximum share of 21.7% after the Vodafone Essar (17.6%) see Figure 2.



**Figure 2: Market Share of Wireless Operators**

Mobile phone technology has become very common in all the countries of the world. According to Merrill Lynch Global research report 2011, China has the maximum number of mobile phone subscribers i.e. 1112 million and India stands on the Second position with 865 mobile phone subscribers.

**Mobile Banking**

There is a great scope of mobile banking in India as the number of mobile users is increasing. This is because of an increase in the number of wireless internet user subscriber base in India i.e. 143.2 Million (TRAI, 2013). In the year 2008, 3G was launched by MTNL (Mahanagar Telephone Nigam Ltd.) and IMPS (Immediate Payment Service) was also launched in 2010. After these initiatives and developments by RBI, mobile banking services have increased many folds and RBI issued the guidelines for banks to provide mobile banking services in India in the year 2008.

**Mobile Banking Services and its Trend in India**

Over the last few years, the mobile and wireless market has been one of the fastest growing markets in the world and it is still growing at a rapid pace. Mobile phones have become an essential communication tool for almost every individual. Advent of m-Commerce has managed to take mobile to next level, adding tremendous value to the telecommunication industry. Mobile banking, which is

an integral part of m-Commerce, has become very popular among mobile users ever since its existence in 2007.

## 2. Literature review

Mobile Banking, also known as M-Banking, can perform various functions like mini statement, checking of account history, SMS alerts, access to card statement, balance check, mobile recharge etc. via mobile phones (Vinayagamoorthy and Sankar, 2012). Banks are constantly updating their technology and want to increase their customer base by reaching to each and every customer. There are many advantages of using mobile banking, such as people in the rural or remote areas can also get an easy access to mobile banking whenever required.

**Vinayagamoorthy and Sankar (2012)**, According to them it is a term that is used for performing various banking transactions like fund transfer, balance check, payments etc. via mobile phones. Wireless phone subscribers in India crossed 867.8 Million in 2013, as per TRAI (Telecom Regulatory Authority of India Act, 1997) as compared to 261.07 in March 2008.

**Deloitte (Alpesh patel)**:-According to a Mobile banking report by Deloitte (Alpesh Patel, 2013), 17 Million Indians are using mobile phones for banking transactions. According to a Mobile banking report by Deloitte (Alpesh Patel, 2013), 17 Million Indians are using mobile phones for banking transactions. So, approximately 2% of wireless phone subscribers are using banking services on their mobile phones. **Chaipoopirutana, Combs, Chatchawanwan, and Vij (2009) and Lin (2010)**:- Claimed that the adoption of mobile banking is 'complex' as it has the negative relation with intention to adopt mobile banking.

**Wang, & Liao (2007), Brar et. al, (2015)** :-These days many E-commerce transactions are conducted through mobile devices (e.g., cellular phones, hand-held or palm-sized computers, and even vehicle-mounted interfaces) using wireless telecommunications networks and other wired E-commerce technologies. They are referred to as mobile commerce (M-commerce). **Mols, Niels.(1998)**:- The Behavioural Consequences of PC banking proposed a systematic definition, which

views mobile commerce as an interactive ecology system of individuals and corporations, and this ecology system is built upon the social economic background and various succeeding technologies.

**Jayawardhena, C. and Foley:-**Buying and selling goods implies payment, this is what always was happening. In the past, this activity was done using money (notes) but with growing technology people started to use different technologies for payment. At first, people used Internet. **Fishbein, M., and Ajzen (1975):-**The single most important step in building a successful M-payment system is to set the incentives for all stakeholders. Without this, there will be no progress. Each of the participants, furthermore, should accept certain fundamentals and step up as needed for the good of the entire enterprise.

**Davis, F.D(1998):-**Information technology (IT) adoption is critical to the growth of an economy (Kendall et al., 2006). According to the papers and articles, Davis (Davis, 1989) proposed the first and common theory of adoption in 1983. His theory was “Technology Acceptance Model (TAM)”. In his theory, he proposed that Perceived Ease of Use and Perceived Usefulness affect the acceptance and use of information systems technology.

