CHAPTER I

INTRODUCTION

In this chapter an introduction and background of the research is presented, followed by the purpose of the study and deposition of the thesis.

1.1 Introduction

Sophisticated applications have now become economically feasible as the power of computer technology continues to improve. As technical barriers disappear, it becomes necessary to create applications that people are willing to use. Therefore practitioners and researchers require a better understanding of why people use technologies in order to devise practical methods for evaluating technologies, predicting how users will respond to them and improving user acceptance by altering the nature of technologies and the processes by which they are implemented.

Internet banking is one of the advanced technologies that have been introduced by the banking industry in this information technology era. The financial industry has a history of developing new instruments and services and improving processes for reducing costs of existing services and offering new services. The banking industry in particular, is constantly responding to changes in customer preferences and needs; increasing competition from non-banking institutions, changes in demographic and social trends, information technology advances, channel strategies, and government deregulations of the financial service sector. Banks and other financial
institutions have improved their functions as a financial intermediary through adopting various information technologies (Gourlay & Pentecost, 2002; Hannan & McDowell, 1984; Haynes & Thompson, 2000). Earlier, traditional banking was characterized by physical decentralization, with branches scattered around populated areas to give customers easy geographic access. Internet banking on the other hand provides a convenient, low-cost alternative to the traditional bank visit.

The growth of internet banking has been fuelled by broadband availability as well as secured connections over the Internet. A primary reason for the rise of the internet as a business mechanism during the past decade is that the Internet was not only designed with an intuitive, graphical, and simple to-use interface, but was also developed to provide information, foster awareness, and influence people's attitudes and behavior. Consequently, internet banking has altered the nature of consumer interactions with banks, reducing the importance of physical locations and face to face interactions.

Entry of new banks has resulted in a paradigm shift in the ways of banking in India. Banks of all sizes are opting to run their commercial activities through the internet as growing competition and growing expectations has led to increased awareness amongst banks on the role and importance of technology in banking. The arrival of foreign and private banks with their superior state-of-the-art technology-based services has also pushed Indian banks to follow suit by going in for the latest technologies so as to meet the threat of competition and retain their customer base.

Many banks now offer some form of internet banking activity, like checking bank balance, paying bills online or even simple cash transfer transactions. Several studies suggest that the internet has become a very popular delivery platform for internet banking
Electronic banking technologies have led banks and financial institutions to improve effectiveness of distribution channels through reducing the transaction cost and increasing the speed of service (Chang, 2002; VanHoose, 2003). As pointed out by Shih and Fang (2004), internet banking has been employed by many banks to reduce costs, shorten processing periods, increase speed, improve flexibility of business transactions and provide better service overall.

Consumers’ use of internet banking requires acceptance of the technology, which can be complicated because it involves the modification of behavioral patterns (Meuter et al., 2000). There is a great role to be played by the citizens of a country to adopt internet banking. Although consumers are becoming aware of its convenience, less people have enrolled in online banking because of poor security and privacy issues (Saleh, 2003).

Quick adoption can lead to success for the banks, consumers as well as for the economy. The evidence for consumers’ reluctance to use internet banking calls for a scholarly inquiry about the underlying factors influencing individual consumers’ decision to adopt internet banking. The challenge for the banking industry thus, is to design this new service channel in such a way that its customers will readily learn to use and trust it.

This research is comprehensive in terms of using a theoretical model called Technology Acceptance Model (TAM), and extending it by adding other variables from the electronic commerce adoption literature, and the existing trust literature in electronic commerce to understand internet banking usage intentions in the Indian context. The purpose of this research is to test the ability of the extended theoretical model to predict and explain user acceptance of internet banking.
1.2 Background of the Study

1.2.1 Internet Banking Overview

Internet banking is a form of electronic banking offered via the internet whereby consumers can perform and transact financial services in a virtual environment (Bradley & Stewart, 2003). Internet banking offers advantages as a retail channel, namely accessibility, direct communications, cost reductions and new markets (Anderson 1995; Cronin 1996; Daniel and Storey 1997; Doherty et al., 1999; Hughes 2001). The cost effectiveness of internet banking, compared to branch based or telephone banking has been widely discussed (Kelly 1996; Katz and Aspden 1997; Daniel 1997). In true internet banking, any inquiry or transaction is processed online without any reference to the branch at any time. Using internet banking, consumers can conduct fast and convenient financial transaction activities.

Internet banking in this study is defined as an internet portal, through which customers can use different kinds of banking services ranging from providing information and bill payment to making investments.

