Chapter 1

INTRODUCTION
1.1 Introduction

The usage of information technology (IT), broadly referring to computers and peripheral equipment, has seen tremendous growth in the service sector in the recent past. The most obvious example is the banking industry, where through the introduction of IT related products in internet banking, electronic payments, security investments, information exchanges (Berger, 2003), banks now can provide more diverse services to customers with less manpower. Seeing this pattern of growth, it seems obvious that IT can bring about equivalent contribution to profits.

The term “Banking Technology” refers to the use of sophisticated information and communication technologies together with computer science to enable banks to offer better services to its customers in a secure, reliable and affordable manner and sustain competitive advantage over other banks. From theoretical perspective, Banking Technology is not a single, stand-alone discipline, but a confluence of several disparate fields such as finance, information technology, communication technology, computer science and marketing science.
It is clear that the technology is changing the banking industry forever. The growth of high speed networks, coupled with the falling cost of computing power, is making possible applications undreamed of in the past. Voice, data, images, and video may now be transferred around the world in micro-seconds. This explosion of technology is changing the banking industry from paper and branch banks to digitized and networked banking services. It has already changed the internal accounting and management systems of banks. It is now fundamentally changing the delivery systems banks use to interact with their customers.

Information Technology (IT) is a very powerful tool in today’s world, and financial institutions are the backbone of the Indian economy. Indian Banking Industry today is in the midst of an IT revolution. Nearly, all the nationalized banks in India are going for information technology based solutions. The application of IT in Banks has reduced the scope of traditional or conventional banking with manual operations.

Technology will bring fundamental shift in the functioning of banks. It would not only help them bring improvements in their internal functioning but also enable them to provide better customer service. Technology will break all boundaries and encourage cross border banking business. Banks would have to undertake extensive Business Process Re-Engineering and tackle issues like a) how best to deliver products and services to customers b) designing an appropriate organizational model to fully capture the benefits of technology and business process changes brought about. c) How to exploit technology for deriving economies of scale and how to create cost efficiencies, and d) how to create a customer - centric operation model.

With the advancement of information technology and to derive the inherent advantages of its implementation, there was a long felt need to give recognition to the electronic means as an alternative to paper based banking practice in India. The evolution of banking technology has been mainly driven by changes in distribution channels as automated teller-machine (ATM), phone-banking, mobile-banking, pc-banking and most recently internet banking etc. In the traditional banking system a person had to go to a
bank branch to deposit or withdraw money and get a bank statement book manually updated by a teller over the counter. With the introduction of computer networks, a networked printing machine started replacing the manual update of statements. Then automated teller machines (ATMs) were introduced to facilitate withdrawals, deposits and even transfers accommodating mobility in much wider geographical areas. Phone banking was a revolutionary concept in banking since it made banking accessible from anywhere as long as phones were available. With the successful diffusion of mobile phones, phone banking is moving into a next phase of development. However, one of the most substantial changes in banking technology is the recent introduction of internet banking.

Advent of computer technology has created a major impact on working of banks. The computerization and subsequent development in history of Indian banks can be traced back to 1966 when Indian Bankers Association (IBA) along with exchange banks association signed first wage settlement with the unions, which accounted for the use of IBM or ICT accounting machines for inter-branch reconciliation etc. In 1970s, SBI installed a ledger-posting machine along with a mainframe computer at selected branches. A committee on computerization and mechanization was appointed by RBI in 1983 under chairmanship of Dr. C. Rangrajan. Its objective was to chalk out a plan for mechanization of Indian banking industry. It recommended that computerization and installation of Advanced Ledger Posting Machines (ALPM) at branch, regional and head offices of banks will bring around a new era in banking. Narsimhan committee in 1991 paved way for reform phase in banking. Saraf committee was constituted by RBI in 1994 that recommended the use of Electronic Fund Transfer System (EFT), introduction of electronic clearing services and extension of Magnetic Ink Character Recognition (MICR) beyond metropolitan cities and branches.

**Technology in Indian banks:** The technological development in banking can be traced as follows:

1960 - Mechanized banking introduced.
1970 - Introduction of computer based banking industry.
1980 - Introduction of computer-linked communication based banking.
The rate of adoption of IT by foreign and private sector bank in the country has been significant over the last five years, which can be attributed to fierce competition and the internet phenomena worldwide. The arrival of private and multinational banks with their superior state of the art technology based services pushed the Indian banks to follow the suit by going in for the latest technologies to meet the threat of competitors and retain their customer base.

