Chapter-1
INTRODUCTION

1.1.INTRODUCTION

Indian banking industry has transformed into one of the promising industries that offers services through multiple channels with the help of information system and technology. The technological interventions have reduced the banking time apart from offering independent banking environment that allows the customers to bank anywhere, anytime. The current Internet-based banking technology allows the customer to buy products or consumer services using their bank account from any place. Besides, it also offers a lot of credit options through credit card system that completely rests on the technological data management. The banks have improved their operational efficiency through technology based processes by meeting the diversified customer needs across the country which includes the unbanked and under-banked people living in cities and interior villages alike.

The Reserve Bank of India (RBI) and its banks have been concentrating on taking the banking services to unreached segments that include rural and disabled people. With the help of technology, the banking process has evolved by offering banking services through more than one channel. The World Health Organization (WHO) reports that around 90 percent of the visually impaired and blind people live in developing countries (WHO fact sheet, 2012). India has around 30 per cent of the world’s blind population which accounts to more than 20 million visually impaired people. Some of the researchers have proved that the modern technology has made the visually impaired people highly competitive (Williamson, et al. 2001). The large population of visually impaired persons in India highlights the market size and potential of this special segment to consume banking services offered through relevant channels.

Currently, the banking services can also be consumed via Mobile phones and computers with the help of the Internet apart from traditional branch banking. With the availability of in-built talking software in the Mobile phones, visually impaired
customers (VICs) can access banking services better. With banking services made available through Mobile phones, will this channel be an effective tool to include the VICs. This research is an effort to assess the VICs acceptance of Mobile banking channel and its key factors.

1.2. INDIAN BANKING INDUSTRY

The growth of Indian banking industry has significant contribution to the Gross Domestic product (GDP) increase in India. The banking industry has been consistently contributing to the growth. Figure 1.1 shows that the banking industry has continuously contributed around the 5.5 percent mark to the nation’s GDP. The contribution percentage has remained around the same mark in all fluctuations of GDP and it shows that the banking industry has a significant role in the growth of Indian GDP.

Figure 1.1. Contribution of the banking industry to the Indian GDP

![Graph showing contribution of banking to GDP]

Source: IBEF (2013)

The banking industry in India has improved its total assets from US$250 billion in the first quarter of 2000 to a whopping US $1.3 trillion in 2010. It is
mounting at a rate of 19 percent per annum, contributing around six percent of GDP and expected to occupy approximately 7.4 million people. The Non Performing Assets have reduced consistently from 15.70 per cent during the first quarter of 1997 to 2.25 per cent at the end of the first financial quarter of March 2011. Figure 1.2 shows the assets growth in the Indian banking industry during 2000-09. The Boston Consulting Group (BCG) reports that the Indian banking industry has done exceedingly well during the last ten years as there is a continuous growth of asset with increasing profitability. (Shah et al, 2010)

Figure 1.2. Growth in assets of Indian banking industry

![Graph showing growth in assets of Indian banking industry from 2000 to 2009.](source: Shah et al. (2010))

The development of the Banking industry in India can be attributed to strong leadership and RBI’s dynamic regulations. The Indian Regulatory systems have been rated higher than the systems in China, Brazil, Russia, US and UK; and also being rated on par with most successful economies that includes Japan, Singapore and Hong Kong by FICCI (Gauba, 2012).
The new technology-based banking services have diffused to the younger generation customers across the country. The success of the growth of Indian banking industry is largely attributed to the customers living in the cities due to higher acceptance of technology based processes. One of the most important challenges for bankers in India has always been reaching the people in the rural areas and interior villages (KPMG, 2010).