**Rogers, E.M:-**Another important theory of adoption is the Innovation Diffusion Technology (IDT), which was defined by Rogers. According to Rogers potential of adopters evaluate an innovation based on innovation attributes such as Relative Advantages, Compatibility, Complexity, Observe ability, and Trial ability. He clarified that characteristics of Relative Advantage can be stated as Usefulness and Complexity as opposite to Ease of Use Rogers, E.M., (2003). **Wang, Y. S & Tang T. I(2003)**, In 2006, an analysis of the early adoption factors for mobile banking in Africa was conducted by the Boston-based Department for International Development. According to their report, the initial spread of mobile phones in Africa by 2006 resulted in more mobile phone users than banked people in low-income countries (Porteous, 2006).According to their report, the initial spread of mobile phones in Africa by 2006 resulted in more mobile phone users than banked people in low-income countries. This initial explosion of mobile communications laid the groundwork for the mobile banking environment, which allowed for new entrants to the consumer financial sector.

**Kalakota, R., & Robinson, M. (2001):-**They found that the lack of understanding of the concepts and benefits was a main barrier to consumers using mobile banking, subsequently, users of mobile

banking were not intended to be highly educated and were typically younger people in China; this was in contrast to the situation in the western countries as discussed by Karjaluoto, Mattila, and Pento, (2001).

**3. Research Objective and Research Problem**

This study aims at investigating the framework of Mobile payment adoption to find out what are the factors that affect users’ adoption of this new way of payment system, which allows payments with the mobile phone. The main research problem tackled in this work consists in trying to answer the following question:

**What is the impact of technical factors on the adoption of Mobile payment services by customers based on their gender?**

**Table 1: Ease of Use**

Group	Sub-Group	SD	D	N	A	SA	Statistical results
Gender	Male	10.0%	13.4%	18.7%	13.9%	44.0%	x <sup>2</sup> =0.841, DF=6
	Female	4.0%	10.8%	44.2%	11.0%	30.0%	

As far as age of respondents is concerned, it has been noticed that respondents from age groups 26-35 years and 36-45 years thinks using mobile banking for online payments is easy while respondents from all other age groups disagreed with easy to use feature of mobile banking.

**Table 2: Usefulness**

Group	Sub-group	Number	SD	D	N	A	SA	Statistic result
Gender	Male	129	10.1%	10.5%	25.6%	29.80%	24.0%	x <sup>2</sup> = 7.421 DF=3
	Female	71	1.8%	2.7%	3.9%	36.90%	54.7%	

Above table shows, during the survey it was found that maximum 24% male respondents strongly agreed with usefulness of mobile based payment system while majority of female respondents (54.7%) also strongly agreed with the view that mobile banking is useful. This shows female respondents are more inclined towards using mobile based payment system.

**Table 3: Compatibility and cost**

Group	Sub-group	Number	SD	D	N	A	SA	Statistical results
Gender	Male	129	1.8%	2.7%	23.9%	36.9%	34.7%	x <sup>2</sup> = 0.441,  DF=3
	Female	71	2.8%	19.9%	25.9%	36.8%	14.6%	

Above table shows, during the survey it was found that maximum 36.4% male respondents agreed with compatibility and cost of mobile banking services while similar percentage of female respondents (36.8%) also agreed with this view. Insignificant results show no association between gender’s perception regarding compatibility and cost of mobile banking.

**Table 4: Security and trust**

Group	Sub-group	Number	SD	D	N	A	SA	Statistical Results
Gender	Male	129	17.9%	40.6%	13.8%	20.8%	6.	x <sup>2</sup> = 0.021,  DF=5
	Female	71	13.8%	9%	35.6%	33.8%	6.	

During the survey it was found that majority of male respondents (40%) disagreed with security and trust in mobile based payment system while majority of female respondents (35.6%) has neutral

views regarding the same. Significant results of Chi-square shows association between gender of respondents and security and trust of mobile banking.

**Table 5: Skill to use mobile devices**

Group	Sub-group	Number	SD	D	N	A	SA	Statistical Results
Gender	Male	129	16.2%	5.7%	25.4%	20.6%	32.10%	x <sup>2</sup> = 0.684, DF=5
	Female	71	-	23.0%	37.0%	22.0%	18.0%	

Above table shows, during the survey it was found that maximum 32.10% male respondents strongly agreed with skills to use mobile banking while majority of female respondents (37.0%) shows neutral trends while having skills to use mobile banking.

