



ISSN Print: 2394-7500  
ISSN Online: 2394-5869  
Impact Factor: 5.2  
IJAR 2019; 5(4): 400-404  
www.allresearchjournal.com  
Received: 03-02-2019  
Accepted: 04-03-2019

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## Mobile banking in India - Issues & challenges

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### Abstract

Technology plays an important role in banking sector. Banking is one of the largest financial institutions constantly explores the opportunity of technology enabled services to provide better customer experience and convenience. Mobile phone is a common technology device that became part of every individual in the information era. Mobile Banking is an emerging alternate channel for providing banking services. India is the second largest telecom market in the world, which is having high potential for expanding banking services using mobile. However, mobile banking has not become the choice of millions of people. The main objective of this study is to identify the mindset and analyse the security issues in Mobile banking among the banking customers in India.

**Keywords:** Mobile Banking, Mobile Banking in India, Issues and Challenges

### 1. Introduction

The success story of M-PESA in Kenya and other few countries became instrumental for banks in other countries to explore the opportunity and adopt Mobile Banking. The main advantage of Mobile Banking is that the people in remote area can also access the banking services at ease. This has become possible with the reach of mobile devices in the rural areas where the device can be purchased starting from few hundreds. The penetration of mobile in India has made rapid change in communication system. Apart from the reach of communication device; revolution in mobile technology like 2G, 3G, 4G are created more market where the potential people are adopting the latest technologies. One can see the impact of mobile banking types due to the advancement in technology. Operating system used in mobile device also plays an important role in development of Apps for easy access of various services. The challenges and issues in mobile banking are discussed in this paper.

### 2. Review of Literature

Bamoriya and Singh (2011) <sup>[1]</sup> found that the mobile banking has the issues and challenges like mobile handset compatibility, standardizing, software downloading, privacy & security. The Basel Committee on Banking Supervision expects risk in banking activities due to unprecedented speed of change in technological and innovation in products / services. The committee which was recommended an integrated risk management approach for all activities of a banking institution.

### 3. Scope of The Study

On the basis of literature, the following mobile banking issues were discussed with the existing bank customers

1. Mobile compatibility
2. Mindset about Mobile Banking acceptance
3. Comfort level with existing system
4. Availability of Facilities
5. Security issues
6. Willingness to adopt mobile banking service

### 4. Methodology

Primary data collected from 65 respondents using online questionnaire. Secondary data also used from the website of Telecom Regulatory Authority of India (TRAI). The responses are analyzed and tabulated in the paper.

## 5. Developments in Mobile Technology

Motorola<sup>[1]</sup> was the first company introduced mobile phone in the year 1973, which is very costly and also more weight (in Kgs) when compared with present mobile sets which are cheap and small in size.

**1st Generation (1G):** The first analog cellular system widely deployed in North America was the Advanced Mobile Phone System (AMPS). It was commercially introduced in the Americas in 1978, Israel in 1986, Australia in 1987 and India<sup>[2]</sup> in the year 1995.

**2nd Generation (2G):** Second generation mobile communication replaced the analog signal with digital signal.

On April 3, 1973 Martin Cooper, a Motorola engineer and executive, made the first mobile telephone call from handheld subscriber equipment in front of reporters, placing a call to Dr. Joel S. Engel of Bell Labs.

In August 1995, Chief Minister of West Bengal, Shri Jyoti Basu ushered in the cell phone revolution in India by making the first call to Union Telecom Minister Sukhrum.

There are two major technical developments occurred that is GSM and CDMA technologies<sup>[3]</sup>. The NTT DoCoMo in Japan introduced internet service on mobile phones in the year 1999.

**3rd Generation (3G):** The mobile phone became essential communication system for millions of users worldwide. The 3G technology developed with the concept of packet switching instead of circuit switching for data transmission.

**4th Generation (4G):** The fourth generation<sup>[4]</sup> technology introduced in the year 2009 with the technology advancement like WiMAX & Long-Term Evolution (LTE) technologies.

## 6. Mobile Banking

SMS Banking refers utilizing banking services through SMS from the registered mobile number of the customer. Application or Software oriented refers downloading the application developed by the bank for utilizing the mobile banking service that works in traditional mobile handsets. Browser<sup>[5]</sup> based mobile banking refers Internet based mobile banking where the communication made to internet application which is optimized for mobile handsets. Mobile Apps refers mobile applications developed for Smart phones using Android, Windows, Java, etc.