Figure 1.3. Reasons for lower banking penetration in India

![Diagram showing causes of lower banking penetration](source: KPMG (2010))

Amidst all developments and expansions in the Indian banking industry, there is huge concern over the existence of large unbanked and under banked population. There are still a large number of residents in villages and interior rural places either living without a bank account or not able to access their banking account or use the banking features (Desai, 2012). Figure 1.3 highlights some of the reasons for lower banking penetration in the rural areas of India.
1.2.1. Technology and banking

Technology has played a critical role in the development of the Indian banking industry. Through technology, banks have found a solution to numerous customer problems and the unmet needs. It has put an end to customers toiling it out with lots of stress in the waiting lines, to withdraw and deposit cash. With limited working hours and banking infrastructure, the banking system required to be de-congested. The technological interventions have reduced the banking time apart from offering independent banking environment that allows them to bank anywhere, anytime. The banks adopted technology based service processes not only to lower the cost and improve efficiency but also to reach the unreached customers living across the country. The technology enabled processes have helped the banks to set up electronic based strategies and services channels that include the customer segments to access the normal banking features and facilities.

Figure 1.4. Technology based banking initiatives

The emergence of information technology and communication system offered opportunities for the banks to improve their process and efficiency. Figure
1.4 highlights some of the technology based banking initiatives and their deliverables.

Table 1.1. Technology based banking initiatives

<table>
<thead>
<tr>
<th>Initiatives</th>
<th>Deliverables</th>
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<tbody>
<tr>
<td>A. Operational efficiency</td>
<td>- Straight-through-processing</td>
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<td></td>
<td>- Transformation of service channels</td>
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<tr>
<td></td>
<td>- Collaborative channel management strategy</td>
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<tr>
<td></td>
<td>- Branchless banking for financial inclusion</td>
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<td></td>
<td>- Business correspondents</td>
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<tr>
<td>B. Governance and risk management</td>
<td>- Enterprise risk management</td>
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<td></td>
<td>- Real-time executive dashboards</td>
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<td></td>
<td>- Real time security management</td>
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<td></td>
<td>- Risk based Authentication</td>
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<tr>
<td>C. New solutions</td>
<td>- Mobile phone based banking application</td>
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<td></td>
<td>- Social media support</td>
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<tr>
<td>D. Regulatory/compliance</td>
<td>- International financial reporting standards</td>
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<tr>
<td></td>
<td>- Unique identification readiness</td>
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<tr>
<td></td>
<td>- Data flow Automation</td>
</tr>
<tr>
<td>E. Customer centric</td>
<td>- Customer analytics</td>
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<tr>
<td></td>
<td>- Efficient customer data management</td>
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</tbody>
</table>

Source: KPMG (2011)

Table 1.1 highlights the various functions performed by banks through technology based service process. The banks not only improved their operational efficiency through technology based process by meeting the diversified customer needs across the country, it also includes the unbanked and under-banked people living both in urban and rural areas. The technology has played a pivotal role in regulating the banking process and enables information flow from both customers as well as the bankers. The banks see larger opportunity through technology to create newer features, facilities and supporting systems that will help the customers to
consume the banking services in greater measure and in different contexts. The effective data base management has been the strength of the technology based banks as it offers comprehensive information about the customers and their banking pattern which helps in up selling and cross selling the banking products.

1.2.2. Banking service channels in India

In India, the growth and development of the banking industry largely rested on the channel mechanisms. With a huge base of unbanked people, the channel through which banking services can be offered has been very critical. Until the liberalisation of Indian market in 1990s, the banking industry was relaying only on the traditional branch banking mode. Both bankers as well as the customers faced challenges to operate with the limited operation mode. Opening up of the Indian market for the multinational companies sparked the development of banking industry through technology and innovative processes that brought in new service channels.

Figure 1.5. Various banking channel options in India

Source: Kumar (2009)
These banking channels came into existence over the period of time in the last decade. The Indian banking industry moved from traditional branch banking channel towards the technology based channels like Automated Teller Machine (ATM), electronic banking and Mobile banking. The initial addition to banking channel was the phone based banking that functioned through call centre system. The banks installed call centre infrastructure that operated through Interactive Voice Response (IVR) system during the initial stages of the banking revolution. But the phone banking system that relied on call centre was not successful due to reasons like operational complexity, time consumption and the lack of awareness towards the operations. The rural and urban customers found it very difficult to rely on such services and they were more comfortable with the traditional branch banking system.