Technology was the rational for bank introducing ATM and POS (Point of sales) in 1970s, telephone banking in 1980s and internet banking in 1990s\(^4\). In Mumbai, Shared Payment Network System (SPNS) was set up in February 1997. It was a network of 28 ATMs with 11 banks. The ATM card was branded as 'SWADHAN'. SPNS could link with international hubs such as VISA and MASTERCARD. CITIBANK a US multinational was first bank in India to offer ATM card facility in 1985.\(^5\)

"The last few years have seen dramatic changes, making customers' convenience critical aspect of banking."\(^6\) Indian metros are surging ahead in online banking usage. Today the delivery channel of banks include direct dial up connections, private networks, public networks etc. and the devices include telephone, Personal Computers including Automated Teller Machines, etc. Technology has thus initiated a paradigm shift from branch banking to 'Anywhere Anytime' banking. Thanks to technology, today banks are able to manage in much better way, thereby gaining greater efficiency in operations.

**Modes of Distribution**

Banks have been early adopters of technology. They were wise enough to understand the innovative mode for offering services. Private Banks played a major role in reviving the banking spirit in India. It was they who initiated the change. Today banking services can be delivered through following modes:-

1. **Internet Banking, Web Banking, PC Banking and e-Banking**

   Popularity of PC and easy access to internet and World Wide Web (www) has facilitated banks to use internet as a delivery channel and receiving instructions. Today
all private banks and most of the nationalized banks are offering web based banking services. It is this form of banking that is generally referred as Internet Banking.

2. Phone Banking / Mobile Banking (M - Banking)

There has been a rapid advancement and acceptance of mobile services in India. Penetration rate of mobiles and landlines have increased considerably. Banks have lapped up these opportunities and are offering mobile banking. Account status can be enquired just by a SMS (Short Message Service).

3. Plastic Money – ATM card, Credit card, Debit Card etc.

Banks have installed ATM that is connected via V-SAT. The customer can perform following operation through ATM – cash withdrawal, balance enquiry, mini statement of previous transactions (last 5 to 10 transactions), order cheque books, deposit cash and obtain product information. Nowadays banks are offering value added services too, through ATMs.

Thus technology has created various delivery channels for bank customers. Banks today operate in a highly globalized, liberalized, privatized and a competitive environment. In order to survive in this environment banks have to use IT. Indian Public Sector banking industry has witnessed tremendous developments due to sweeping changes that are taking place in the information technology. The objective of the present research is to study and analyze the progress made by Indian public sector banking industry in adoption of technology. The progress of IT in Indian banking industry is measured through various parameters such as Computerization of branches, Automated Teller Machines, Transactions through Retail Electronic Payment Methods etc. Statistical and mathematical tools such as simple growth rate, percentages and averages etc are used. The research also highlights the challenges faced by Indian public sector banks in adoption of technology and recommendations are made to tackle these challenges. The study concludes that in years to come e-banking will not only be acceptable mode of banking but preferred mode of banking.
1.2 Need for the study

It is harsh reality that we are now a decade old in the liberalized globalization era. The changes in the economy after liberalization and globalization process initiated since 1991 in India have impacted profoundly the financial system and more particularly the banking industry.

The Information Technology (IT) revolution is entirely changing the way the banking business is done and has considerably widened the range of products and services as well as the demands and expectations of the customers.

For the continuous improvement of software process, the knowledge and experience of its employees and customers cannot be overlooked in an organization.

In this scenario there is a dire need to identify how public sector banks are learning and adopting Information Technology in this competitive environment. And there is a need to study that whether the IT organizational learning of public sector banks is catering to the needs of the customers and employees as well or not.

1.3 Significance of the study

Soon after independence, as India embarked upon planned economic growth, like any other country, it needed a strong and efficient financial system to meet the multifarious requirements of credit and development. To achieve this objective it adopted a mixed pattern of economic development and devised a financial system to support such development. The success it achieved, particularly in taking banking to the masses and making the banking system a potent vehicle for furthering public policy has few parallels in the world.

