CHAPTER 1
INTRODUCTION

"A bank is a place where they lend you an umbrella in fair weather and ask for it back when it begins to rain."

Robert Frost quotes (American poet, 1874-1963)
This chapter introduces the subject, emphasizes the need, reviews the literature, states the objectives, gives the methodology, limitations, and chapterisation.

1.1 Introduction

'Bank' is an institution and 'banking' is an activity, an industry and a sector. It may be possible to trace the origin of banking industry but not banking activity. 'Banking' as an activity is there from times immemorial.

'Banks' are financial organizations, formed primarily to receive deposits from those who have surplus funds and to lend them to those who are in need of them. But over a period of time there is a phenomenal change in the number and nature of financial services provided by the banks. At present banks are, important players in financial markets offering a wide variety of financial services. Banks play an important role in the development of the country by mobilizing and channeling the country's financial resources.

In some countries such as Germany, banks have historically owned major stakes in industrial corporations while in other countries such as the United States banks are prohibited from owning non-financial companies. In Japan, banks are usually the nexus of a cross-share holding entity known as the 'keiretsu'. In France, bancassurance is prevalent, as most banks offer insurance services (and now real estate services) to their clients. The level of government regulation of the banking industry varies widely. In countries such as Iceland, government regulation of banking sector is relatively less and in countries such as China there are a wide variety of banking sector regulations.1
1.2 Origin of the Word ‘Bank’

The term ‘bank’ was derived from the Italian word ‘banco’ meaning thereby a desk or bench. During the renaissance a desk or bench, covered by a green table cloth was used by Florentine bankers to make their transactions. The word ‘bank’ also has traces of its origin to the Ancient Roman Empire, where money lenders used to set up their stalls in the middle of enclosed courtyards called ‘macella’ on a long bench called ‘bancu’, from which the words ‘banco’ and ‘bank’ were derived. As a moneychanger, the merchant at the bancu did not so much invest money as merely convert the foreign currency into the only legal tender in Rome—that of the Imperial Mint.

The earliest evidence of money-changing activity is depicted on a silver drachm coin from ancient Hellenic colony Trapezus on the Black Sea, modern Trabzon, c. 350–325 BC, presented in the British Museum in London. The coin shows a banker's table (trapeza) laden with coins, a pun on the name of the city. In fact, even today in Modern Greek the word Trapeza (Τράπεζα) means both a table and a bank.

A bank is a financial institution whose primary activity is to act as a payment agent for customers and to borrow and lend money. It is an institution for receiving, keeping and lending money. For centuries, the banking industry has dealt only with businesses but not with consumers. Historically the primary purpose of a bank was to provide loans to trading concerns. Banks provided funds to allow businesses to purchase inventory, and collected those funds back with interest when the goods were sold. In course of time banking services have expanded to include services directed at individuals, and risk in these much smaller transactions is pooled.
1.3 Types of Banks

On the basis of the activities banks can be divided into different types. They are central banks and retail banks. Central banks are normally government owned banks, often charged with quasi-regulatory responsibilities, e.g. supervising commercial banks, or controlling the cash interest rate. They generally provide liquidity to the banking system and act as the lender of last resort in the event of a crisis. In India Reserve Bank of India is the central bank. It is vested with regulatory authorities. Retail banks are those banks which deal directly with individuals and small businesses. Retail banks can again be divided into different types on the basis of the objectives, governing principles, ownership, and the type of the customers they serve. They are:

(a) Commercial Banks: A ‘commercial bank’ is a type of financial intermediary and a type of bank. Commercial banking is also known as ‘business banking’. It is a bank that provides checking accounts, savings accounts and money market accounts and that accepts time deposits. Some use the term "commercial bank" to refer to a bank or a division of a bank that mostly deals with deposits and loans from corporations or large businesses.

(b) Community Banks: Community banks are locally operated financial institutions that empower employees to make local decisions to serve their customers and the partners.

(c) Community Development Banks: Community development banks are regulated banks that provide financial services and credit to under-served markets or populations.
(d) **Savings Banks**: Savings banks are those banks which are established with the objective of providing easily accessible savings products to all strata/sections of the population. Savings banks associated with national postal systems are called **postal savings banks**. In some countries, savings banks were created on public initiative, while in others socially committed individuals created foundations to put in place the necessary infrastructure. Nowadays, European savings banks have kept their focus on retail banking: payments, savings products, credits and insurances for individuals or small and medium-sized enterprises. Apart from this retail focus, they also differ from commercial banks by their broadly decentralised distribution network, providing local and regional outreach and by their socially responsible approach to business and society.