The advent of the internet and the popularity of personal computers present both an opportunity and a challenge for the banking industry. Internet banking has become a necessary survival weapon and is fundamentally changing the banking industry worldwide. Today, the click of the mouse offers customers banking services at a much lower cost and also empowers them with unprecedented freedom in choosing vendors for their financial service needs. No country today has the choice of implementing internet banking, given the global and competitive nature of the economy. Banks have to upgrade and constantly think of new innovative customized packages and services to remain competitive.
In traditional banking, one has to approach the branch in person, to withdraw cash or deposit a cheque or request a statement of accounts. But, in internet banking, this can be dispensed with. Internet banking offers a range of financial products and services to customers. Most of the services are available without even giving a visit to the bank. Customers may need to go to the Automated Teller Machines (ATM) only to withdraw or deposit cash. By using internet banking customers can avail number of services like the following:

- Pay utility bills online /Transfer funds
- Request for new cheque book /Order Demand Drafts
- Open a Fixed Deposit account
- Receive Statement of accounts via email
- Apply online for credit card
- Trade in shares online and open a demat account
- Invest in IPOs, Mutual Funds
- Purchase National Savings Certificates and Kisan Vikas Patra
- Register for mobile or email alerts
- Apply for home/car/personal loans.

From the consumers’ perspective, electronic banking technologies allow consumers easier access to financial services, lower bill-paying, and time saving in managing their finances (Anguelov, Hilgert & Hogarth, 2004). Information technological developments in the banking industry have increased speed of communications and transactions for customers (Giannakoudi, 1999). The evolution of internet banking has altered the nature of personal-customer banking relationships and has many advantages over traditional banking delivery channels. Internet banking enables a customer to do banking transactions through the bank’s website in the internet. It is more or less like bringing the bank to the computer.
While internet banking is a potential and powerful delivery channel, it has failed to make a significant impact due to a variety of reasons. The Reserve Bank of India (RBI) in its report, ‘Trend and Progress of Banking in India, 2001-02,’ states that internet banking has failed to take off due to a combination of psychological, technological and socio-economic factors. It also reports the lack of a strong trust environment as one of the reasons why internet banking has not taken off in India.

Although studies of individuals adopting internet banking are not uncommon, most of them have dealt with foreign financial markets. User behavior in India may differ from overseas, but only a few studies have been undertaken. Therefore, understanding of internet banking usage intentions can help banks to formulate appropriate marketing strategies for internet banking in India. These considerations are also very vital to the practitioners who plan and promote internet banking in the current competitive market.

1.2.2 Internet in India

The role of internet is becoming inevitable to corporate and society. Across the world, governments and corporate are increasingly working towards better utilization of the internet. The internet which was initially perceived as a communication media is now metamorphosing into a powerful business media.

Various studies have been conducted by different agencies to explore the current status of internet in India. According to the I-Cube (Internet in India) study conducted annually by IMRB International and Internet and Mobile Association of India (IAMAI), India had as on September 2008, 45.3 million active internet users. Active internet users are those who have used the internet at least once in the
preceding one month. This is considered an internationally accepted benchmark for enumerating internet users.

According to the study, urban users continue to dominate internet use contributing to 42 million of the 45 million odd users. In September 2007, the number of active internet users in urban India was 36 million showing a year on year growth of less than 13 per cent. The study also found that the number of “claimed” internet users in September 2008 was 57 million compared with 48 million in September 2007, recording a less than 10 per cent growth. Claimed users are those who have used the internet sometime but not in the preceding one month. The report revealed that the present stage of internet usage could be interpreted as “maturity” stage of internet in India. Additionally the study showed that the main reason for lack of internet use was the lack of awareness of the use of the medium.

According to “Internet World Stats”, a premier website for international internet usage statistics, world population data and web growth information, internet users in India as on June 2008 was 60 million, with a penetration rate of 5.2 percent of total population and a growth rate of 1100 percent from the year 2000 to the year 2008. In July 2005, Internet World Stats reported that there were 39.2 million internet users in India representing 3.6 percent of the population. (Internet World Stats, August 2005). Even with millions of web users in its cities, the internet penetration rate for India remains well below five percent. Despite India’s technology outsourcing power, the country’s internet penetration rate is low. In India, slowly but steadily, the Indian customer is moving towards usage of the internet.
1.2.3 Banking in India

In the five decades since independence, banking in India has evolved through four distinct phases. During the fourth phase, also called as ‘Reform Phase’, recommendations of the Narasimham Committee (1991) paved the way for the reform phase in the banking. Important initiatives with regard to the reform of the banking system were taken in this phase. Important among these have been introduction of new accounting and prudential norms relating to income recognition, provisioning and capital adequacy, deregulation of interest rates & easing of norms for entry in the field of banking.

In the late 1960s the Government of India nationalized all the major commercial banks by transferring the ownership from private ownership to government ownership. A second round of nationalization of banks happened in the late seventies. As a result, during the seventies and eighties the nationalized banks, which were owned by the government, together accounted for 95 percent of the market share for all banks in the country, the remaining five percent being contributed mainly by banks in the private sector and some multinational banks whose presence was limited to the large cities. This scenario continued until the early 1990s, when the Government of India, as part of its overall financial-sector reforms, decided to grant banking licenses to start nine new banks in the private sector.