The rapid growth of the banking system in terms of presence as well as penetration over the two decades immediately following nationalisation of banks in 1969 was impressive. By the 1990s the public sector banks had 90 per cent share in the country’s banking business. By March 1992, all the public sector banks together had a
phenomenal branch network of 60,646 branches spread across the length and breadth of the country and held deposits of Rs. 1,10,000 crore and advances of Rs. 66,760 crore.\[7\]

A wave of technology change has already occurred as banks adopted core banking technology to enhance customer relationships and expand the market for banking services. These technologies could enable banks to "go-to-customers" and enable door-step banking through virtual banking. For instance, cloud computing and big data technologies can reap both scale and scope economies. What is important is not the name of the technologies, but what they do eventually. Banking technology is poised to make a big leap in the near term towards integrating customer data across banking platforms, facilitating trading in a more secure manner, developing virtual desktops and private clouds to centralize information across desktops by making them available to different employees on need-basis, enable speedier transaction processing and faster settlements.\[8\]

Technology should not, however, be acquired for the sake of it. Unless, it is employed gainfully and helps enhance procedural and cost efficiency, technology adoption cannot be considered meaningful. The technology ought to help the banks achieve cost-effective scalability in the services they render. Such technology should contribute to enhancing productivity, especially through total factor productivity growth in the banking industry.

The impact of Information Technology (IT) on the performance of Indian Public Sector Banks has been discussed for a number of years. This project chooses to address the above-mentioned issue in its present form globally. This project investigates the various Information Technology (IT) practices in Indian Public Sector Banks and variables that influence the IT Organizational Learning and its overall performance.

The factors to be understood in understanding the organizational IT requirements shall be elucidated along with the inter-relationship between the technologies and workplace transformation. Exploring the impact of technology the research also examines other aspects such as virtual organizations, impact of technology on employees, customers and technology based learning.
1.4 Problem Statement

Computers are getting more sophisticated. They have given banks a potential they could only dream about and have given bank customers high expectations. Convergence of computing, communications, information and knowledge is radically changing the way Indian banks operate.

Coming down heavily on banks for not optimally leveraging technology, the Reserve Bank of India (RBI) said there was clear lack of vision among banks in rolling out customer-friendly technology. It is said, technology implementation in public sector banks appeared to be more for regulatory and policy compliance.

There is clearly an absence of vision of how technology is going to drive business and customer relationship. Thus, technology adoption in banks is a result of external pressures rather than a vision shared by the bank staff;[9] RBI Deputy Governor K C Chakrabarty said. This has oriented the banking technology to be more employee-friendly rather than customer-friendly.

Chakrabarty said lack of long-term vision and strategy had impacted the way technology had been used. It has been ‘implemented’; it has not been embraced, optimized or leveraged to the full. Most banks in India are using information technology to meet core needs. The central bank said despite technology, bank penetration and productivity had not risen as desired.

In turn, customers who visit the bank for high value transactions and other important business can be given more attention and better service. But concerted efforts are required to make the customers, especially the elderly and the not so tech-savvy, who may not be comfortable and reluctant to use the machines.

With the development of information technology, the world has become a global village and it has brought a revolution in the banking industry. The banks appear to be on fast track for IT based products and services. Bank customers are becoming very
demanding and it is the extensive use of technology that enables banks to satisfy adequately the requirement of customers. Technology has become the fuel for rapid change. IT is no longer considered as mere transaction processing or confined to management information system. The wind of liberalization, globalization, and privatization has opened new vistas in the banking industry in the generation of an intensely competitive environment. The post-liberalized banking industry in India has been witnessing a discernible shift from the sellers’ to the buyers’ market. Further the banking sector reforms and introduction of e-banking has made very structural changes in service quality, managerial decisions, operational performance, profitability and productivity of the banks. E-banking is one of the emerging trends in the Indian banking and is playing a unique role in strengthening the banking sector and improving service quality.

There is a degree of variation in the services provided by the banks with the emergence of E-banking services. So, it becomes necessary to study the nature, growth and extent of E-banking services and their impact on the operational performance and service quality.

Hence Public Sector Banks have to learn the technology to cater to the needs of the customers. Information Technology should be learnt, embraced, leveraged and implemented in public sector banks more to the expectations of the customer than as regulatory or policy compliance.

Public Sector Banks cannot take pride in introducing of technology unless this is tackled. In all these areas PSBs can increase the usage, customer service, help reduce delays, workload and prevent frauds. The horse has been brought to the river. It is for the Public sector banks to make it drink.
1.5 Research Objectives

1.5.1 Broad Objectives

• To examine the role and utility of Information Technology in Indian public sector banking

• To compare the IT adaptability of the Employees and the Customers of the public sector banks

• To describe the effect of IT organizational learning on the profitability and productivity of Indian public sector banking

1.5.2 Specific Objectives

• To find out the progress of computerization in the public sector banks of India.

• To know which public sector bank is performing well in IT sector.

• To know the relevance of IT learning to Indian public sector banking.

• To know whether the Technology in Indian public sector banks is employee-friendly or customer-friendly.

