CHAPTER I

INTRODUCTION AND DESIGN OF THE STUDY

1.1 INTRODUCTION

Technological changes have often been related to economic growth in the form of prompt services in various sectors during the last two-hundred years. One of the most leading sectors in the world in the adoption of internet and mobile technology is the banking industry. Innovation in the field of banking Information and telecommunication technologies have drastically changed the structure of the overall financial system and particularly of the banking system by lowering the transactional costs and reducing systematic information. The acceleration technology has produced an extraordinary effect upon our economy in general which has had particularly profound impact in expanding the scope and utility of financial products over the past several years. The transformation of the financial information after liberalization period is successive development of innovation base that have resulted in different Self-Service Technology (SST)-enabled mediums between bankers and customers. They include ATM (Automated Teller Machine), Plastic Money, Tele Banking, Internet Banking, Credit/Debit cards and Mobile banking. Among these Self-Service Technologies, Mobile banking (M-banking) is the latest and most innovative medium and is the new trend among the customers with the feature to access their accounts at any time – 24 hours a day X 365 as well as greatly enrich the connotation of banking services, saving time and money for users. Banks offer m-banking as a less expensive alternative to traditional banking. In addition, it offers significant cost-saving advantages by the banker’s way of reduced transaction costs in comparison with the ATMs and is even expected to replace many delivery and payment systems.

India was depicted to be the fastest growing Mobile communications nation in Asia. Presently, banking industry of India has engaged the use of Information and Communication Technology (ICT) as a platform for effective and efficient means of conducting financial transactions. But, banking sector of India found technology-oriented financial services in the year of 1987 through the Automated Teller Machines (ATMs).
To strengthen the banking sector, financial reforms were initiated as a part of the economic reform started in India since 1991 onwards. Reforms were introduced in two phases, based on the report of Narsimahan committee in the year of 1991 and 1997. The second committee report, suggested whatever programme required by the banking sector reforms and make it in the India’s banking system to become internationally competitive. This suggestion has also helped in making fast development of technological-oriented financial services provided by the bankers to their customers in the past two decades. In recent days, finance-related services that are offered by employing mobile telecommunication technologies are generally referred to as Mobile banking financial services. So, the first Mobile banking and payment initiatives were announced during 1999. Technological advances have reshaped the size and nature of the financial industry, allowing it to extend beyond the traditional to modern concept of saving and borrowing through extension of the technological progression in the banking sector. The Government of India and the Reserve Bank of India (RBI) encourage banks to provide banking facilities to people through Mobile banking. In the year 2008, the RBI issued the first Mobile banking guidelines to the banks.

1.2 MOBILE BANKING

1.2.1 Mobile penetration in India

The convenience of the Mobile phone as an instrument for conduct of financial transactions and the immense potential it has in the process of financial inclusion and financial growth is well recognized. The present status of Mobile services in India and its progress is given in the table below.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Mobile Subscribers (in millions)</th>
<th>No of cellular groups in India</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001-2002</td>
<td>6.54</td>
<td>12</td>
</tr>
<tr>
<td>2002-2003</td>
<td>13.00</td>
<td>12</td>
</tr>
<tr>
<td>2003-2004</td>
<td>36.69</td>
<td>13</td>
</tr>
</tbody>
</table>
Recent scenario shows that wireless infrastructures have emerged as an effective option of connecting to an ever-evolving expansive information network such as the Internet and mobile phone service in India. In the 21st century, "mobile" does not only mean means of communication. But means of banking and financial services also. Even various initiatives use mobile phones to provide financial services to the unbanked and Mobile banking provides the benefit of convenient financial transactions.

Source: annual report of TRAI, 2012-2013
1.2.2 Mobile Financial Services

“Mobile financial services” is a term applied to a range of financial activities conducted using mobile devices, such as cellular phones or personal digital assistants (Cheney, 2008).

The terms Mobile banking, mobile payments, mobile transfers and micro finance refer collectively to a set of applications that enable people to use their mobile telephones to perform their banking transactions, store value in an account linked to their handsets, transfer funds, or even access credit or insurance products (Donner, 2007), (Donne and Telleze, 2008).

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1 Julia S. Cheney (June 2008): An Examination of Mobile Banking and Mobile Payments: Building Adoption as Experience Goods?, Payment Cards Center, Federal Reserve Bank of Philadelphia, Ten Independence Mall, Philadelphia, PA 19106. E-mail: julia.cheney@phil.frb.org.