Unlike the phone banking channel, the ATM offered great relief to both the bankers as well as customers. The ATM received greater reception as a banking channel when compared to branch banking or phone banking. It offered stress free banking environment to the customers as the ATM banking channel allowed them to withdraw cash anytime, without standing in queue or waiting for the token number to get cash or knowing the account balances. (Kumar, Malathy& Ganesh, 2011)

ATMs today have evolved as they also render banking services that include fund transfer, cash deposit, phone recharge, personal identification number (PIN) generation, cheque book request and statement generation. The ATMs now part of the inclusive banking strategy for the banks as the banks have installed user friendly ATMs that are easily accessible by the rural customers also. The ATMs play key role in serving the visually impaired and blind customer by offering Braille and talking mode options. Table 1.2 provides an understanding on the evolution of ATMs and the list of features and functionalities added over the period of time.

Following the ATMs, the Indian banking industry adopted internet based electronic banking options. While the initial electronic banking options were planned to service the urban customers, now it has become a common banking channel for both urban and rural customers. The emergence of the computer based internet banking options provided the comprehensive coverage of banking services that offered independent banking environment to the customers. The computer based
internet banking not only helped the customers to save time and effort as they can bank at home any time but also improved the efficiency of the banks by reducing the cost. The dependence on traditional branch banking system is significantly low, as the customers now need not have to go to banks for operating their bank account as they can consume banking services in their place by using their credit or debit card to transact.

Table 1.2. Evolution of Automated Teller Machines (ATM) in India

<table>
<thead>
<tr>
<th>Period</th>
<th>Features/Functionalities</th>
</tr>
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<tbody>
<tr>
<td>1988 (the introduction stage)</td>
<td>• Withdrawal of cash</td>
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<td>1995 (the early developments)</td>
<td>• Balance enquiring</td>
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<td>• Mini statement</td>
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<tr>
<td></td>
<td>• Cash deposit (through envelopes; takes one working day for verification)</td>
</tr>
<tr>
<td>2002 (extending features)</td>
<td>• Check book requests</td>
</tr>
<tr>
<td></td>
<td>• Fund transfers</td>
</tr>
<tr>
<td></td>
<td>• Touch screen options and features</td>
</tr>
<tr>
<td>2004 (inclusion of non-banking services)</td>
<td>• Booking the railway and airlines tickets</td>
</tr>
<tr>
<td></td>
<td>• Payment of utility bills and credit cards</td>
</tr>
<tr>
<td></td>
<td>• Prepaid Mobile recharges</td>
</tr>
<tr>
<td>2007 (operational developments)</td>
<td>• Direct cheque deposit with scanning</td>
</tr>
<tr>
<td></td>
<td>• Secured ATMs with biometric options</td>
</tr>
<tr>
<td>2010 (inclusive banking tool)</td>
<td>• Braille and provision for head phone</td>
</tr>
<tr>
<td></td>
<td>• Option for regional language</td>
</tr>
<tr>
<td></td>
<td>• Direct cash deposit (credited instantly)</td>
</tr>
<tr>
<td>2012 (extending the inclusive banking options)</td>
<td>• Passbook updating</td>
</tr>
<tr>
<td></td>
<td>• Cash deposit without ATM card or PIN</td>
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<td></td>
<td>• Talking ATMs.</td>
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</tbody>
</table>

Source: Kumar (2009)

Electronic banking has become very successful in India as it offers an effective platform that not only allows the customers to access their account using computers but also helps in accessing bank account through Mobile phones, by
courtesy the new technology phones that are easier to access and use. The latest technology phone with applications have made the jobs of the banks easier as they offer the full range of services with the application platform that can be downloaded and installed into the customers’ smart phones.

The application based banking offers controlled access to the banking services ranging from balance enquiry to the complicated fund transfer. The emergence of Mobile banking has not only helped the urban, but also the rural population. The Mobile banking is considered to the most important tool that helps the banks to include the rural customers as the Mobile user rate is significantly increasing on par with the urban residents (Kumar, 2009).