• To know whether the demographic variables have an impact on Dimensions related to Organizational Learning and the Impact of IT in the Indian Public Sector Banking.

• To study the effect of various IT related services in Indian Public Sector Banks.

• To identify the challenges in the implementation of IT solutions in the public sector banking.
1.6 Hypothesis

1. There is no significant difference in the opinions on different dimensions like Automated clearing Houses, Automated Teller Machine, Telephone/ Mobile Banking, Internet Banking, IT Banking services and Prepaid Instruments of the employees working in different Public sector banks.

2. Demographic variables of Customers have no effect on the dimensions such as Security, Usability, Data Manipulation, User Interface, Services flexibility and Services Support.

3. Technology in Indian public sector banks is more employee-friendly rather than customer-friendly.

4. Demographic variables have an impact on Dimensions related to “Organisational Learning and the Impact of IT in the Indian Public Sector Banking”.

5. Customers perceive that banking services from a computerized public sector bank branch are not satisfactory.

6. There is no relevance of IT learning to Indian public sector banking.

   It attempts to elicit, the organizational learning aspect of Indian public sector banks in terms of present information technology practices by studying the level of use and extent of awareness of employees and customers, and the reasons for not using particular electronic banking channels.
1.7 Research Design

Keeping the above objectives in view, different research designs were studied to find the appropriate research design for the study. An exploratory design was finalized, considering the following factors:

i. In general exploratory research is meaningful in any situation in which the researcher requires further understanding of the research problem/area,

ii. Exploratory research is characterized by flexibility and versatility, with respect to the methods employed in research,

iii. Researchers are alert to new ideas and insights as they proceed. The focus of the investigation may shift constantly as new insights are discovered,

iv. The exploratory research is helpful in breaking broad, vague problems into smaller, more precise sub problem statements,

v. The exploratory research may be used to clarify concepts.

vi. An exploratory research is particularly useful in establishing priorities for further research.

The primary data for the study is collected from selected 6 public sector banks. For the collection of primary data researcher has designed the structured questionnaire to study the IT related aspects of the banks. For finding out the problems faced by banks’ regarding the organizational IT learning of the public sector banks the researcher has used interview method. The secondary data is collected from annual report of selected cooperative banks, RBI bulletins, journals, magazines, and from various authenticated web sites.

The exploratory research design of the study constituted the following major components:

• Literature search

• Collection of data variables relating to various parameters of the study from the employees and customers of the selected public sector banks, pertaining to the sample of the study.

• Analysis of the collected data.
1.8 Scope of the research

The study is confined to Public Sector Banks in India. Foreign Banks and Private Banks have been excluded from the study, as the IT and their regulations of Foreign Banks and Private Banks are different from Public Sector Banks. The scope includes the analysis of Indian Public Sector Banks IT organizational learning. It also covers the IT management methods adopted by Indian Public Sector Banks as per RBI guidelines.

The research study assumes importance against the backdrop of transition phenomenon being witnessed in the Indian public sector banking. IT has direct effect on the way the banks will function to deliver the products and services to customers. So an attempt will be made to study the technolisation from the employees’ and customers perspective. The scope of the study is limited to six public sector banks in Andhra Pradesh. The study mainly focuses on the following aspects:

- Role of IT in the Indian public sector banking
- Extent of IT learning process in Indian public sector banking
- The changing strategies in the management of IT in the Public Sector Banks.
- The various IT Services in the Public Sector Banks and their impact on profitability and the management of the same.
- The practical difficulties faced by the Public Sector Banks while implementing various IT applications.

1.9 Sample Design

India’s banking system mainly consists of “non-scheduled” banks and “scheduled banks” (Figure-3.1). Scheduled banks refer to those that are included in the Second Schedule of the Banking Regulation Act of 1965 and satisfy the twin conditions that a bank must have paid-up capital and reserves of not less than Rs. 500,000 and secondly satisfy the Reserve Bank of India (RBI) as its affairs are not conducted in a manner detrimental to the interests of its depositors. Scheduled banks consist of scheduled
commercial banks and scheduled cooperative banks. The former are divided into four categories:

(i) Public sector banks (which are further classified as nationalized banks and State Bank of India [SBI] banks);

(ii) Private sector banks (which are further classified as old private sector banks and new private sector banks that emerged after 1991);

(iii) Foreign banks in India; and,

(iv) Regional rural banks (which operate exclusively in rural areas to provide credit and other facilities to small and marginal farmers, agricultural workers, artisans, and small entrepreneurs).