Mobile penetration determines the success of Mobile technology in any domain. Banking Industry is one of the domains that use the enormous resources of Mobile Subscribers for their day-to-day business.

There are three major categories for mobile financial services are:

1. **Mobile banking**
   Mobile banking is the provision of banking services to the mobile device.

2. **Mobile payment**
   Mobile payment is the payment for goods or services with a mobile device.

3. **Mobile microfinance**
   Mobile microfinance is the provision of banking and payment services to the remote people through mobile device.

1.2.3 **Mobile banking services**

Mobile banking is a subset of Mobile Financial services. Mobile banking is a way for the customer to perform banking actions on his or her cell phone or other mobile device. It is a quite popular method of banking that fits in well with a busy, technologically oriented lifestyle. It might also be referred to as Mobile banking or SMS banking.

Mobile banking allows bank customers to check balances, monitor transactions, obtain other account information, transfer funds, locate branches or ATMs, fund transfer, mobile phone recharge, pay bills, tax pay etc. All these service are performing via SMS, WAP, GPRS, 3G or mobile Internet.

The present Mobile based banking models can be classified into three broad categories –Bank Focused, Bank-Led and Non Bank-Led.

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The bank-focused model emerges when a traditional bank uses non-traditional low-cost delivery channels to provide banking services to its existing customers. Examples range from use of automatic teller machines (ATMs) to internet banking or mobile phone banking to provide certain limited banking services to bank customers.

The bank-led model offers a distinct alternative to conventional branch-based banking, through which a customer conducts financial transactions at a whole range of retail agents (or through mobile phone) instead of at bank branches or through bank employees.

Non-bank-led model retail agent and Mobile network operator acts as real “bank”. Customer conducts financial transactions at a whole range of retail agents.

Technically speaking most of the mobile-based financial services can be deployed using more than one channel. Presently, Mobile banking is being deployed using mobile applications developed on one of the following six channels:

1. IVR (Interactive Voice Response)
2. SMS (Short Messaging Service)
3. WAP (Wireless Access Protocol)
4. Standalone Mobile Application Clients
5. SIM Toolkit
6. USSD (Unstructured Supplementary Service Data)

### 1.2.4 Types of Mobile Financial Services

Commercial banks in India offer various financial services using the above mentioned Mobile banking models and channels.

I. Mini-statements and checking of account history
II. Alerts on account activity or passing of set thresholds
III. Monitoring of term deposits
IV. Access to loan statements
V. Access to card statements
VI. Mutual funds/Equity Market Services
VII. Insurance policy Payment and other Related Services
VIII. Status on cheque, stop payment on cheque
IX. Ordering check books
X. Balance checking
XI. Due date of payment (functionality for stop, change and deleting of payments)
XII. PIN provision, Change of PIN and reminder over the Internet
XIII. Blocking of (lost, stolen) cards
XIV. Fund transfers
XV. Micro-payment handling
XVI. Mobile recharging
XVII. Commercial payment processing
XVIII. Bill payment processing
XIX. Peer to Peer payments
XX. Product information, conditions and offers
XXI. Enquiry of branch & ATM locations
XXII. Alerts through SMS for balance
XXIII. Withdrawal at banking agent
XXIV. Deposit at banking agent

1.2.5 Mobile banking services in India

The number of mobile phone users in India may reach 1 billion in 2013. Among them, 45 million rural Indians who own mobile phones do not have access to bank accounts. This is followed by rural areas where the coverage of banks is 40 per cent, against 60 per cent in urban areas. There is only one bank for a population of 14000. Mobile banking would be an effective technology-enabled financial service, thereby empowering the rural poor because Mobile banking can overcome all the barriers to entry in the traditional banking system.

The Reserve Bank of India (RBI) gave permission to offer Mobile banking services in the year 2008 and subsequently its guidelines regarding the operation of Mobile
banking in 2011. Mobile banking was introduced in India in the year 2008. Corporation bank is the first Public sector bank to start Mobile banking in India in the year 2008. Currently, 57 scheduled commercial banks offer Mobile banking services to the customer. Till 2013, 35.53 million bank customers have registered for Mobile banking service in India. The growth in Mobile banking transactions has shown an increasing trend. The volume and value of transactions have been raised every year. Upto May 2013, the number of Mobile banking transactions is nearly 100.35 million and amounting to Rs. 107096121.6 million were transacted. It is, however, evident that the potential of Mobile banking services is yet to be fully exploited.