The services offered under the mobile banking vary from one bank to another. The common services are Balance Enquiry, Mini Statement, Money Transfer and Utility Bill Payments.

Mobile payments were trialed in 1998 in Finland and Sweden where a mobile phone was used to pay for a Coca Cola vending machine and car parking. Commercial launches followed in 1999 in Norway. The first commercial payment system to mimic banks and credit cards was launched in the Philippines in 1999 simultaneously by mobile operators Globe and Smart.

## A. Mobile Banking Model

The development in Information and Communication Technology (ICT), comfort and access of services, and competition with peer forced banks to introduce Mobile Banking services in India. Mobile Banking can be broadly classified into Bank-led model and Mobile Service Provider Led Model.

In the bank led model, only customers of a bank can avail the mobile banking service from the bank. With these facilitates, the customers can do various banking transactions as per their convenience.

The Mobile Service Provider Model is totally different from bank-led model; in this the mobile customers those who don't even having the access of traditional bank account can do banking transactions through their mobile service provider.

Mobile banking services can be classified into SMS Banking, Application (Software) oriented, Browser (Internet) based model and Mobile Apps.

## B. International Experience

**M-PESA – Kenya:** M-PESA<sup>[6]</sup> is the first mobile banking solution launched based on the Mobile Service Led Model in the year 2007 by the telecom operators Safaricom & Vodafone. It has become very popular among the customers and captured major market in Kenya.

**Smart Money and G-Cash Philippines:** Philippines launched Smart money<sup>[7]</sup> which is an electronic wallet to do most of the banking transaction through mobile.

## C. Mobile Banking in India

Banks are constantly adopting technology to expand its business and to reach different level of customers. Apart from ATM, Internet banking and other technology enabled services Mobile Banking is one of the services provided by banks to its customers. Astonishing growth in telecommunication sector, its penetration including rural population and technology feasibility are the major factors for the introduction of Mobile banking services. Some banks in India are started providing the mobile banking service to their customers that include State Bank of India (SBI), Union Bank of India (UBI), Punjab National Bank (PNB), HDFC, ICICI, Axis Bank, etc.

The European developed GSM standard and the U.S. developed CDMA standard.

A 4G system provides mobile ultra-broadband Internet access, for example to laptops with USB wireless modems, to smart phones, and to other mobile devices.

Browser is software that is used to display web pages in the Internet.

M-Pesa quickly captured a significant market share for cash transfers, and grew astoundingly quickly, capturing 17 million subscribers by December 2011 in Kenya alone.

<sup>[7]</sup> Smart Money works on the Philippines 'nationwide network, one can send money to SMART's 50.9 million subscribers wherever they are in the country.

**Table 1:** Mobile banking services offered by some of the banks in india

Name of the Bank	Mobile Banking Services
State Bank of India	Freedom, SMS Banking, USSD <sup>[8]</sup>
Union Bank of India	SMS Banking, U Mobile
PNB	SMS Banking
ICICI	iMobile, SMS Banking, M-PESA, mRupee
HDFC	SMS Banking, App Based, Browser Based
AXIS Bank	Phone Banking, Internet Banking on Mobile, SMS Banking

## 7. Indian Telecom Sector

India is the second largest telecom market in the world. Telecom industry in India is witnessing enormous growth with 951.34 million subscribers as on 31st March 2012. The

TRAI report indicates this figure includes 919.17 million wireless subscribers and 32.17 million wireline subscribers in India. The tele-density at the end of March, 2012 reached the mark of 78.66.

**Table 2:** Telecom Subscribers& Tele-Density in India

	Quarter ending Jun'2011	Quarter ending Sep'2011	Quarter ending dec'2011	Quarter ending Mar'2012
Total Telephone subscribers	885.99	906.93	926.53	951.34
Urban Subscribers	587.94	601.42	611.19	620.52
Rural Subscribers	298.05	305.51	315.33	330.82
Wireless Subscribers	851.70	873.61	893.84	919.17
Wireline Subscribers	34.29	33.31	32.69	32.17
<b>Teledensity</b>				
Total Teledensity	73.97	75.48	76.86	78.66
Urban Teledensity	163.13	166.01	167.85	169.55
Rural Teledensity	35.60	36.40	37.48	39.22