(e) **Private Banks**: Private Banks manage the assets of high net worth individuals.

(f) **Offshore Banks**: Offshore banks are those banks which are located in jurisdictions with low taxation and regulation. Many offshore banks are essentially private banks.

(g) **Building Societies and Lands Banks**: Building Societies and/or Land Banks are basically engaged in conducting retail banking.

(h) **Ethical Banks**: Banks that prioritize the transparency of all operations and make only what they consider to be socially-responsible investments.
(i) **Islamic Banks:** Islamic banks are the banks that transact according to Islamic principles. Islamic banks adhere to the concepts of Islamic law. Islamic banking revolves around several well established concepts which are based on Islamic canons. Since the concept of interest is forbidden in Islam, all banking activities must avoid interest. Instead of interest, the bank earns profit (mark-up) and fees on financing facilities that it extends to the customers.

(j) **Investment Banks:** Investment banks "underwrite" (guarantee the sale of) stock and bond issues, trade for their own accounts, make markets, and advise corporations on capital market's activities such as mergers and acquisitions.

(k) **Merchant Banks:** Merchant banks were traditionally banks which are engaged in trade finance. The modern definition, however, refers to banks which provide capital to firms in the form of shares rather than loans. Unlike venture capital firms, they tend not to invest in new companies.

(l) **Universal Banks:** Universal banks are more commonly known as financial services companies. They engage in several of these activities. For example, First Bank (a very large bank) is involved in commercial and retail lending, and its subsidiaries in tax-havens offer offshore banking services to customers in other countries. Other large financial institutions are similarly diversified and engage in multiple activities. In Europe and Asia, big banks are much diversified groups that, among other services, also distribute insurance, hence the term bancassurance is the term used to describe the sale
of insurance products in a bank. The word is a combination of "banque or bank" and "assurance" signifying that both banking and insurance are provided by the same corporate entity.

1.4 Delivery Channels

Banks use different channels to offer their services to the customers:

a) **Branch**: A branch, banking centre or financial centre is a retail location where a bank or financial institution offers a wide array of face-to-face service to its customers. This is a traditional channel.

b) **Automated Teller Machine (ATM)**: An ATM is a computerised telecommunications device that provides a financial institution's customers a method of financial transactions in a public space without the need for a human clerk or bank teller. Most banks now have more ATMs than branches, and ATMs are providing a wide range of services to the users. For example, some of the ATMs enable anyone to deposit cash to the credit of any customer of the bank by feeding in the notes and entering the account number to be credited. Also, most ATMs enable card holders from other banks to get their account balance and withdraw cash, even if the card is issued by a foreign bank.

c) **Mail**: Mail is part of the postal system which itself is a system wherein written documents typically enclosed in envelopes, and also small packages containing other matter, are delivered to destinations around the world. This can be used to deposit cheques and to send orders to the bank to pay money
to third parties. Banks also normally use mail to deliver periodic account statements to customers.

d) **Internet Banking:** Internet banking is a term used for performing transactions, payments etc. over the Internet through a bank, credit union or building society's secure website. This is also called **Online Banking**.

e) **Mobile Banking:** Mobile banking is a service provided by a financial institution which allows its customers to perform transactions over the phone. This normally includes payment of bills received from major service providers (e.g. electricity). This can also be called **Telephone Banking**.

The first two channels, Branch and Mail, are traditional, mostly manual, and indispensable even in the era of computerisation. These are relatively slow, costly and cumbersome channels involving much paper work. Automated Teller Machines (ATMs), Internet Banking, and Telephone/Mobile Banking are automated, computer and information technology-based alternative delivery channels. These channels are relatively fast, cost effective and convenient and are very much liked by technology savvy customers of the bank. Of course all the services cannot be rendered by the banks through these channels and cannot completely replace the first two traditional channels. This is very much true in a country like India where literacy level is low and many live in the rural areas, which do not have full pledged net services.
Banking in India originated in the last decades of the 18th century. The oldest bank in existence in India is the State Bank of India, a Government-owned bank that
traces its origins back to June 1806 and that is the largest commercial bank in the country. Central banking is the responsibility of the Reserve Bank of India, which in 1935 formally took over these responsibilities from the then Imperial Bank of India, relegating it to commercial banking functions. After India's independence in 1947, the Reserve Bank was nationalized and given broader powers. The Government of India nationalized the 14 largest commercial banks in 1969 and the six next largest in 1980.