1.2.3. Level of banking channel interaction with customer segments

Though there are numerous banking channel options available for the customers, not every customer segment uses all the channels. The usage of different banking channels vary across segments depending on factors such as literacy, region and so on. The banks also have strategy that tries to utilise different banking channels for customer segments. Different customer segments have different levels of interaction and access to different channels based on their exposure, awareness level and accessibility. Figure 1.6 displays different levels of channel interaction with different customers. It shows how the channel interaction level varies from segment to segment. Many Banks in India understand and consider the traditional branch banking system as the core channel for most of the customers and therefore they work on delivery strategies that largely rest on the branch banking (KPMG, 2011).

The Figure 1.6 highlights significant differences in the level of channel interactions across customer segments. The banking service channel options are forced on some of the rural segments. Customers should have the autonomy to decide the banking channels and interactions that will help them meet their banking needs in less time with lower risk. Each of the channels have their own advantages and disadvantages to each of the customer segments. There is a definite limitation in
the availability of the channel options to the customers living in the rural areas as well as people with disability.

**Figure 1.6. Channel interaction mix across difference customer segments**

<table>
<thead>
<tr>
<th></th>
<th>Branch based banking</th>
<th>Electronic banking via computer</th>
<th>Mobile banking</th>
<th>ATM</th>
<th>Phone banking</th>
<th>Special branches</th>
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<tbody>
<tr>
<td>Urban Customers (City)</td>
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<tr>
<td>Sub-urban and Rural</td>
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<tr>
<td>(Village &amp; Towns)</td>
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<tr>
<td>Unbanked &amp; under-banked</td>
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<tr>
<td>(Inclusive banking)</td>
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<tr>
<td>Corporate and businesses</td>
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<tr>
<td>Wealth management</td>
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<tr>
<td>customers</td>
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**Source:** KPMG (2011)

**1.2.4. Mobile banking in India**

Mobile banking in India is catching up at a good pace as the Mobile phone subscription is growing steadily. Not just the urban population, even the people living in rural areas have started using Mobile phones. The RBI has been advocating Mobile banking as a tool to include both rural segment as well as people with the disability. Mobile banking is still in its early phase as it is being used for receiving information via SMS and has not been diffused as a banking tool that can be used for transaction. The awareness level on the Mobile banking features and option available for the customers are low in the rural areas as the rural customers’ understanding towards Mobile banking is at the information level. Using Mobile phone for banking has huge potential in India as there are around 900 million Mobile connection subscriptions, and only 400 million people are holding bank account. With the Mobile connections predicted to increase to 1,150 million in 2020, Mobile banking will play a vital role as it has every opportunity to become a major channel
for banking both in urban as well as rural areas of the country (KPMG, 2011). The cost and ease of using Mobile banking are the reasons why it is predicted to become the major tool for banking. According to KPMG (2011) report, Mobile banking incurs the lowest cost when compared to other channels of banking services.

1.3. STATEMENT OF THE PROBLEM

The large population of visually impaired persons in India highlights the market size and potential of this special segment to consume banking services. In spite of all technological developments in banking and RBI initiatives to include visually impaired people, VICs share an unfavourable response towards existing inclusive banking initiatives (Kumar & Anandkumar, 2012). Therefore it has become very important for banks to offer independent banking solutions and features that are fully accessible. This study will concentrate on understanding the banking pattern of VIC and their perception towards current inclusive banking initiatives. This research aims at assessing their acceptance of Mobile banking. Some of the important research questions addressed by this research are: What is the banking pattern of VICs? Are the VICs happy with the existing inclusive banking initiatives practiced at branches? Can Mobile banking be the inclusive banking tool for VICs? Are the VICs willing to accept Mobile phone for banking? What are the key factors influencing their acceptance of Mobile banking?