Non-scheduled banks are those banks which do not come under the Schedule of the Banking Regulation Act of 1965 and, thus, do not satisfy the conditions laid down by that schedule. Non scheduled banks are further divided into two classifications non scheduled cooperative banks and non scheduled commercial banks. The scheduled commercial banks with the exception of foreign banks are registered in India under the Companies Act.

Thus the study pertains to the public sector banks including SBI. Simple random sampling was used to select the sample. A total of Six banks from Public Sector Banks have been selected, for the study.

For the purpose of the study Foreign Banks and Private Banks were excluded as the Information Technology practices of Foreign Banks and Private Banks are different from that of Public Sector Banks. One significant observation that was made from this Random Sampling was that out of the selected six banks, one is SBI.

1.10 Data Collection

An attempt is made to understand the impacting factors in the process of transforming through organizational learning facilitated by information technology in the Indian public sector banking.
The researcher, on completion of the pilot study has collected the required data using schedule, interview and observation methods. Two comprehensive schedules were designed (*vide. Appendix I & II*), for the purpose of the study, which forms the third important source of data collection. The schedule for Employees contains in all about 19 aspects including the items eliciting the personal Information of the respondents. Out of 19 aspects, 6 aspects schedule contains broad dimensions related to “Organizational learning and the impact of IT in the Indian Public Sector Banking”. Whereas for the schedule for Customers contains in all about 24 aspects including the items eliciting the personal Information of the respondents. Out of 24 aspects, 6 aspects of the schedule contains broad dimensions related to “Organizational learning and the impact of IT in the Indian Public Sector Banking”.

Various methods are adopted for investigation of the different aspects relating to the sample. Primary and secondary data form the basis for this. Secondary data were also collected through various documentary sources like files, brochures, books and journals and online data search etc., on “Contract Labor”.

To achieve the objectives of the study mainly primary data has been used. To study the extent of information technology organizational learning of public sector banks in India, a survey was conducted. The search was conducted through a worldwide web with using various websites viz. www.banknetindia.com and websites of banks found at www.rbi.org.in and www.google.com to discover the main pages and home pages of public and private sector banks. These websites were monitored to have a close look at the services delivered to customers. A check list containing various e-banking services offered by the banks was prepared to check the extent of disclosure of banking services and products by the banks offering electronic banking services.

Similarly, the schedule has been originally administered to a small sample of 50 respondents for both the questionnaires. The reliability of the schedule has been established through test – retest method. The interval between test-retest was two months.
The sample banks for the research have been identified through Simple Random sampling method in Indian public sector banks.

Table 1.1 sample selection

<table>
<thead>
<tr>
<th>S. No</th>
<th>Name of the Bank</th>
<th>Customers</th>
<th>Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Andhra Bank</td>
<td>178</td>
<td>37</td>
</tr>
<tr>
<td>2</td>
<td>State Bank of India</td>
<td>204</td>
<td>72</td>
</tr>
<tr>
<td>3</td>
<td>Corporation Bank</td>
<td>154</td>
<td>48</td>
</tr>
<tr>
<td>4</td>
<td>Syndicate Bank</td>
<td>137</td>
<td>55</td>
</tr>
<tr>
<td>5</td>
<td>Canara Bank</td>
<td>100</td>
<td>39</td>
</tr>
<tr>
<td>6</td>
<td>IDBI Bank</td>
<td>127</td>
<td>49</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td><strong>900</strong></td>
<td><strong>300</strong></td>
</tr>
</tbody>
</table>

- Total number of respondents 900(Customers) + 300(Employees) = 1200(Respondents)

A pilot study was conducted prior to the administering of the original Schedule. The respondents of the pilot study have also been included in the actual size of the sample for the purpose of analysis. Finally it is concluded that 300 from employees and 900 from Customers are taken for the study as per the pilot study results.
1.11 Operational Definitions

**Bank**: A bank is a profit-seeking business firm, dealing in money and credit. It is a financial institution dealing in money in the sense that it accepts deposits of money from public to keep them in its custody for safety.

**Information Technology**: The development, installation, and implementation of computer systems and applications.

**Organizational learning**: Organizational learning is an area of knowledge within organizational theory that studies models and theories about the way an organization learns and adapts.

**Public Sector Banks**: Public Sector Banks include the State Bank group and the 27 nationalized banks in India.

**Private Sector Banks**: The 22 old Private Sector Banks excluding the newly formed Private Sector Banks.

**Selected Banks**: The six banks are selected from the Public Sector Banks as sample for the purpose of the study, (viz. Andhra Bank, State Bank of India, Corporation Bank, Syndicate Bank, Canara Bank, and HDFC Bank).