Data Source: TRAI Annual Report 2011-12

**Fig 1:** Wireless Connections in India (In Millions)

## 8. Reserve Bank of India Regulation

The following are the Reserve Bank of India (RBI) Guidelines issued to provide Mobile Banking Service in India:

- Only such banks which are licensed and supervised in India and have a physical presence in India will be permitted to offer mobile payment services to residents of India.
- The services should be restricted to only to bank accounts/ credit card accounts in India which are KYC/AML compliant.
- Only Indian Rupee based services should be provided.
- Banks may use the services of Business Correspondents for extending this facility, to their customers. The guidelines with regard to use of business correspondent would be as per the RBI circular on Business correspondents issued from time to time.
- He\_Risks and Controls in Computers and Telecommunications 'guidelines will equally apply to Mobile payments.
- The-Know Your Customer (KYC) and Anti Money Laundering (AML) as prescribed by RBI from time to

time would be applicable to customers opting for mobile based banking service.

### A. Transaction Limits in Mobile Banking

- Only Indian rupee transactions and these transactions are allowed within India only.
- Per day transaction cap of Rs.50000 has been removed by RBI, and every bank can change this cap depending upon their risk <sup>[9]</sup>.
- Transactions without end-to-end encryption is Rs.5000/- (SMS Based) <sup>[10]</sup>

RBI/2011-12/312 DPSS. CO. PD. No. 1098 / 02.23.02 / 2011-12

### B. Security and Authentication

The highlights of security and authentication guidelines provided by the RBI on Mobile Banking:

- The mPIN or higher standard of mechanism should be used to authenticate the Mobile Banking customer.
- End-to-end secure encryption mechanism should be followed in transactions
- Bank should conduct regular information security audits on the mobile banking systems to ensure complete security.

## 9. Issues and Challenges in Mobile Banking

The rapid technology development in Mobile technology like 2G, 3G, 4G has become major challenges for banks. It is visible that the bank which started Mobile Banking in the form of SMS banking, then adopted application (software) based model for traditional mobile handsets, the evaluation of Smart phones, mobile operating system and Mobile Apps posed the banks to adopt the current technology.

The customers are mostly using ATM and online banking services. Most of the customers feel comfortable without

mobile banking. They also feel, there are chances of misuse in mobile banking due to mobile handset theft.

**10. Analysis**

Among the 65 respondents of bank customers, the conventional mobile phone users are 53.8% (35) and smart phone users are 46.2% (30). The awareness about the Mobile Banking facility provided by the bank was tested by 84.6% (55) customers, 6.2% (4) customers mentioned their

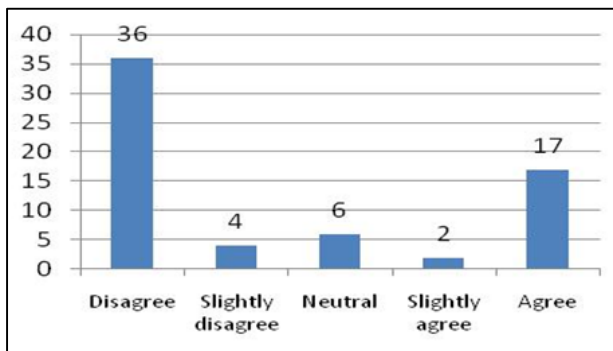
bank does not provide the facility and 9.2% (6) customers are not aware about the mobile banking facility from their bank.

The data also indicates 75.4% (49) of bank customers are not even using tested the mobile services of their bank and 24.6% (16) of customers are tested the facility.

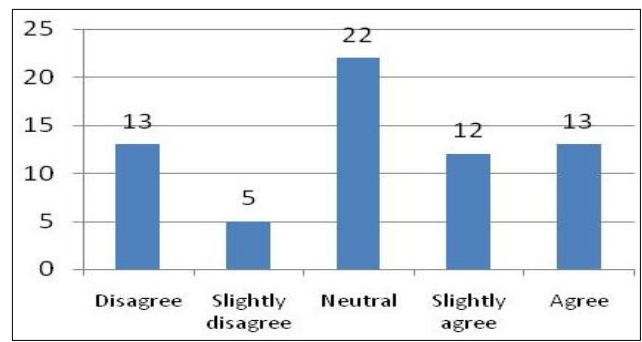
RBI Circular: RBI/2010-11/511 DPSS. CO. No. 2502/02.23.02/2010-11