1.3 STATEMENT OF THE PROBLEM

During the last one decade, things have changed at a rapid growth and all because of information technology. The beginning footprints of tipping information technology came in the pattern of adoption of the Core Banking System (CBS) which led to near collapse of geographical position of mother branch. Most of the clients would be intercepting the information technology-led e-banking and interlinked ATM network.

The fast changing information technology increases banking environment and exposes liberalization; encourages to permit the unbanked centres, financial excluded and low income people to avail financial services; reduces the administrative cost, time-saving purpose, reduces the occupational stress of the employees and speed delivery in financial products. These factors influence the implementation of Mobile banking in India.

The desktop and mobile phone have become our anytime bank branches. Then come the next door-Mobile banking which added anywhere to the genuinely anytime banking. The customer from physical banking and building customer awareness and confidence in these non face-to-face modes of banking has been a powerful task for the Indian banking industry. In this pointing and disputing journey, the Reserve Bank, as a pro-active regulator, has defined enabling policies and, at times, has pushed the industry in achieving the desired results. The Governments, both at the central and the state levels, have also been taking measures in encouraging Mobile banking services. The Mobile banking users have just started to fully utilize the services in their mobile phones. In
Asian countries like India, China, Indonesia, Philippines, Thailand and Bangladesh where mobile infrastructure is comparatively better than in the African country, and in European countries, where the number of Mobile banking users is very high (at least 60 per cent of customers use a mobile banking), Mobile banking is likely to appeal even more. 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 Indian market is the perfect market to draw customers into Mobile banking services. Presently, all state bank groups, 24 nationalized banks, 21 private sector banks, 4 foreign sector banks and 9 co-operative banks are giving financial services to the customers and 35 million bank customers have so far registered for Mobile banking service. Most of the banks use third party mobile services but cannot believe on the third party because they may steal our data. So to make Mobile banking services secure is the first challenge for us to improve Mobile banking services and make the customer trust, and is to make it user-friendly by which the user can realize and use it well by better improving all these facilities. Thus road blocks on acceptance of the Mobile banking services can be overcome.

Relevant literature and past research works were extensively reviewed and integrated sequentially, including a wide range of recently published works, in order to conduct the present study more effectively, the researcher reviewed fifty nine previous studies related to the current study area but though a number of studies have been conducted in the international arena and only a few studies can be found in the Indian context. Further, most of the foreign studies are focused on adoption of Mobile banking/Information technology aspects from customers’ view except Lebanese bank⁴ Sudanese bank⁵, and

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Germany bank\textsuperscript{6}. Zhenhua Liu, Qingfei Min and Shaobo Ji (2009)\textsuperscript{7} studied the role of trust on the individual’s intention of the use of Mobile banking among the respondents using Technology Acceptance Model. The study reported that perceived usefulness and trust jointly have a significant influence on the individual’s intention to use Mobile banking services. Laukkanen (2007)\textsuperscript{8} qualitative research indicated that Mobile banking seems to be the capability for immediate actions and time saving was a major factor for determining the adoption of mobile fund transfer service. Laukkanen (2007)\textsuperscript{9} studied the online customers’ attribute preferences with regard to electronic distribution channels in the bill payment services. The findings indicated that educational level, profession, household income, long internet banking usage and 1 usage frequency significant determines the potential and success of Mobile banking services. Lee and Kim (2007)\textsuperscript{10} identified factors influencing the adoption of Mobile banking service among the users (306 respondents) through a web-based survey using Technology Acceptance Model. The authors concluded that consumers trust and perceived usefulness directly influence the adoption of Mobile banking; however, perceived risk does not have any effect on the adoption of Mobile banking services. Tiwari, Bure & Harstatte (2006)\textsuperscript{11} explored the various avenues expanding online banking services using mobile based applications. The study reported that banks in India such as the Indian bank, Bank of Punjab, HDFC and ICICI are providing the most dominating mobile-financial services to their customers.

Suoranta (2003)\textsuperscript{12} in his descriptive study examined the dimensions with regard to the adoption of Mobile banking services. The study found that age and education among the


\textsuperscript{8}Tommi Laukkanen (2007): “Internet vs Mobile banking: comparing customer value perception”, business process management journal Vol.13, No.6, pp 788-797


\textsuperscript{12}Mary Suoranto (2003): “Adoption of Mobile Banking In Finland”, Doctoral Thesis Submitted to University of Jyva kyla.
several demographic variables significantly influence the intention of users to adapt to Mobile banking. Factors such as relative advantage, compatibility, communication also play an important determining role in the adoption of Mobile banking. Very few earlier works concentrated on assessing the acceptance level and usage pattern of Mobile banking services by the bank customers. Therefore, this study is conducted to study the acceptance level and usage pattern of Mobile banking services by the customer. Further, place of research is the foremost gap of every research work. For that reason, this study has been undertaken to find out the acceptance level and usage pattern segment of Mobile banking services by the customers.