The emergence of new private-sector banks, expansion by the foreign banks, the changing business model of the nationalized banks compounded by the financial sector reforms and the burgeoning middle class, have, over the last 10 years, completely transformed the way banks in India operate. The government-owned commercial banks today have a market share of about 75 percent (down from the earlier 95 percent), the private-sector banks about 20 percent and the foreign banks about 5 percent. These percentages are expected to undergo
further and far-reaching changes in the coming years due to the intense competition that has been unleashed in the last 5 years. Alongside this phenomenon, some of the world-renowned foreign banks who have historically had a presence in India also started to expand their business in India, particularly in the area of retail banking, where a burgeoning middle class of almost 200 million people offer an enormous business opportunity. Therefore, both businesses and the masses of India have been exposed to a variety of banking services at different levels.

Banking is an information-intensive business and thus the Information Technology (IT) has become increasingly important in this industry. Today, the internet with special characteristics has altered the rules for marketing. Moreover, customers require flexibility, availability, creativity, and price advantage from the supplier or service provider. Although internet banking may help banks reduce costs, other important issues also need to be considered, including the extent to which retail bank customers adopt new forms of banking, factors that influence customer adoption intention, and perception and adoption differences between different forms of banking. These issues are important in that their answers can, not only help business managers detect the obstacles of physical services in the traditional competitive marketplace, but also help to plan and market new forms of banking in the electronic marketplace.

1.2.4 Information Technology Deployment by Banks in India

Information Technology (IT) was primarily employed to automate the back offices of banks in the 1970s. Computers were introduced as “ledger posting machines” as, at that time, many employee unions of government-owned commercial banks opposed any form of automation. Employee unions argued that such a move would lead to unemployment. IT has indeed been deployed in a variety of back-office
and customer-interface activities of banking. Even the government-owned commercial banks today are happy to call themselves fully computerized.

However, from a technology perspective, banks in India have confronted two major challenges in adopting information technology both as a strategic tool and as an operational necessity. The first major challenge was the availability of a comprehensive centralized banking application system that could cope with the various operational requirements and controls that are very specific to the Indian banking environment, by virtue of almost 30 years of strong government control. Most of the internationally recognized centralized banking application systems were built to meet the banking needs and practices particularly of the Western world and the Asia Pacific region. It is appropriate to mention here that some of the world-renowned software companies in India that have come of age in the last decade have built world-class centralized banking application systems in collaboration with banks in India. These solutions not only meet the requirements of Indian banks but are today among the best-selling core banking application systems across the world.

The second major challenge was the difficulty in deploying a robust data communications network that would connect the branches of the bank to the data center hosting the core banking application systems. Thanks to the very rapid and progressive measures taken by the Government of India, the telecommunication infrastructure has grown very rapidly in India and has helped banks, particularly in the last four years, to build robust data communication networks spanning over 200 cities and towns across the country.

The software packages for banking applications in India had their beginnings in the middle eighties, when the banks started computerizing the branches in a limited manner. The early nineties
saw the plummeting hardware prices and advent of cheap and inexpensive but high-powered PCs and servers and banks went in for what was called Total Branch Automation (TBA) packages. The middle and late nineties witnessed a tornado of financial reforms, deregulation, globalization etc coupled with rapid revolution in communication technologies and evolution of novel concept of 'convergence' of computer and communication technologies, like internet and mobile phones.

Having deployed a centralized core banking application systems and a robust telecommunications network, a number of banks, over the last three to five years, have been leveraging the same to create multiple delivery channels such as internet banking, automated teller machines (ATMs), call centers, mobile banking, and so on. The new private-sector banks, by virtue of their intrinsic ability to absorb technology faster have been at the cutting edge of technology deployment among banks in the country. These new alternate delivery channels have helped to keep the growth of brick-and-mortar branches of the banks at a far lower level than in the past.

Banks as well as other financial entities entered the world of information technology with Indian Financial Net (INFINET). INFINET, a wide area satellite based network (WAN) using VSAT (Very Small Aperture Terminals) technology, was jointly set up by the Reserve Bank and Institute for Development and Research in Banking Technology (IDRBT) in June 1999. The Indian Financial Network (INFINET) which initially comprised only the public sector banks was opened up for participation by other categories of members.

The first set of applications that could benefit greatly from the use of technological advances in the computer and communications area relate to the payment systems which form the lifeline of any banking activity. The process of reforms in payment and settlement
systems has gained momentum with the implementation of projects such as NDS (Negotiated Dealing System), CFMS (Centralized Funds Management System) for better fund management by banks and SFMS (Structured Financial Messaging Solution) for secure message transfer. This has resulted in funds transfers and funds-related message transfer to be routed electronically across banks using the medium of the INFINET. Negotiated dealing system (NDS), which become operational since February 2002 and RTGS (Real Time Gross Settlement system) towards the end of 2003 were other major developments in the area.