**Selected Respondents**: A total of 1200 respondents are considered, of which, 300 from employees and 900 from Customers are taken for the study from the public sector banks.

**Employee Respondents**: The employee respondents of the selected public sector banks in the sample banks.

**Customer Respondents**: The customer respondents of the selected public sector banks in the sample banks.

**Electronic banking** is an umbrella term for the process by which a customer may perform banking transactions electronically without visiting a brick-and-mortar institution.

**PC banking** is a form of online banking that enables customers to execute bank transactions from a PC via a modem. In most PC banking ventures, the bank offers the customer a proprietary financial software program that allows the customer to perform financial transactions from his or her home computer. The customer then dials into the
bank with his or her modem, downloads data, and runs the programs that are resident on
the customer’s computer. Currently, many banks offer PC banking systems that allow
customers to obtain account balances and credit card statements, pay bills, and transfer
funds between accounts.

**Internet banking** sometimes called online banking, is an outgrowth of PC
banking. Internet banking uses the Internet as the delivery channel by which to conduct
banking activity, for example, transferring funds, paying bills, viewing checking and
savings account balances, paying mortgages, and purchasing financial instruments and
certificates of deposit.

**Electronic funds transfer (EFT):** is the electronic exchange, transfer of money
from one account to another, either within a single financial institution or across multiple
institutions, through computer-based systems.

**Real time gross settlement systems (RTGS):** Real time gross settlement systems
are funds transfer systems where transfer of money or securities takes place from
one bank to another on a "real time" and on "gross" basis.

**Electronic Clearing Houses:** ECS is an electronic mode of funds transfer from
one bank account to another. It can be used by institutions for making payments such as
distribution of dividend, interest, salary, pension, among others. It can also be used to pay
bills and other charges such as telephone, electricity, water or for making equated
monthly installments payments on loans as well as SIP investments. ECS can be used for
both credit and debit purposes.

**Mobile banking:** Mobile banking is a system that allows customers of a financial
institution to conduct a number of financial transactions through a mobile device such as
a mobile phone or personal digital assistant.

**IT Service:** Means of delivering value to the customer by facilitating the
outcomes customer want to achieve, without the ownership of specific costs and risks.

**Cloud computing:** Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider
interaction.[13]

**Prepaid payment instruments:** Prepaid payment instruments are pre-loaded with a value so that they can be used to buy goods and services. These come in the form of magnetic strip cards, smart cards, Internet accounts and wallets, mobile accounts and wallets and vouchers, among others and are offered by banks and non-banking finance entities.

**Automated Clearing House:** Automated Clearing House (ACH) is an electronic network for financial transactions. ACH processes large volumes of credit and debit transactions in batches. ACH credit transfers include direct deposit payroll and vendor payments.

**Prepaid Card:** A positive balance is loaded into an account associated with a card and drawn down through purchase activity.

1.12 **Method of the study**

The present study is exploratory in nature and attempts to assess and analyze public sector banks IT organization learning. The study also focuses on the proportion of customer awareness of public sector banks IT services. The thesis is organized into seven chapters. The brief contents of each one are as follows:

**Chapter 1**

**Introduction**

The first chapter introduces the area of study, the objectives, hypothesis, limitations and the format of the study. This chapter explains the need of the research, importance of the study, and research design of the study. It also discusses the details about the reason for selection of public sector banks, data collection method, data analysis and chapter scheme of the thesis.

**Chapter 2**

**Review of Literature**

A review of the literature is taken in the second chapter. This chapter provides the basis for the present study. Such literature available to the researcher on the application
of information technology in Indian public sector banks is classified according to the related topics as mentioned below.

1. Web Search
2. The first part contains the abstracts or summary of literature in the area of Information Technology in Banks and IT organizational learning process.
3. The second part is about review of Literature related to Impact of Reforms on Indian Public Sector Banking.
4. Review of Literature related to IT Applications and Service Quality of Indian Banks
5. The challenges and opportunities of Indian Banking Sector
   However, it is a fact that the researcher has not come across the research work on the topic selected for the study.

Chapter 3

**Indian Banking Structure - An overview**

This chapter is divided into two parts from which

PART – I covers the overview of banking system in India in brief, Need of the Banks, History of Indian banking system, Types of banks in India, Services provided by banking organizations in general.

PART – II of this chapter covers the introduction of Public Sector Banking in India, history of public sector banks in India, RBI policies for public sector banks, functions and problems of public sector banks etc.