**Table 3: Bank Customer Perspective About Mobile Banking**

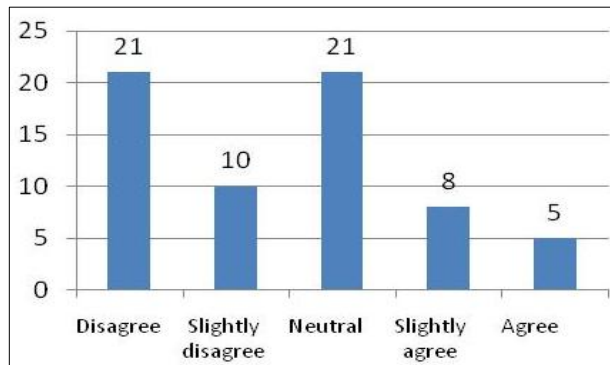
	Disagree	Slightly disagree	Neutral	Slightly agree	Agree
My handset does not have the capability to use Mobile Banking	36	4	6	2	17
Mobile Banking is hard to use	21	10	21	8	5
I am comfortable without mobile banking	9	2	12	8	34
Required facility not available	35	4	18	4	4
Security Issues	13	5			
Using this will improve my efficiency in performing transactions effectively	9	6	22	12	13
I would like to test the service	7	4	27	5	22
Number of respondents 65					



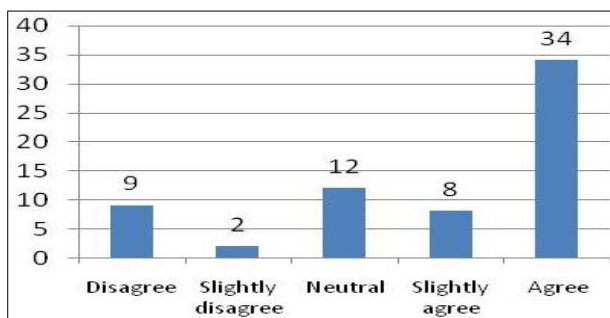
**Fig 2: Handset Capability**



**Fig 5: Security Issues**



**Fig 3: User Friendly**



**Fig 4: Comfortable Without Mobile Banking**

Technical problem increases along with the increasing number of mobile banking customers like problems in Banking transactions, Password / MPIN. More problems may arise when more customer adopt mobile banking. The problems faced by customers and their feedback will certainly improve the quality of mobile banking service.

As per the RBI guidelines, banks offering mobile banking services to its customer now can fix the daily transaction limit depending upon their risk. The cap was of Rs.50000/- earlier. The complaint related to PIN or Password also shows the need of awareness creation about secure and safe usage of mobile banking services.

**11. Recommendations**

Based on the online survey, it is found that most of the respondents are using online banking facility from their respective banks. However around 25% of customers are using mobile banking and remaining 75% are not. The majority of the online banking users are comfortable without using the mobile banking facility and they are also interested to test the facility.

It is depicted from the study that the evolution of different technology in communication system and mobile device is a major challenge to frequently change the mobile banking solutions. Few banks are offering mobile banking in the form of SMS banking.

With the advent of technological development banks customized applications (software) for mobile phones in the initial stage, now the introduction of Smart phones changed

the traditional mobile software into Mobile Apps. The major challenges in Apps are it has to be developed for different mobile Operating Systems.

The mobile is a small device, which has the risk of theft. This will be the major challenge on security issues to the customer who are using or willing to use mobile banking. The awareness how to use mobile banking and what are the security mechanisms to be followed by the customer has to be addressed for effective usage of mobile banking.

India is a country where different languages are used in different parts. The mobile banking facilitates to access banking service to the rural community. This requires customer friendly banking software that can be used in their local language.

The awareness creation among the existing customers and providing special benefits for using the mobile banking will increase the mobile banking users. Once the customer becomes confident on technology it will automatically increase the adoption of mobile banking in mass.

## 12. Acknowledgement

The author sincerely acknowledges the guidance of Dr. Atul Pandey, Associate Professor, NLIU, Bhopal, Dr. Dharmendra Dugaya, IIFM for suggestions. I would like to extend thanks to my wife Smt. Saritha and son Hemanth for all their moral support for developing this paper.

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