1.3.1. Why consider Mobile banking as an inclusive banking tool for VIC?

The competence levels of visually impaired persons are improving as they are able to access computers and Mobile phones (Williamson et al. 2001). But visually impaired customer segment shares a negative attitude towards computer-based electronic banking and also is not willing to use computer channel as an inclusive banking tool (Kumar & Anandkumar, 2013). Visually impaired people display higher comfort level while using Mobile phones than the computers (Kumar & Anandkumar, 2012). Mobile banking using Mobile phones is a possible banking service channel option for them. Therefore, Mobile banking has been considered in this study for assessing its acceptance for including visually impaired people.
1.3.2. Rationale and context of the study:

The World Health Organization (WHO) reports that India owns around 30 per cent of the world’s blind population which accounts to more than 20 million visually impaired people (WHO fact sheet, 2012). Modern technology has made the visually impaired people highly competitive (Williamson, et al., 2001). RBI responded to the developments and demands of visually impaired people by offering special suggestions and guidelines to banks to make banking facilities easily accessible visually impaired customers (RBI, 2008). In spite of all technological developments, special guidelines for inclusive banking and banking transformations, the dream of VICs to enjoy easily accessible and independent banking remains a huge challenge (Kumar, Anandkumar & Maniraja, 2012). Past studies on VICs note an unfavourable perception towards the existing inclusive banking initiatives and the banking practices (Kumar & Anandkumar, 2012). Technology as a tool for inclusion of visually impaired people in India has not been researched; therefore it provides scope for studying VICs’ acceptance of Mobile banking channel as an inclusive banking tool.

1.3.3. Expected contributions from the study

This study involves developing a technology acceptance model specially designed for assessing visually impaired people and using the same for studying Mobile banking.

- It is a worthy addition to existing knowledge base.
- The model specifically developed for assessing visually impaired people will be useful for further studies on this special group.
- The information about the VICs’ banking pattern, perception on inclusive banking initiatives and the Mobile banking acceptance will help the bankers to understand the needs of VICs better and support implementing a VIC-friendly inclusive banking tool.
- It may aid RBI on policy decisions pertaining to VICs. It also provides insight to RBI while making directions and regulations to the banks on inclusive banking practices to include VICs.
Finally, it creates awareness on Mobile banking channel options, and various provisions and features available on this channel. And most importantly, it helps the VICs in understanding inclusive banking policies and their rights.

1.4. OBJECTIVES

The aim of the study was to assess the visually impaired customers’ (VICs) acceptance of Mobile banking channel as an inclusive banking service. The major objectives of this study were to:
1. Understand the banking pattern of VICs
2. Study their perception towards the existing inclusive initiatives of the banks
3. Develop a new technology acceptance model (TAM) specifically designed for VICs
4. Assess the VICs’ acceptance of Mobile banking as a service channel
5. Identify the VICs’ preference for the level and form of Mobile banking

1.5. HYPOTHESIS

The following are the list of hypotheses surmised under various objectives in order to answer the above mentioned research questions

A. Banking pattern

$H_{1a}$: There is a significant association between level of impairment and method of operating the bank account by VICs

$H_{1b}$: There is a significant association between level of impairment and VICs’ choice of mode of authorisation (LTI/Signature) to operate the bank account

$H_{1c}$: There is a significant association between mode of authorization (Signature/ LTI) used by VICs to operate their bank accounts and the additional features and facilities offered to them by bankers

$H_{1d}$: There is a significant association between level of impairment and the additional features and facilities offered to VICs by bankers

$H_{1e}$: There is a significant association between method of operation (Single/ Joint) and number of transaction done by the VICs (monthly)
There is a significant association between mode of authorisation and number of transactions done by VICs

**B. Key variables relating to the acceptance of Mobile banking**

*H*$_{2a}$: VICs’ perceived behavioural control over Mobile phone (PBCM) usage will impact on their perception towards ease of using (PEUMB) Mobile Banking

*H*$_{2b}$: VICs’ perceived behavioural control over Mobile phone usage (PBCM) will have impact on the anxiety over using Mobile Banking (ANXMB)

*H*$_{2c}$: VICs’ perception towards existing banking channel (EXBKCH) will have direct influence on their perceived usefulness of Mobile banking (PUMB)

*H*$_{2d}$: VICs’ perceived Ease of using Mobile banking channel (PEUMB) will have significant impact on the perceived usefulness of Mobile banking (PUMB)

*H*$_{2e}$: VICs’ perceived Ease of using Mobile banking (PEUMB) channel and their attitude towards Mobile banking (ATTMB)

*H*$_{2f}$: Anxiety (ANXMB) of VICs’ over using Mobile Banking has significant impact on their attitude towards Mobile banking (ATTMB)

*H*$_{2g}$: The perceived usefulness of Mobile banking (PUMB) impacts on the VICs’ attitude towards Mobile banking (ATTMB)

*H*$_{2h}$: VICs’ attitude towards Mobile banking (ATTMB) has significant impact on the Intention to use Mobile banking as an inclusive banking channel (INTUSEMB)

**C. Demographic factors and preferred level / form of Mobile banking**

*H*$_{3a}$: There is a significant association between preferred form of Mobile banking and level of impairment.