At present in India there are 96 scheduled commercial banks (SCBs) (27 public sector banks and 31 private banks and 38 foreign banks). They have a combined network of over 53,000 branches and 17,000 ATMs. According to a report by ICRA Limited, a rating agency, the public sector banks hold over 75 percent of total assets of the banking industry, with the private and foreign banks holding 18.2 per cent and 6.5 per cent respectively.

Scheduled Banks in India constitute those banks which have been included in the Second Schedule of Reserve Bank of India (RBI) Act, 1934. RBI in turn includes only those banks in this schedule which satisfy the criteria laid down vide section 42 (6) (a) of the Act.

The banks included in this schedule list should fulfill the following two conditions.

(i) The paid up capital and collected funds of bank should not be less than Rs. 5 lac.

(ii) Any activity of the bank will not adversely affect the interests of depositors.
Every Scheduled bank enjoys the following facilities.

(i) Such bank becomes eligible for debts/loans on bank rate from the RBI

(ii) Such bank automatically acquires the membership of clearing house.

All the Scheduled Banks can be divided into (a) Commercial Banks and (b) Cooperatives. Commercial Banks can be divided into (i) Public Sector Banks, (b) Private Sector Banks, (c) Foreign Banks and (d) Regional Rural Banks. Public Sector Banks can again be divided into State Bank of India and its Associates, and Nationalised Banks.

The partition of India in 1947 adversely impacted the economies of Punjab and West Bengal, paralyzing banking activities for months. India's independence marked the end of a regime of the Laissez-faire for the Indian banking. The Government of India initiated measures to play an active role in the economic life of the nation, and the Industrial Policy Resolution adopted by the Government in 1948 envisaged a mixed economy. This resulted in greater involvement of the State in different segments of the economy including banking and finance. The major steps to regulate banking included:

- In 1948, the Reserve Bank of India, India's central banking authority, was nationalized, and it became an institution owned by the Government of India.

- In 1949, the Banking Regulation Act was enacted which empowered the Reserve Bank of India (RBI) "to regulate, control, and inspect the banks in India."
• The Banking Regulation Act also provided that no new bank or branch of an existing bank could be opened without a license from the RBI, and no two banks can have common directors.

However, despite these provisions, control and regulations; banks in India, except the State Bank of India, continued to be owned and operated by private persons. This situation changed with the nationalisation of 14 largest private sector commercial banks on 19 July 1969.

By the 1960s, the Indian banking industry had become an important tool to facilitate the development of the Indian economy. At the same time, it had emerged as a large employer, and a debate had ensued about the possibility to nationalise the banking industry. Indira Gandhi, the then Prime Minister of India expressed the intention of the Government in the annual conference of the All India Congress Meeting in a paper entitled "Stray thoughts on Bank Nationalisation". The paper was received with positive enthusiasm.

The Government of India (GOI) issued an ordinance and nationalized the 14 largest commercial banks with effect from the midnight of July 19, 1969. Within two weeks of the issue of the ordinance, the Parliament passed the Banking Companies (Acquisition and Transfer of Undertaking) Bill, and it received the presidential approval on 9 August 1969.

A second dose of nationalization of six more commercial banks followed in 1980. The stated reason for the nationalization was to give the government more control over credit delivery. With the second dose of nationalization, the GOI controlled around 91 per cent of the banking business in the country. Later on, in the
year 1993, the Government merged New Bank of India with Punjab National Bank. It was the only merger between nationalized banks and resulted in the reduction of the number of nationalised banks from 20 to 19. Nationalized Bank refers to Government Undertaking or Managing Bank. As SBI & PNB are Government Banks but PNB is a Nationalized Bank. 6

In the early 1990s, the then government embarked on a policy of liberalization, licensing a small number of private banks. These came to be known as New Generation tech-savvy banks, and included Global Trust Bank (the first of such new generation banks to be set up), which later amalgamated with Oriental Bank of Commerce, Axis Bank (earlier as UTI Bank), ICICI Bank and HDFC Bank. This move, along with the rapid growth in the economy of India, revitalized the banking sector in India, which has seen rapid growth with strong contribution from all the three sectors of banks, namely, government banks, private banks and foreign banks.

The next stage for the Indian banking has been setup with the proposed relaxation in the norms for Foreign Direct Investment, where all Foreign Investors in banks may be given voting rights which could exceed the present cap of 10 per cent, at present it has gone up to 74 per cent with some restrictions.