Chapter 4

**Banking Reforms and their impact on IT**

Fourth chapter explains the effects of various factors including RBI reforms on the structure and performance of Indian public sector banking. This chapter enumerates a range of driving forces that led the banks to the present level of Information Technology practices in public sector banks.
Chapter 5

IT Organisational Learning of Indian Banks

Chapter 5 covers the important aspects related to computerization process of banking sector. This chapter covers introduction about IT, IT and banks, types of IT practices, and also covers the IT services provided by banking organizations.

Nowadays, Banks are increasingly adopting IT based solutions, for providing better services to their customers at a minimal cost. The role of IT has become so integrated and pervasive with banking that it is impossible to think of banking processes without an effective IT system in place. Public Sector Banks in India have introduced IT for several reasons:

- RBI Reforms
- Adoption of information technology in financial institutions and IT based new services offered by them
- Rising competition in banking industry
- Globalization in banking
- To meet the growing demand of customers for mobility, speed, efficiency and economy through various technology based services
- A technological revolution in Indian economy

From the IT perspective, the banking industry can be classified into three categories:

- Banks where all the processes are automated.
- Banks that are in the process of implementing core banking software and setting up their networking infrastructure.
- Banks that are in the process of identifying the core solutions

Chapter 6

Data Analysis and Interpretation

This chapter presents the data analysis by performing statistical and mathematical tools along with interpretations and inference from the study.
Chapter 7

Summary of Findings, Suggestions and Conclusions

Seventh chapter portrays findings of the research. Based on the study, the researcher has come to certain conclusions and had offered some suggestions for appropriate IT organization learning of public sector banks. Further, the researcher proposes future research directions.

1.113 Tools for Analysis

1.13.1 Survey instrument

Two structured questionnaires were designed and developed, one for customers of the banks and another for employees of the banks. The instrument was subjected to reliability test before administering it to sample banks.

The researcher, on completion of the pilot study has collected the required data using schedule, interview and observation methods. Two comprehensive schedules are designed for the purpose of the study, which form the third important source of data collection. The schedule for Employees contains in all about 19 aspects, including the items eliciting the personal Information of the respondents. Out of 19 aspects, 6 aspects of the schedule contain broad dimensions related to “Organizational learning and the impact of IT in the Indian Public Sector Banking”. Whereas, the schedule for Customers contains in all about 24 aspects, including the items eliciting the personal information of the respondents. Out of 24 aspects, 6 aspects of the schedule contain broad dimensions related to “Organizational learning and the impact of IT in the Indian Public Sector Banking”.

Similarly, the schedule has been originally administered to a small sample of 50 respondents for both the questionnaires. The reliability of the schedule has been established through test – retest method. The interval between test-retest was two months.
1.13.2 Data Analysis Techniques

Percentages, Averages, Mean, Standard Deviation, chi-square test, ANOVA test and Regression analysis are conducted, for this analysis MINITAB version 16 was used. However for cross-tabulation SPSS package version 14 is used.

Reliability Analysis:
Cronbach's alpha:

Cronbach's alpha is a measure of internal consistency that is, how closely related a set of items as a group. Cronbach's alpha can be written as a function of the number of test items and the average inter-correlation among the items.

\[
\alpha = \frac{N \cdot \bar{c}}{\bar{v} + (N - 1) \cdot \bar{c}}
\]

Here N is equal to the number of items, c-bar is the average inter-item covariance (relation between each internal statement with other statement) among the items and v-bar equals the average variance. When alpha value exceeds 0.7 then we can say that there is sufficient internal consistency among variables and it is allowed for making research. The researcher has administered the alpha scale method of reliability analysis for each and every dimension related to the Employees and Customers.

1.13.3 Data Interpretation

An attempt is made to analyze and understand the perceptions of the sample respondents about “Organizational learning and the impact of IT in the Indian Public Sector Banking”. The data were fed to the computer. The tabulations and the results for analysis were done with the help of SPSS (Statistical Package for Social Sciences) version 14, MINITAB version-14 and Microsoft Excel-2007 for Statistical measurements such as simple percentages, mean values etc for category wise analysis was administered. T-test is conducted to establish the mean significant difference between the two categories and ANOVA test is conducted for more than two categories of the variables on
the dimensions related “Organizational learning and the impact of IT in the Indian Public Sector Banking” whichever is applicable as per the multiple regression analysis conclusions. Whereas the Multiple regression analysis is done to know which independent/Demographic variable as a significant impact on the dimension related to the topic. Further, these tests incorporate box plots, Individual value plots as well.