*H*$_{3b}$: There is a significant difference in the preferred Mobile banking form of VICs and their demographic characteristics (such as age, education and occupation)

*H*$_{3c}$: There is a significant association between preferred level of Mobile banking by VICs and their level of impairment
There is a significant difference in the preferred Mobile banking level of VICs and their demographic characteristics (such as age, education, and occupation)

1.6. RESEARCH METHODOLOGY

It is a descriptive research that rests on primary data for its major findings; it is classified as a cross-sectional study. Since the respondent group consisted of visually impaired people, a clearance from the University’s Ethics committee for human studies was obtained (Approval no.42/28.02.2013) after following due procedure as laid out by the Ethics committee.

1.6.1. Location and study area definition

a. Location of study

The locations considered for the study are the Tiruvannamalai and Vellore districts to represent the northern part of Tamilnadu state, India. Owing to the presence of famous hospitals such as Christian Medical College hospital, Scudder Memorial Hospital apart from association such as Helen Keller association for blind teachers, Vellore association for blind, Tiruvannamalai Blind teachers association, Vellore Blind teachers Association and Blind teachers association Arani, the visually-impaired segment of the population is more organized through affiliations and support groups. As a result, the special group of respondents are more approachable. Besides, these two districts are a suitable location representing the visually impaired people living in rural areas.

b. Defining area of the study

Figure 1.7 shows the study area definitions and its inter-connection that finds roots in both marketing of banking services as well as the information technology. It is a multi-disciplinary study that covers more than one discipline. It can be basically categorised into the study of banking, but assessment of new technology acceptance is part of information technology and management.
This study evaluates the Mobile banking acceptance using a Technology Acceptance Model (TAM) based model that traces its root to information technology. Beyond these, studying visually impaired people might influence this study to be classified under disability studies. But broadly viewing, this study is a mix of banking services and information technology.

1.6.2. Data and sources:

a. Data type and source: The study is focused on assessing the technology acceptance of visually impaired respondents. The study sourced primary data using
focus group interviews and a structured questionnaire. The major research finding though rests on the data sourced through survey using structured questionnaire; the study includes focus group interviews that helped in the selection of critical variables for the development of model specifically used for assessing the new technology acceptance of visually impaired people. The secondary data played critical role in drawing the conceptual framework of the study apart from providing input to design the questionnaire as well as to identify the key constructs to be presented in the focus group interview for the selection of variables to be included in the model.

b. Data Collection process: The data was collected during the gatherings of the members of the associations for visually impaired persons and over a one-to-one interaction at the end of the meetings (time and place was prescribed by the association for this purpose) only after,

- taking prior permission from the association,
- briefing the VICs about the study and the information to be solicited and
- obtaining informed consent from the individuals concerned.

1.6.3. Sampling description

Schedule (that is, an orally administered questionnaire) was used for collecting data from 203 visually impaired respondents. The respondents for the survey and focus group interview were identified using purposive snowball sampling procedure. Appropriate inclusion criteria for the selection of respondents were adopted. Adequate and essential precautions were engaged to shun sample bias with the data collected.

1.6.4. Period of study

The focus group interview for selection of key variables to be included in the questionnaire was conducted during March 2013. The data collection via schedule was done from September 2013 to January 2014 in the two districts (namely, Tiruvannamalai and Vellore) of northern Tamilnadu state, India.
1.6.5. Data analysis and statistical tools used

The Data was edited and analyzed using Statistical Package for Social Science (SPSS 16.0). Pearson’s Chi-square analysis was used to test some of the hypotheses. These tests helped in understanding the association between the banking pattern variables. Descriptive statistical analysis comprising mean, mode and standard deviation was applied for understanding the VICs’ perception towards existing banking practices.