Information technology has basically been used under two different avenues in banking. One is communication and connectivity and other is business process reengineering. Information technology enables sophisticated product development, better market infrastructure, implementation of reliable techniques for control of risks and helps financial intermediaries to reach geographically distant and diversified markets.

The financial reforms that were initiated in the early 1990s and the globalization and liberalization measures brought in a completely new operating environment to the banks. Bankers are now offering innovative and attractive technology-based services and products such as ‘Anywhere Anytime Banking’, ‘Tele-Banking’, ‘Internet Banking’, ‘Web Banking’, etc. to their customers to cope with the competition. The process started in the early 1980s when Reserve Bank of India (RBI) set up two committees in quick succession to accelerate the pace of automation of operations in the banking sector. A high-level committee was formed under the chairmanship of the then Governor of RBI, Dr. C. Rangarajan, to draw up a phased plan for computerization and mechanization in the banking industry over a five-year time frame of 1985–1989. The focus at that time was on
customer service and two models of branch automation were developed and implemented. Having gained experience in the earlier mode of computerization, the second Rangarajan committee constituted in 1988 drew up a detailed perspective plan for computerization of banks and for extension of automation to other areas such as funds transfer, e-mail, BANKNET, SWIFT, ATMs, internet banking, etc.

The Government of India enacted the Information Technology Act, 2000 (generally known as IT Act, 2000), with effect from October 2000 to provide legal recognition to electronic transactions and other means of electronic commerce. RBI had set up a ‘Working Group’ on internet banking to examine different aspects of internet banking. The Group had focused on three major areas of internet banking such as (1) technology and security issues, (2) legal issues and (3) regulatory and supervisory issues. RBI had accepted the recommendations of the ‘Working Group’, and accordingly issued guidelines on ‘Internet banking in India’ for implementation by banks. The ‘Working Group’ had also issued a report on internet banking covering different aspects of internet banking.

Indian banking industry, today is in the midst of an IT revolution. A combination of regulatory and competitive reasons has led to increasing importance of total banking automation in the Indian banking industry. In view of this, technology has changed the contours of three major functions performed by banks, i.e., access to liquidity, transformation of assets and monitoring of risks. Further, information technology and the communication networking systems have a crucial bearing on the efficiency of money, capital and foreign exchange markets.
1.2.5 Internet Banking in India

Internet banking is a new delivery channel for banks in India. The internet banking channel is both an informative and a transactional medium. However, internet banking has not been popularly adopted in India as expected (Ravi et al., 2007).

In India a number of banks have either adopted internet banking or are on the threshold of adopting it. Malhotra and Singh (2007) carried out a study to find the internet banking adoption by the banks in India. The study suggested that larger banks or banks with younger age, private ownership and lower branch intensity possessed high probability of adoption of this new technology. Banks with lower market share also perceive internet banking technology as a means to increase the market share by attracting more and more customers through this new channel of delivery.

The banks in India started internet banking initially with simple functions such as getting information about interest rates, checking account balances and computing loan eligibility. Then, the services were extended to online bill payments, transfer of funds between accounts and cash management services for corporate. Now, banks have started to facilitate payment of electronic commerce transactions by directly debiting bank accounts or through credit cards.

Internet has significantly influenced delivery channels of the banks and has emerged as an important medium for delivery of banking products & services. Detailed guidelines of RBI for Internet Banking has prepared the necessary ground for growth of Internet banking in India.

In the Indian context, many publications throw light over the importance of internet banking and also its prospects for the Indian banking industry. Unnithan and Swatman (2001) studied the drivers
for change in the evolution of the banking sector, and the move
towards electronic banking by focusing on two economies, Australia
and India. The study found that Australia is a country with internet-
ready infrastructure as far as telecommunication; secure protocols,
PC penetration and consumers’ literacy are concerned. India, by
comparison, is overwhelmed by weak infrastructure, low PC
penetration, developing security protocols and consumer reluctance in
rural sector. Although many major banks have started offering
internet banking services, the slow pace will continue until the critical
mass is achieved for computers, internet connections and telephones.
However, the upsurge of IT professionals with growing demands is
pressuring the government and bureaucracy in the country to support
and develop new initiatives for a faster spread of internet banking.

Rao and Prathima (2003) provided a theoretical analysis of
internet banking in India, and found that as compared to the banks
abroad, Indian banks offering online services still have a long way to
go. For online banking to reach a critical mass, there has to be
sufficient number of users and the sufficient infrastructure in place.

Various authors in the last decade have found that the
popularity of internet banking in India is very fast growing (Gupta,
1999; Dasgupta, 2002), and it is expected that a large sophisticated
and highly competitive internet-banking market will definitely develop
soon.