1.14 Pilot survey

A pilot survey was conducted to find out the feasibility and viability of taking up the study of IT organizational learning in the public sector banking. The universe for the present study is public sector banks at different locations in A.P. The undertaking chooses public sector banks as the universe.

A pilot study was conducted prior to the administering of the original Schedule. The respondents of the pilot study have also been included in the actual size of the sample for the purpose of analysis. Finally it is concluded that 300 for employee and 900 for Customers as per the pilot study results.

The researcher, on completion of the pilot study has collected the required data using schedule, interview and observation methods. Two comprehensive schedules are designed for the purpose of the study, which form the third important source of data collection. The schedule for Employees contains in all about 19 aspects, including the items eliciting the personal Information of the respondents. Out of 19 aspects, 6 aspects schedule contain broad dimensions related to “Organizational learning and the impact of IT in the Indian Public Sector Banking”. Whereas, the schedule for Customers contains in all about 24 aspects, including the items eliciting the personal information of the respondents. Out of 24 aspects, 6 aspects of the schedule contain broad dimensions related to “Organizational learning and the impact of IT in the Indian Public Sector Banking”.
1.15 Limitations of the study

Every research work is subjected to certain limitations; and this study is also not an exception.

The present study has the following limitations:

- The responses for the study have been solicited from the state of Andhra Pradesh only. The expectations of the customers in Andhra Pradesh may vary from those of the rest of India.
- The study mainly focused on one particular sector only in the industry.
- Some of the employees and customer, though they partake a particular IT service, are unaware of the functionality and technicality of it.
- The sample included largely public sector banks in one particular geographical area, as the services rendered in one geographical area may differ from another.
- Any primary data based study carried through a pre-designed questionnaire suffers from the basic limitation of possibility of difference between what is recorded and what is truth, no matter how carefully the interview has been conducted. The present study may also suffer from this limitation because the people might not have deliberately reported their true opinion due to some biasness. Two objectives of the study are based upon primary data; one is from customers’ perspective and the other from employees’ perspective. So, the study may suffer from the elements of biasness; and it is difficult to reach at the real situation.
- The secondary data based information collected for this study carries all the limitations inherent in such data.
- Non-availability of the data and non-response from the banks are the other major limitations of the study. As no published data is available on the Information Technology practices provided by the banks in India, so the study mainly relies upon websites for analyzing the extent IT organizational learning of the public sector banks.
- Finally, the results of this study depend on the data collected from both primary and secondary sources. Therefore, the accuracy of the results depend upon the accuracy of the data.
1.16 Lay-out of the Study

The study consists seven chapters.

Chapter 1: This chapter gives a brief introduction to the problem statement, objectives, hypothesis, methodology, scope and limitations of the study and the lay-out.

Chapter II: This chapter explains review of literature, both national and international.

Chapter III: This chapter presents the form of Indian banking structure, both in its present glory and in the past.

Chapter IV: This chapter traces the historical factors that made the Banking Sector Reforms inevitable and includes a review of the Banking Sector Reforms and their impact on Information Technology of Indian public sector banking.

Chapter V: This chapter studies the Information ‘Technology of Indian banks and IT organizational learning of Indian public sector banking.

Chapter VI: This chapter makes an extensive study on data analysis and interpretation

Chapter VII: This concluding chapter systematically sums up Findings, Conclusion, Suggestions and future research directions
Reference


2) Introduction to Modern Banking Technology and Management, Vadlamani Ravi (Institute for Development and Research in Banking Technology, India)2011, 17 pages

3) An introduction to computers and their application in banking – by T.N. Srivastava, McMillan Publications

4) The Economist 1999

5) Banking - by Vatsala Kamat, as mentioned in article at www.outlookmoney.com

6) K.V. Kamath, Chairman, ICICI Bank, as quoted in India Today, 27 February 2006, page 61


8) Keynote address by Dr. K. C. Chakrabarty, Deputy Governor, Reserve Bank of India at the Mint’s Annual Banking Conference, 2014 in Mumbai on January 31, 2014

9) www.rbi.org.in

10) Dr. Firdos T. Shroff, Northern Book Centre, 01-Jan-2007 - Banks and banking - 246 page


12) Vinod Agrasala under, ITSM general, Service Management | Tags: IT Service, Service provider

13) Rebecca M. Blank, Acting Secretary, National Institute of Standards and Technology, Patrick D. Gallagher, Under Secretary for Standards and Technology and Director