Extended model of technology acceptance for visually impaired customers (EMTA-VIP) was developed with the help of literature on technology acceptance models and focus group interviews with respondents (that is, visually impaired teachers at college level). EMTA-VIP was specially developed for assessing VICs based on TAM. Smart PLS, a software application for Partial Least Squares Structural Equation Modelling (PLS-SEM) developed by Ringle & Will (2005) was used for testing EMTA-VIP. The structural model and hypothesis were tested by computing t-value and beta co-efficient output. PLS also offers to verify suitability of model with the hypothesized relationship through the squared multiple correlations (R²) for each related variable in the model. The R² determines the percent variation of the connecting variables explained by the model (Wixom & Watson, 2001).

One Way Analysis of Variance (ANOVA) was used for testing the hypothesis relating to the demographic differences between the visually impaired customers (VICs) preference and level and form of Mobile banking. Post hoc test was also done to conclude on understanding the differences between the groups.

1.7. OPERATIONAL DEFINITIONS

Visual impairment Visual impairment includes people with severe impairment as well as blind. WHO fact sheet (2011) clarifies that “20/200 to 20/400: is considered severe visual impairment or severe low vision”.
Mobile Banking
Performing banking operation using Mobile phone is understood as Mobile banking. It can be accessing bank account information, making requests or even transacting through Mobile phone. Mobile banking includes SMS banking, Application based banking as well as banking through Web using Mobile phone.

Inclusive banking
Inclusive banking is the process of including the people who are excluded or unbanked. Inclusive banking is a mechanism that tries to provide accessibility to both unbanked and underbanked. Inclusion comprise of both making the banking services available as well as increasing the accessibility of banking services to people who are not able access the banking services (under-banked).

VICs
Visually impaired customers (VICs) in this research includes both people with partial visual impairment as well as blind holding a bank account.

TAM
Technology acceptance model (TAM) is a mechanism that helps in identifying the critical factors those influence in adoption of new technology.

EMTAVIP
Extended model for the technology acceptance of visually impaired people is a model developed in this study through mixture of literature review and focus group interviews. It is a TAM based model specifically designed for assessing visually impaired respondents.

1.8. LIMITATIONS OF THE STUDY

The findings of this research account to a particular region at a specific period of time. The research includes large proportion of (VICs) respondents from a
particular profession. The findings of this research is limited to visually impaired customers from rural areas only and not from urban or semi-urban areas where VICs may be more technology savvy.

1.9. BRIEF REVIEW OF LITERATURE

A brief review of past research and reports are presented in this section to provide a fundamental understanding on the conceptual and theoretical background of the research topic.

1.9.1. Research on models for assessing new technology acceptance


1.9.2. Research on development of Technology Acceptance Model (TAM)

Davis (1986) believed that there was a scope for developing a more effective model for new technology adoption than the existing once. He believed that the Theory of Reasoned Action (TRA) and Theory of Planned Behavior (TPB) were not effective models to assess the new technology acceptance. Therefore, he developed a new model - the Technology Acceptance Model (TAM) that hypothesized on critical variables like perceived usefulness and perceived ease of use and their impact on the intention and behavior to use new technology. Subsequently Davis (1986, 1989, and 1993) conducted numerous studies to improve the model. Later, Venkatesh, et al. (2003) developed a model called UTAUT (Unified Theory of Acceptance and Use of Technology) based on TAM and developed TAM-3 (2008) to test the new technology acceptance in the work place. Both his models carried importance to employee acceptance and did not have much relevance to assessing customer acceptance.
1.9.3. Application of TAM in assessing Mobile banking acceptance

TAM has become a common model to assess electronic commerce and various other computer related technology. Besides, several researchers have used TAM to assess the acceptance of Mobile technology for banking. Wessels & Drennan (2010) studied the key motivators and inhibitors for consumer acceptance of Mobile phone banking (M-banking) through TAM.