Internet banking has gained wide acceptance internationally
and seems to be fast catching up in India with more and more banks
entering the fray. The history of the Indian banking system could be
traced to the British legacy which left behind a host of large and small
privately held banks. The late sixties saw the nationalization of banks,
leading to the emergence of the public sector banks. The nineties saw
the banking industry embracing technology in a massive way, led in
particular by the new private banks and MNC banks. Among these series of technology innovations, internet banking for the retail segment is a recent phenomenon that has generated a lot of interest in the Indian banking industry. Private and foreign banks have been the early adopters while the PSU banks have been latching on to the bandwagon a little slowly but steadily.

While there are scores of companies specializing in developing internet banking software, security software and website designing and maintenance, online financial service providers are slowly coming up. ICICI bank was the first one to introduce internet banking in 1996 for a limited range of services such as access to account information, correspondence and, recently, funds transfer between its branches and other bank accounts.

Almost all the banks operating in India are having their websites, but only a few banks provide full fledged transactional internet banking. A survey carried out by Malhotra and Singh (2007) showed that only 48 percent of the commercial banks operating in India as on March-end 2005 offered internet-banking. A visit of the websites of all commercial banks in India showed that all commercial banks (except two public sector banks) in India were offering some form of internet banking service as on December 2008.

As in all forms of technology innovations, PSU banks have remained lethargic in the race for adopting internet banking practices. There were very few nationalized banks like State Bank of India, Bank of Baroda, Allahabad Bank, Syndicate Bank, Bank of India, Union Bank of India, Canara Bank and Punjab National Bank that offered internet banking services before 2003. SBI’s internet banking initiative, launched in July 2001, is doing quite well. But despite positive news like this, PSU banks still have a lot of catching up to do on the internet banking services front. Although almost all public
sector banks have “internet banking” section on their web sites, most of these banks do not match the number of online transactions provided by their private counterparts.

Considerable progress has been made in consolidating the existing payment systems and in upgrading technology with a view to establishing an efficient, integrated and secure system functioning in a real-time environment. Facilities under Electronic Funds Transfer (EFT) have been upgraded and their spatial reach expanded with multiple settlements in a day. Foreign exchange clearing has been initiated through the Clearing Corporation of India Limited (CCIL). Adequate security features are being incorporated into the EFT.

Banks are increasingly moving up the value chain by setting up new delivery channels. Banks have realized that providing good service is key to retaining customers, hence they are investing in building IT infrastructure. They know that without a good technology foundation, delivery channels will be compromised. More than the RBI compulsion, banks are realizing the importance of IT and that is driving greater IT adoption. Value-added customer services like fully functional internet banking, mobile banking and information-oriented Management Information Systems (MIS) are some of the products and services of focus for banks.

The adoption of Core Banking Solutions (CBS) is going strong among banks in India. CBS has enabled the introduction of multiple delivery channels like internet banking, mobile banking, telephone banking and ATM banking. Encouraging the migration of customers to these delivery channels, multi-product delivery and cross-selling using CRM tools will be the immediate action plan for the banks.

From the Asian market experience, it is clear that internet banking is here to stay and will be a major channel to acquire and
service customers. Markets like Korea and Singapore have nearly 10 percent of their population banking over the internet. Though, these markets are way ahead of India both in terms of internet penetration and internet banking penetration, India is a big potential market and is fast catching up with its Asian counterparts.

However, the redtapism in public sector banking and lesser consumer base is being attributed to as the reasons for the Indian banks to enter into the internet banking very late. With the rapid development in the technological infrastructure in, relation to security and confidentiality, and the legal framework being better equipped, internet banking has become a feasible mode of banking in India.

Along with the favorable scenario in the techno-legal aspect, the increasing internet consumer base has taken the trend of online banking from basic information dissemination service to fund-based transactions on their accounts, hinting at the ample growth prospect of online banking in India.

1.2.6 Trust and its Role in Internet Banking Adoption

Internet banking has become widespread in the financial service industry. Although more consumers are becoming aware of its convenience and the huge impact it can have on their lifestyles, less numbers have enrolled for internet banking because of poor security and privacy issues. The fact remains that only a few trust the internet for banking. Every security system depends on trust, in one form or another, among users of the system. Trust indicates a positive belief about the perceived reliability of, dependability of, and confidence in a person, object or process (Rempel et al., 1985).

There is overwhelming evidence that trust in the online environment is an important element of electronic commerce
relationships and the importance of studying online trust is underscored by earlier studies (Hoffman et al., 1999; Jarvenpaa, 2000). In internet banking systems, information is considered as an asset so worthy of protection. According to Online Banking Association, member institutions rated security as the most important issue of online banking. As far as security is concerned, there is a dual requirement; one is to protect customers' privacy protect data and the other is protection against fraud. Another major issue is the need for a legal and regulatory framework.

Internet banking is considered more unsafe than traditional banking. One of the real reasons for the slow take-off of internet banking is internet security. Banks have instituted a number of physical security features in order to erect barriers between the hacker and customer’s money. However recent advances in computer technology mean that even these elaborate levels of security can be cracked.