**4. Challenges in mobile banking**

1. Firstly, banks are eager to supplement traditional banking with additional channels such as offshore and mobile banking. However, they do not have adequate telecommunications infrastructure. Conversely, telecommunications service providers are looking to leverage their infrastructure with new business opportunities, but they normally have inadequate financial knowhow.

2. Secondly, various perspectives to users’ perceptions of mobile banking that induce adoption have been proposed in the mobile banking literature. Propositions have been underpinned by user’s perception of parameters such as technological innovation, demographics and elitism, trust, security, gender, and income levels.

3. Thirdly, the marked variations in these perspectives modeled from these parameters indicate that the context of geography has considerable effects on them. The potential mobile banking adopter's societal circumstances, affecting his or her perceptions, will also affect his or her adoption.

According to banks in order to use M-payment, special software should be used. It is available in their websites. Thus, in order to activate the Mpayment system in the mobile phone, one should install the software, and then send the information of inter-bank card to the bank by SMS. There is not any appropriate software with complete security and support of M-payment, and banks created software packages individually, with a complete absence of integration with each other. As mentioned above, because of the lack of appropriate software, there are not correct statistics about the number of M-payment users. The inter-bank activities that can be performed through Mobile phones are as shown below. Only the two first ones can be considered as M-payment and the others are part of M-banking.

- Electronic payment to other persons' account
- Payment of bills
- Receiving three last turnovers of the account
- Announcement of a certain turnover
- Announcement of a bounced Cheque
- Changing the Password
- Charging Mobile account

## 5. References

- Alpesh Patel. (2013). M-Banking and M-Payments: The Next Frontier. Delhi: Deloitte
- Brar, T.P.S, Sharma, D., Khurmi, S (2015). “Impact of Online Threats on Usage of E-Banking” is published in The Research Journal (TRJ), Vol. 1, Issue 1, May- June 2015. ISSN: 2454-4930 (Online), 2454-7301(Print).
- 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.
- Davis, F.D., (1989), ‘Perceived usefulness, perceived ease of use, and user acceptance of information technologies’, MIS Quarterly, 13(3), pp 201-213.
- Fishbein, M., and Ajzen, I. (1975). Belief, Attitudes, Intention and Behavior: An Introduction to Theory and Research. Reading MA: Addison-Wesley.
- Friedrich, R., J. Bussmann, O. Acker, and N. D. Acker, (2005), ‘making Mobile Payment Work for Everyone’, Resilience report. Access from: <http://www.strategybusiness.com/resiliencereport/resilience/rr00023?pg=all>, last access: 5. Jun. 2008.
- Jayawardhena, C., and Foley, P. (2000). Changes in the banking sector: the case of internet banking in the UK. Internet Research: Electronic Networking Applications and Policy, Vol. 10 No. 1, pp. 19-30.
- Kalakota, R., & Robinson, M. (2001). M-Business: The Race to Mobility. New York: McGraw-Hill Companies.
- Lee, Y.E. and I. Benbasat, (2004), ‘A Framework for the Study of Customer Interface Design for Mobile Commerce’, Int. Journal of Electronic Commerce, 8(3), pp 79–102.

- Rogers, E.M., (2003), ‘Diffusion of Innovation’, The Free Press, New York, pp-174.
- Saji, K.B., (2007), ‘Investigating the Role of Operational Variables in B2B m- Payment Technology Adoption Process’, Proceedings of the XXIX INFORMS Marketing Science Conference, Singapore Management Univ..
- TRAI. (2013). The Indian Telecom Services Performance Indicators. Delhi: Telecom Regulatory Authority of India.
- Vinayagamoorthy, A., & Sankar, C. (2012). Mobile Banking –An Overview. *Advances In Management*, 5(10), 24-29.
- Wang, Y.S., and Y.W. Liao, (2007), ‘The conceptualization and measurement of M-commerce user satisfaction’, *Computers in Human Behavior* 23, pp 381–398.
- Wang, Y. S., Wang, Y. M., H, L. H., & Tang, T. I. (2003). Determinants of user acceptance of internet banking: An empirical study. *International Journal of Service Industry Management*, 14(5), 501-519.
- Wu, J.H. and S.Ch. Wang, (2005), ‘What drives mobile commerce? An empirical evaluation of the revised technology acceptance model’, *Information & Management* 42, pp 719–729.