The above related issues and research gaps raised the following questions in the minds of the researcher.

1. What is the present status of Mobile banking in India?

2. Whether the customer accepted the existing Mobile banking system? If so, what is the level of acceptance?

3. What is the usage pattern?

4. What are the reasons for non-usage?

5. What are the problems faced by the customers while using Mobile banking operations?

6. What is the level of satisfaction currently attained?

In order to find the answer to the above questions and related aspects, the researcher undertook this study with the following objectives.
1.4 OBJECTIVES OF THE STUDY

1. To study the growth of Mobile banking services in India.

2. To assess and analyze the acceptance level of Mobile banking services and also find out the influencing factors on its acceptance by the customers.

3. To analyze the usage pattern of Mobile banking services among various groups of customers and also assess their satisfaction level.

4. To find out the reasons for the non-usage of Mobile banking services by the customers and clustering the customers according to their opinion towards non-usage of Mobile banking services

1.5 HYPOTHESES OF THE STUDY

In consonance with the objectives, the following hypotheses were formed by the researcher:

\( H_01 \): There is no Significant Relationship between the Demography and Mobile banking Acceptance among the respondents.

\( H_02 \): There is no Significant Relationship between the Demography and Usage Pattern of Mobile banking services among the respondents.

\( H_03 \): There is no Significant Relationship between the Demography and Satisfaction of Mobile banking services among the respondents.

1.6 METHODOLOGY

1.6.1 Research Design

The research is an empirical research using the primary and secondary data. The study has been conducted by using the following methodology as given under the suitable headings.
1.6.2. **Data and Source**

Both secondary and primary data related to Mobile banking services are used in this study.

1. **Secondary data:**

Secondary data namely, the value and volume of Mobile services offered by commercial bank in India are used to assess the growth and development of Mobile banking services in India.

- **Source of Secondary data**

Monthwise value and volume of Mobile banking services offered by banks Monthwise data related to mobile banking.

2. **Primary Data**

It is used to assess the acceptance of Mobile banking services by the customers, level of acceptance, usage segments and reasons for usage of Mobile banking and reasons for non-usage of Mobile banking.

- **Source of Primary data**

The required primary Data was collected through the structured questionnaire. The primary data were collected from customers who operate their banking transactions in the bank branches in Puducherry. It is collected through the well-framed questionnaires-cum-interview schedule covering the main objective of the research.
The following variables were used in the questionnaire and the data were collected from customers.

**Table 1.2: Variables Used**

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Dependent variables</th>
<th>Common variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sex</td>
<td>1. Acceptance level of Mobile Banking</td>
<td>1. Preference of Mobile banking services</td>
</tr>
<tr>
<td>2. Age group (In years)</td>
<td>2. Usage-pattern of Mobile Banking</td>
<td>2. Reasons for usage pattern of Mobile banking services</td>
</tr>
<tr>
<td>3. Educational status</td>
<td>3. Satisfaction level of Customers</td>
<td>3. Factors influencing the usage pattern of Mobile banking services</td>
</tr>
<tr>
<td>4. Occupational status</td>
<td>4. Non-usage of Mobile Banking</td>
<td>4. Factors influencing the satisfaction level of Mobile banking Services</td>
</tr>
<tr>
<td>5. Family income</td>
<td>5. Reasons for non-usage of Mobile Banking</td>
<td></td>
</tr>
<tr>
<td>6. Frequency of visit to the banks etc.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**1.7 SAMPLE DESIGN**

**1.7.1 Sample Area**

Puducherry district is the sampling area for the present research work. The Union Territory of Puducherry has achieved 100 percent banking coverage. Puducherry is the first among states and union territories in the country to ensure banking services to all sections of people through various kinds of technology based services. People from all states of India are living in Puducherry. Hence, the researcher undertook this study in Puducherry.
1.7.2 Sampling unit

The sample unit consists of all banks operating services in Puducherry district. Puducherry district has a total of 37 commercial banks. With a total of 114 branches consisting of public sector (23 banks), private sector (13 banks), and foreign sector banks (1 bank), 806 samples were taken from 37 banks.