Currently, India has no law on data protection. Cyber crimes are touching all the facets of our life and our banking transactions are also affected by them. Whether it is credit card frauds, ATM frauds or internet banking frauds, cases are occasionally reported in India. The frequency and numbers of these cases is increasing day by day and there is a strong need of stringent cyber law in India. Information security in e-banking present two main areas of risk: preventing unauthorized transactions and maintaining integrity of customers’ transactions. Data protection falls in the latter. Data protection laws primarily aim to safeguard the interest of the individual whose data is handled and processed by others. ‘Interests’ are usually expressed in terms of privacy, autonomy and/or integrity. On the technological front the Indian internet banking system is facing many hurdles. The
problems include operational risks, security risks, system architecture risks, reputational risks and legal risks.

One particular and very successful method of siphoning money is the use of phishing techniques. In this process the victim is lured into divulging personal and confidential financial details. Once these details are disclosed the money is illegally withdrawn from the holder's account. With the nuisance of cyber crimes and increase in phishing consumers in India are sure to feel insecure about transacting online. There are also other recent methods like ‘skimming’ and ‘pharming’.

It would obviously take much time before internet banking could be called a fully alternative banking mode to the conventional one. Legal and cross-border risks can be avoided through proper customer identification devices, information screening techniques, periodic reviews on compliance with various laws, and gaining knowledge of various national laws applicable. The compliance part and policy regulation part should be assured by the RBI and the need for a data protection law cannot be denied. The security issues can be tackled by having the banks’ systems technologically equipped to evade operational and security risks. Reputational risks can be prevented by testing of the system before implementation, developing contingency plans (to handle system disruptions, system hackers, security lapses and virus attacks) and creating back-up facilities.

Customer education and awareness is another area of relevance, as unless the customers are taken into confidence and made comfortable with the working of online banking all the technological development will go in vain. As customers gain more confidence in carrying out secure transactions over the Internet, vulnerabilities are present and can be exploited by cyber criminals to obtain a user's personal banking details. Hence trust emerges as a crucial factor for using internet banking.
1.3 Statement of the Problem

The explosion of internet usage and the huge funding initiatives in electronic banking have drawn the attention of researchers towards internet banking. In the past, the conventional focus of internet banking research has been on technological development, but this is now shifting to user-focused research. Although millions of dollars have been spent on building internet banking systems, reports have shown that potential users may not use the systems in spite of their availability. This, points out the need for research to identify the factors that determine acceptance of internet banking by the users.

Technology by itself is a paradox. While on one hand it can simplify consumers’ understanding of the exchange, on the other hand, it can make consumers’ understanding more difficult. Mick and Fournier (1998) identify eight such paradoxes of Information Technology. Consumers perceive Internet technology as leading to control and chaos, freedom and enslavement, new and outmoded practice, increase and decrease in the feeling of competence, increase and decrease in efficiency, fulfillment and creation of needs, promotion and hindrance of social interaction, and engagement and disengagement. These ambiguities make internet technology difficult for consumers to understand. To use internet banking, consumers need to understand the technology; they also need to understand banking.

The knowledge of factors influencing consumer adoption of any new technology is of great relevance to advertisers. The purpose of marketing and advertising is to increase sales or customer base, which hopefully will result in increased profits. It is through analyzing and understanding the adoption process that social scientists, marketers and advertisers will be able to develop a fully integrated
marketing and communication plan focused at a predetermined stage of the adoption process.

It is over a decade since the inception of internet banking in India. ICICI bank was the first bank to introduce internet banking in 1996. During the many years that have passed by, banks have established their internet banking services, but on the customer front internet banking is yet to take off in full swing. Therefore one needs to understand the reasons behind consumers’ intention to adopt internet banking.

In line with the above, the main purpose of the study is to empirically understand the main concerns of consumers regarding internet banking and its acceptance. A better understanding of the reasons of consumers’ adoption of internet banking will enable banks to develop a more realistic strategy for consumer adoption of internet banking. Unrealistic expectations can only misguide banks to undertake investments that are not ready to give adequate returns. They also lead to policy decisions which force consumers to embrace technologies that they are not ready to use.

Given the current and likely future magnitude of internet banking in India, retail banks must gain a comprehensive understanding of this consumer-based, electronic revolution. What is needed are theoretically sound, empirically tested models capable of assisting banks and their managers, as they strive to understand which consumers will accept and use the new technology, and why these particular consumers are poised to adopt the new procedures. Such models would explain why consumers use internet banking, and reveal what the bank needs to do to increase the number of active users.
Human beings, being creatures of habit will probably view anything that is new with caution and suspicion. The same applies to internet banking. People are cautious and often reluctant to depart from traditional ways of banking to internet banking. On the other hand globalization and its impact on the use of information technology in the banking industry compels banks to “push” clients towards internet banking

As far a human computer interaction research is concerned, for decades the focus has been on ‘Ease of Use’ as the primary determinant of user satisfaction and adoption (Davis, 1989). As the field expands, it has become very clear that Ease of Use cannot be the only predictive criterion for an individual’s adoption of a technological innovation. Human interaction with applications that have the potential to significantly affect the user’s social norms must be designed and studied in terms of a broader context that encompasses not only the user’s perceptions of ease of use but also how the application fits into the user’s social context.