The new policy shook the Banking sector in India completely. Bankers, till this time, were used to the 4-6-4 method (Borrow at 4 per cent; Lend at 6 per cent; Go home at 4) of functioning. The new wave ushered in a modern outlook and tech-savvy methods of working for traditional banks. All this led to the retail boom in India. People not just demanded more from their banks but also received more.
The Reserve Bank of India is an autonomous body, with minimal pressure from the Government.

Foreign banks too started to arrive, particularly in Calcutta, in the 1860s. The Comptoir d'Escompte de Paris opened a branch in Calcutta in 1860, and another in Bombay in 1862; branches in Madras and Pondichery, then a French colony, followed. HSBC established itself in Bengal in 1869. Calcutta was the most active trading port in India, mainly due to the trade of the British Empire, and so became a banking center.

The following are the Public Sector Scheduled Banks in India:7

- State Bank of India
- State Bank of Bikaner and Jaipur
- State Bank of Hyderabad
- State Bank of Indore
- State Bank of Mysore
- State Bank of Saurashtra
- State Bank of Travancore
- Andhra Bank
- Allahabad Bank
- Bank of Baroda
- Bank of India
- Bank of Maharashtra
- Canara Bank
- Central Bank of India
- Corporation Bank
- Dena Bank
- Indian Overseas Bank
- Indian Bank
- Oriental Bank of Commerce
- Punjab National Bank
- Punjab and Sind Bank
- Syndicate Bank
- Union Bank of India
- United Bank of India
- UCO Bank
- Vijaya Bank

The following are the Private Sector Scheduled Banks in India:

- ING Vysya Bank Ltd
- Axis Bank Ltd
- Indusind Bank Ltd
- ICICI Bank Ltd
- South Indian Bank
- HDFC Bank Ltd
- Centurion Bank Ltd
- Bank of Punjab Ltd
- IDBI Bank Ltd

The following are the Scheduled Foreign Banks in India:

- American Express Bank Ltd.
1.6 Profitability

The difference between the interest it pays for deposits and other sources of funds, and the interest it receives from its lending activities constitutes profit to a bank. This difference is referred to as spread between the cost of funds and the revenue arising out of interest charged on loans. Profitability from lending activities is dependent on the needs and strengths of loan customers. Banks also earn something on a number of services rendered by them to the customers. However, lending activities still provide for bulk of a commercial bank's income. In the past ten years, banks have taken many measures to ensure that they remain profitable while responding to increasingly changing market conditions. Some of them are discussed hereunder.

- First among the measures taken by the commercial banks to remain profitable is merging banking, investment, and insurance functions which allows traditional
banks to respond to increasing consumer demands for "one-stop shopping" by enabling cross-selling of products.

- The second measure taken by the commercial banks to remain profitable is expanding the use of **risk-based pricing** from business lending to consumer lending. That means charging higher interest rates to those customers that are considered to be a higher credit risk and thus increased the chance of default on loans. This helps to offset the losses from bad loans, lowers the price of loans to those who have better credit histories, and offers credit products at higher price to high risk customers who would otherwise been denied credit.

- The third measure is increasing the methods of payment processing available to the general public and business clients. These products include **debit cards**, **pre-paid cards**, **smart cards**, and **credit cards**. They make it easier for consumers to conveniently make transactions and smooth their consumption over time. However, along with the advantage of providing easy credit to the customers there is also the danger of increased risk because of consumers' mismanagement of financial resources and accumulated excess debt with the customers. Banks make money from card products through interest payments and fees charged to consumers and transaction fees to companies that accept the cards.

- Last measure taken up by the banks for increasing profitability is computerisation and the use of information technology, which have made possible the introduction of cost effective alternate / technology-based delivery channels such as ATMs, Internet Banking, Phone/Mobile Banking etc.
Impact of Computerization / Information Technology on Money and Banking

Impact of Computerization / Information Technology on money and banking is considerable.

After computerization / use of information technology in banks people are able to do most of their financial business through computers from home. They can pay utility bills, buy stocks and transfer money sitting in home.

Plastic money has replaced the paper currency. Computers/IT has facilitated the creation of virtual wallets. Money is transferred across the continents within no time. Smart cards are used not only for making purchases and to pay bills but also for recording medical data, shopping accounts and other miscellaneous information. The smart card may contain a photograph and perhaps a fingerprint of the holder to keep thieves away from abusing the card.