1.7.3 Sampling framework

806 samples are from 37 banks from Puducherry district (23 Public, 13 Private & 1 Foreign). Sample selection is based on the stratified disproportionate random sampling technique; the customers are to be grouped into public, private and foreign sector banks customers. The process of sample selection is given in the following table.

<table>
<thead>
<tr>
<th>Category of the bank</th>
<th>Name of the bank</th>
<th>Total No of bank branches</th>
<th>No. of samples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>Indian Bank</td>
<td>25*7</td>
<td>189</td>
</tr>
<tr>
<td></td>
<td>Indian Overseas Bank</td>
<td>16*7</td>
<td>175</td>
</tr>
<tr>
<td></td>
<td>SBI</td>
<td>25*7</td>
<td>112</td>
</tr>
<tr>
<td></td>
<td>UCO Bank</td>
<td>7*7</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>Canara</td>
<td>5*7</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>Bank of India</td>
<td>5*7</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>Andhra Bank</td>
<td>3*7</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Central Bank</td>
<td>3*7</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Syndicate Bank</td>
<td>4*7</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>Union Bank</td>
<td>3*7</td>
<td>21</td>
</tr>
<tr>
<td>Private</td>
<td>ICICI Bank</td>
<td>5*7</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>HDFC Bank</td>
<td>4*7</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>Karur Vysya Bank</td>
<td>3*7</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Lakshmi Vilas Bank</td>
<td>3*7</td>
<td>21</td>
</tr>
<tr>
<td>Foreign</td>
<td>City Bank</td>
<td>1*15</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>114</td>
<td>806</td>
</tr>
</tbody>
</table>
1.8 PERIOD OF THE STUDY

Period of the study denotes the period of data collection.

- The secondary data related to monthwise volume and value of Mobile banking transactions performed by commercial banks in India were collected for the period of four years from May 2009 to May 2013.

- The primary data were collected through structured questionnaire/interview schedule during the period from July 2012 to March 2013.

1.9 TOOLS USED FOR DATA ANALYSIS

The following statistical tools and their applications help to analyse and draw the inference about the overall growth of Mobile banking services, acceptance of Mobile Banking, usage pattern and satisfaction regarding Mobile banking services and non-usage of Mobile banking services.

- Descriptive statistics
- Percentage Analysis,
- Cross tabulation,
- Chi-square test,
- t-test,
- Garrett’s ranking technique,
- Correlation,
- Discriminant Analysis,
- Factor analysis, and
- Cluster Analysis.

1.10 SCOPE OF THE STUDY

This study highlights the growth and development of Mobile banking services offered by the banking sector of India. This is an empirical study in which the researcher has
assessed the acceptance level and usage patterns of Mobile banking services among customers in Puducherry. The study also analyses the satisfaction level regarding Mobile banking services, usage pattern of Mobile banking services and the reason for the non-usage for the Mobile banking services by the customers.

1.11 LIMITATIONS OF THE STUDY

- The study is restricted to assessing acceptance, usage-pattern and satisfaction level of Mobile banking services.

- The study is confined to Mobile banking customers of select scheduled commercial banks in Puducherry districts of the Union Territory of Puducherry.

- The secondary data were collected for the period of four years only (May 2009-May 2013).

- Only Secondary data related to value and volume of Mobile banking transaction were used for assessing growth of Mobile banking transaction.

1.12 CHAPTER SCHEME

The research thesis is arranged into the following six chapters.

Chapter I: Introduction and Design of the Study

The first chapter consists of the introduction and the design of the study comprising on introduction to Mobile banking, Objectives, Hypothesis, Period of the study, Methodology, Tools used for analysis, Limitation of the study and Chapter scheme.

Chapter II: Review of Literature

The second chapter highlights a review of earlier studies conducted by various researchers across the world in the area of Mobile banking.
Chapter III: Mobile banking conceptual framework and procedure for operating Mobile banking services

The third chapter gives a conceptual overview about the Mobile banking framework and procedure for operating Mobile banking services.

Chapter IV: Growth of Mobile banking services in India

The fourth chapter presents the growth of Mobile banking services in India.

Chapter V: Acceptance and Usage Pattern of Mobile banking services in India

The Fifth chapter shows the analysis and the interpretation relating to the acceptance and usage pattern of Mobile banking services in India.

Chapter VI: Findings, Suggestions and Conclusions

The sixth chapter is the summation of findings, offers suggestion and conclusion.