Most of the earlier researchers have investigated the diffusion of new banking technologies in developed countries. Very less is known about the same in developing countries among which India is one. In India, comparatively less number of studies has been conducted on the current status of internet banking and internet banking adoption, particularly from the consumer point of view. Thus, there is a lot of scope for the research to present new ideas concerning consumer adoption of internet banking in India which may be useful to the Indian banking industry.

Studies in India on internet banking adoption have been carried out from various perspectives. For example, Ravi et al., (2007) created a profile of internet banking users in India using intelligent techniques and concluded that Intentions, Beliefs, Subjective norms, Trust in the
bank, Attitude, Perceived Usefulness, Security and Perceived Ease of Use, in that order influence the usage of internet banking. Another study by Srivastava (2007) focused on consumers’ perception on internet banking and proved that education, gender, income play an important role in the usage of internet banking. There is no single study in India that has made an attempt to develop a comprehensive model to explain the factors that influence consumer intention to use internet banking.

Although internet banking is becoming more popular among consumers, there is still no evidence of the nature and intention of that adoption. The awareness of internet banking and its usefulness seems to need more investigation to spread internet banking utilization among all consumers. For the success of most banks, it has become critical in attracting existing bank customers to adopt the options of Internet Banking (IB). However, as internet technology is a rather recent innovation, it is still a great challenge of overcoming the resistance of existing bank customers to adopt this new technology in handling their financial transactions. It is critical, therefore, to understand what factors facilitate internet banking adoption.

This study was also inspired by the fact that trust has new dimensions in the financial services sector. Several studies have identified trust as an important factor influencing consumer participation in web based commerce (Cheung and Lee, 2000; Koufaris and Hampton- Sosa, 2004; Pavlou, 2003). Since internet banking is a relatively new phenomenon with enormous potential, there is a strong need to reexamine the notion of trust and identify its determinants in this context. To further complicate things, internet banking involves trust not simply between the internet bank and the consumer, but also between the consumer and the computer system through which transactions are executed. In this study, it is argued
that integrating trust as a social construct into the existing Technology Acceptance Model (TAM) will offer better prediction of users' adoption of internet banking.

The success of models such as TAM has led researchers to describe the task of explaining and predicting user acceptance of new computer and information technology in the organizational context as a mature research area (Venkatesh et al., 2003). However, the emergence of internet banking and their widespread dispersion in non-organizational settings has created a need for research focusing on factors that influence their acceptance and adoption by groups who might not otherwise be interested in using technology (Curran et al., 2003; Dabholkar & Bagozzi, 2002; Wang et al., 2003; Meuter et al., 2005).

By explaining internet banking adoption from the consumer's perspective, the findings of the research will not only help internet banking authorities to develop better user-accepted internet banking systems, but also provide insights into how to present the new concept of internet banking to potential users. The suggested model aims to provide a comprehensive way to understand how an individual's attitude and other factors can influence his or her usage of internet banking services by drawing on the Technology Acceptance Model which is elaborately explained in the next chapter. Additionally, the researcher did not find any published study regarding developing a model for user acceptance of internet banking in India. This research intends to fill the above mentioned important gaps.

Therefore the purpose of the study was to test an extended Technology Acceptance Model (TAM) in the internet banking context by drawing on constructs from a range of theories namely Self-Efficacy, Awareness, Perceived Security (PS) and Consumer Trust on Internet Banking (CTIB), to improve understanding of the antecedents
of the TAM constructs namely, Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). This study integrates two important streams of literature: the Technology Acceptance Model and the existing knowledge surrounding trust. Extending the TAM in this way promises to assist in predicting attitude and acceptance and thereby provide meaningful information that can serve as a basis for designing educational and communication strategies to foster greater acceptance of internet banking among consumers.

1.4 Purpose of the Study

The main purpose of the study was to identify the predictors of internet banking in the Indian context. More specifically, to extend the Technology Acceptance Model (TAM) to better explain internet banking usage intention. To this extent the following explorations are done:

- Propose a theoretical framework for establishing a research model that gives a good understanding of factors that influence consumer intention to use internet banking.
- Extend the Technology Acceptance Model by incorporating Awareness, Self Efficacy, Perceived Security, Consumer Trust on Internet Banking and examine its influence on consumers’ intention to adopt Internet Banking.
- Bring out a set of antecedents for Consumer Trust on Internet Banking, that can explain individual’s intention to adopt internet banking.
- Assess the empirical validation of the proposed model for internet banking acceptance.
- Identify the difference, if any, in consumer intention to use internet banking based on consumers’ age, gender, income and education.
- Examine the influence of age, income and education on consumer intention to use internet banking.
1.5 Research Questions