According to Alvin Toffler computer-driven technologies have brought changes in the financial industry too. Financial industry is “diversifying product lines and shortening product life cycles. It, too, is spewing out a stream of niche products-new types of securities, mortgages, insurance policies, credit instruments, mutual funds, and endless permutations and combinations of these.”

“The Third Wave economy operates at super-high speeds. To keep pace, financial firms are pouring billions into new technologies. New computers and communication networks not only make possible the variation and customization of existing products, and the invention of new ones, but also drive transaction speeds towards instantaneity.”
"As new-style factories shift from "batch processing" to round-the-clock or "continuous flow" operations, finance follows suit, and shifts from "banker's hours" to twenty-four-hour services. Financial centers crop up in multiple time zones. Stocks, bonds, commodities, and currencies trade nonstop. Electronic networks make it possible to assemble and disassemble billions in what seems like nanoseconds."\(^{10}\)

Computerisation has increased the speed of transactions. The speed affects the distribution of profits and power. "A good example is the shrinkage of the "float" once enjoyed by banks. "Float" is the money in customers' accounts on which a bank can earn interest while customer cheques are waiting to clear. As computers accelerate the clearing process, banks gain less advantage from these funds and are forced to find alternative sources of revenue—which leads them into frontal competition with other sectors of the financial industry."\(^{11}\)

1.8 Computerisation of Banks in India

Banks in India have been doing the traditional business of accepting deposits and lending them out to people who are in need. The traditional banking system accounts for more than 60 per cent of the banking operations in the rural and semi-urban areas. In the urban and metropolitan areas, the change from manual operations to computer related operations is more than in rural and semi-urban areas. Employees too resisted computerisation. Because of these and some other reasons computerization made a slow entry into Indian banks. As a result our presence has been somewhat restricted in international operations.

Liberalization and financial sector reforms during the last two decades have brought the issue of productivity and profitability of banks into the limelight.
Profitability of banks has been under strain on account of declining net interest margin and increasing competition. The comfortable business of accepting deposits and lending at administered rates has been dented following deregulation of interest rates and increase in competition after the entry of private and foreign banks. In the changing context, banks with a high degree of cost effectiveness, increased efficiency and customer centric approach only could survive. Use of modern risk management practices, exploring ways to increase non-fund based income, analysis and control over expenses and greater use of information technology have become imperative to protect their bottom-lines in the deregulated environment. These are possible only through computerization, use of information technology, introduction of alternate technology-based delivery channels etc.

The sharp growth of computer use in new consumer goods of durable nature has also given rise to the need for use of computers in the services sector as well. Banking industry as a service provider cannot naturally lag behind in this movement toward the new techno-age. Moreover Computerisation is the only way by which senior managements in banks can gain information on the size of operations on a daily basis.

The banking industry is clearly cognizant of the imperatives of financial liberalization, ever changing market environment and requirements, and informational needs of the managements and has started computerizing branches, controlling offices and head offices that are located in commercially important centres across the country and account for over 65 per cent of banking business of the respective banks in terms of value. In terms of numbers, there are 65,300 PCs and nodes in about 3,800 fully computerised branches across the country. There are an additional 14,000 PCs in the
Regional Offices and Head Offices of banks, along with 2,745 LAN systems. Banks have also installed 17 mainframes, 5 super minis, and 803 mini systems. These statistics relate to 1999, since then much progress has taken place in the sphere of computerization in banks.

It is becoming increasingly clear that "Technology" alone can make bankers sail through the competition. Computerization of branches, introduction of cash management products, remote access logins for corporate, mobile banking, Internet banking and ATM banking are a few ways by which bankers use technology today to beat the competition.

The liberalization brought in 1991 has swept the economic landscape of the country. We are in an era of change. Banking is not an exception. The changes that have taken place in banking in the last two decades are many. Profitability, which remained a taboo for bankers for years since independence, has become a buzzword today. Our banks modeled on British banks, which erected awesome building to scare the public in the garb of being a sentinel of public money, today go for boutique banking to be as close to public as possible. Thus, competition fuelled by technology drives banking today.