Zhou (2011) studied the effect of initial trust on Mobile banking user adoption by extending TAM along with few other variables. He used TAM and other factors like information quality (Zahedi & Song, 2008), system quality (Kim, et al., 2007; Vance, et al. 2008) to study the acceptance factors. Subsequently, Akturan & Tezcan (2012) also investigated the Mobile banking adoption through TAM by adding two other variables like perceived benefits and perceived risks. Koenig-Lewis, Palmer & Moll (2010) integrated TAM with additional determinants like compatibility, trust, credibility, perceived risk and cost to test its effect on behavioural intention.

1.9.4. Application of TAM on visually impaired persons

Djamasbi, et al. (2006) extended TAM with visually impaired persons on his study on library sciences. The survey included both normal respondents as well as visually impaired persons. He extended TAM by adding perceived information access as a variable to assess the acceptance of information technology in library sciences.

1.9.5. Research on inclusive banking for visually impaired people

Kumar (2013, 2014) researched on visually impaired customers to study their perception on the existing inclusive banking initiatives. The study on VICs’ opinion towards time- and information-related inclusive banking practices marked negative response from the special segment (Kumar, 2013). VICs also shared a negative attitude towards computer-based online/electronic banking and were not willing to consider computer based banking as an inclusive banking tool (Kumar
Kumar’s (2012) research on identifying the visually impaired customers’ attitude towards Mobile banking reported positive response from the special segment. However, it did not involve assessment using a model or validated constructs.

1.9.6. Summary of review of literature and research gap

The above cited literature shows various technology acceptance models used in the past and the relevance of TAM for assessing Mobile banking acceptance. It reviewed various key determinants used by researchers to extend TAM for Mobile banking adoption by various segments. It highlighted significance of TAM in assessing Mobile banking acceptance. However a special group’s (such as visually impaired customers) attitude towards Mobile banking has not been researched. Also an assessment of VICs’ acceptance of Mobile banking as an inclusive banking tool has not been attempted. Therefore, a new technology acceptance model that is specifically used for assessing visually impaired people in their use of banking technology will be a worthy addition to the literature. This review contributed in building a conceptual framework for the study, based on which an attempt has been made to develop an exclusive model for assessing visually impaired persons’ acceptance of new technology.

1.10. THESIS PRESENTATION AND LAYOUT

This thesis titled ‘Inclusive banking opportunity for visually impaired customers through Mobile banking channel – An assessment using extended Technology Acceptance Model’ is presented in five chapters. A brief outline of the contents of each chapter is presented below.

- Chapter One provides a background and detailed introduction to this study. It is a summary of the whole thesis. It will give an insight into the essence of this study. It highlights key aspects of the study, such as rationale, objectives and the expected contributions from the study.
- Chapter Two comprises of review of the literature relating to the assessment of new technology acceptance in the banking industry for visually impaired
people. It discusses the key determinants that are suitable to develop a model for conducting study among a special group of respondents such as the visually impaired people. It also provides information on the inclusive banking episode in Indian banking industry that covers the role of Mobile banking and the RBI regulations. Research gap is highlighted at the end of the review.

- Chapter Three elucidates the research design and methodology through which the research deliverables are established. It offers a blueprint consisting information relating to sampling decision, data sources, data collection instrument and data analysis tools used in this study.

- Chapter Four offers a detailed view on data analysis and findings of this study. Data analysis including hypothesis testing and findings are presented in the order of research objectives.

- Chapter Five presents a discussion on major findings and relates them with the literature, besides offering suggestions relating to the improvement of inclusive banking tools and measures to increase awareness and usage of Mobile phones for accessing bank accounts among the study population. As a conclusion it compares the objectives with the findings while presenting a concluding note. It explains the theoretical, applied and policy implications of the study. The prospects for further research in this area of study are suggested.

- The ‘References’ section contains the list of books, reports, journal articles, online resources and other references that were referred for this study.

- The ‘Appendix’ section contains a sample questionnaire used for data collection. The SPSS outputs comprising detailed tables for the statistical techniques used are also presented here whereas as the summary of the statistical output tables have been presented in the body of the thesis. The model output generated through smart PLS is also shown here for reference.