Based on the significant gaps identified and described in the statement of the problem, the following research questions have been investigated to achieve the purpose of the study:

1. How does the consumer Awareness of internet banking impact their intention to use internet banking?
2. How does consumer Self Efficacy impact their intention to use internet banking?
3. Does Perceived Usefulness predict consumer intention to use internet banking?
4. Does Perceived Ease of Use predict consumer intention to use internet banking?
5. Does Perceived Security predict consumer intention to use internet banking?
6. Does consumer trust on Internet banking (CTIB) predict their intention to use internet banking?
7. What are the antecedents of Consumer Trust on Internet Banking (CTIB)?
8. Are there any significant differences in consumer intention to use internet banking based on their age, gender, income and education?
9. Do age, income and education influence consumers’ intention to use internet banking?
1.6 Operational Definitions

Table 1.1 brings out the important operational definitions of the study.

**Table 1.1 Operational Definitions**

<table>
<thead>
<tr>
<th><strong>Internet banking</strong></th>
<th>An internet portal, through which customers can use different kinds of banking services ranging from providing information and bill payment to making investments.</th>
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<tr>
<td><strong>Perception of Internet banking</strong></td>
<td>The feelings, attitudes, and images that bank customers have regarding the use of the internet banking</td>
</tr>
<tr>
<td><strong>Internet banking adoption</strong></td>
<td>Bank customers’ acceptance of using the internet for their banking activities.</td>
</tr>
<tr>
<td><strong>Information technology</strong></td>
<td>Any new technology, including computer hardware and software, telecommunication tools, and information networks that allow users to transmit, process, store, organize, and retrieve information for the purpose of problem solving or decision making.</td>
</tr>
<tr>
<td><strong>Innovation</strong></td>
<td>Practices, objects, or ideas that are perceived as new by an individual or other unit of adoption (Rogers, 2003).</td>
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<tr>
<td><strong>The Internet</strong></td>
<td>An electronic network that provides access to millions of information resources and web sites worldwide by linking computers from different sectors including banks, government agencies, and research facilities.</td>
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<tr>
<td><strong>Bank customer</strong></td>
<td>Any individual who has a bank account.</td>
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<tr>
<td><strong>Ease of Use</strong></td>
<td>The degree to which a person believes that using a particular system would be free of effort (Davis, 1989).</td>
</tr>
<tr>
<td><strong>Perceived Usefulness</strong></td>
<td>The degree to which a person believes that using a particular system would be beneficial (Davis, 1989).</td>
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<tr>
<td><strong>Perceived Security</strong></td>
<td>The perceived state of being free from dangers like theft or losing money and information.</td>
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<tr>
<td><strong>Awareness</strong></td>
<td>Awareness is the amount of information a customer has about internet banking and its benefit, which has a critical impact on the adoption of internet banking.</td>
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<tr>
<td><strong>Self Efficacy</strong></td>
<td>Self Efficacy is related to the perceived ability and skill level of consumers in using computers and the internet.</td>
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<tr>
<td><strong>Consumer Trust on Internet Banking</strong></td>
<td>An intentional trust of the consumer where he or she becomes vulnerable to the potential consequences of engaging in the trusting behavior with the bank offering the internet banking service.</td>
</tr>
<tr>
<td><strong>Perceived Bank Benevolence</strong></td>
<td>Perceived Bank Benevolence is the extent to which the customer believes that the bank offering internet banking services wants to do good things rather than just maximize profit.</td>
</tr>
<tr>
<td><strong>Perceived Bank Integrity</strong></td>
<td>Perceived Bank Integrity is the customer’s perception that the bank offering internet banking services will be honest and adhere to an acceptable set of principles.</td>
</tr>
<tr>
<td><strong>Perceived Bank Competence</strong></td>
<td>Perceived Bank Competence relates to the domain specific skills and competencies enabling the bank offering internet banking services to make and fulfill promises.</td>
</tr>
</tbody>
</table>
### Structural Assurances
Structural Assurance is information that can be used to give a web services provider or requestor the confidence that measures exist that can provide safeguards and reduce the risk when something goes wrong (Coetzee & Eloff, 2005).

### Disposition to Trust
The general tendency of consumers to trust others or technology across situations or a general faith in human nature.

### Attitude
An individual’s feelings about performing behaviour.

### Consumer Intention to use internet banking
The intentions that consumers have about using or continuing to use internet banking.

#### 1.7 Deposition of the Thesis
The thesis is divided into six chapters. In the first chapter an introduction to internet banking and the background of this research is presented followed by the problem statement, research questions and operational definitions. Chapter two presents a review of existing literature in the area of internet banking adoption research. Chapter three presents the theoretical and conceptual model leading to the development of the hypotheses. The research method is presented in chapter four. Chapter five presents the analysis and hypotheses testing. And the last chapter concludes the research by providing a summary of the research, the findings and the limitations with the scope for further research.