"Indian banking has undergone a total transformation over the last decade. Moving seamlessly from a manual, scale-constrained environment to a technologically-leading position, it has been a miracle. Nowhere in the world has such a transformation taken place in such a short span of time with such a low cost. The process started in 1999-2000 when a couple of banks signed their first core banking transformation deal with Infosys. By 2009, about 50 banks with around 55,000 branches had completed the
journey, offering their customers anywhere, anytime banking across various channels. The current computerisation of regional rural banks is expected to add another 15,000 branches to this number by the year-end. Today, a consumer can go to an ATM across 44,000 locations, operate the bank account through the web, call a customer service centre for queries and never visit the branch for banking transactions. For the banks too, the journey has been fruitful. They have scaled up, reduced the drudgery of work for their staff, despite the golden handshake and voluntary retirement schemes, increased internal efficiency and become more competitive. At the systemic level, risks have reduced since information is real time and on line, reconciliation is instant, enterprise views are available and all information is available on a single database for decision-makers. This journey has been completed at an incredibly low cost. RBI, in a recent report, said that the total cost of computerisation has been around Rs 17,900 crore (for PSU banks), or less than $4 billion, an amount a global tier-I bank spends annually.\textsuperscript{13}

1.9 Technology Initiatives in Indian Banking Industry

The global scene of banking and financing is changing very fast. Foreign Banks are adopting improved technology in their day-to-day working. It helps them in improving their customer service. In India too customers have become very demanding. They want quick, efficient and excellent service. "Improvement in Customer Service" has become the buzzword in the Indian Banking Industry. Every effort, including computerization of banking operations, is being made today to improve customer service.

Banking sector reforms introduced in India in 1992-93 were based on five fundamentals.\textsuperscript{14}
a) Strengthening of prudential norms and market discipline.
b) Appropriate adoption of International benchmarks.
c) Management of organizational change and consolidation.
d) Technological upgradation.
e) Human resource development.

The Financial Reforms that were initiated in the early 90s and the globalization and liberalization measures brought in a completely new operating environment to the banks that were till then operating in a highly protected milieu. Services and products like 'Anywhere Banking', 'Tele-Banking', 'Internet banking', 'Web Banking', 'e-banking', 'e-commerce', 'e-business' etc. have become the buzzwords of the day and the banks are trying to cope with the competition by offering innovative and attractively packaged technology-based services to their customers.

Reserve Bank of India had to constitute a number of committees for examining various aspects of the banking systems. Three committees, constituted under the chairmanship of Dr. C. Rangarajan, Shri W.F.Saraf and, Smt. K.S.Shere have analyzed various aspect of computerization in banking industry and suggested corresponding changes to be introduced in the various Acts and provisions, which govern banking industry in India. Till 1980s, Indian Banks had not made any substantial change in modernizing their operations, particularly in the area of computer networking. The first attempt in this direction was made in the year 1983, when a Committee on Computerization and Mechanization in Banks headed by Dr. C. Rangarajan was set up. The Committee had recommended a three-tier approach to computerization in banks. The three tiers defined were:
• Branches
• Regional Offices / Zonal Offices, and
• Head Office / Central Office.

Reserve Bank of India constituted another committee under the chairmanship of Dr. C. Rangarajan in September, 1988. The main task of the committee was preparation of a plan for computerization for the period 1990-1994 (for five years). For the purpose of computerization, the Committee selected the important areas relating to customer service, internal-decision-making process, productivity and profitability. The committee furnished its report on November 9, 1989 with the following recommendations.

a) The branches having daily average level of vouchers at more than 750 should be computerized.

b) Computerization on branch level should be achieved on any of the following basis.

(i) Selected branches will have on-line terminals with micro and mini-computers which will be linked with central main-frame computer to provide counter service and other office-services.

(ii) Personal computers will be installed at counters which will be linked with local area network.

(iii) For third option, the banks will have to depend on Telecom line.

c) The banks should gradually use developed devices such as- Photocopier, FAX, Duplicator, Microfilm, Signature Storage, Scanners etc.
d) Non-computerized branches can take the services of other local computerized branch / office in case of important task.

e) The customers should have the facility to route their business to any branch of the bank.

f) All-Bank Credit Card should be issued.

g) Computers should be made bilingual and proper training arrangements should be made to provide training to staff members.

h) The regular customers should be offered on-line facility.

i) Like some European countries, there should be a system of credit clearing.

j) BANKNET should be used for interbank and intra bank applications.

k) All Regional offices and Zonal offices to be computerized in a phased manner.

The Committee has focused and stressed on computerization of banks. A statistical analysis was also made in the report of the committee. In that it was mentioned that following jobs can be rapidly and easily performed at Regional/Zonal office level.

a) To ascertain the bad and doubtful debts and to make provision for them.

b) To claim the amount under Credit Guarantee Schemes of DICGC.

c) To communicate, analyze and forecast the data for trade-plan.

d) To make action plan for recovery of advances.

e) Personnel Information System.

f) Credit Information System.
g) Checking of figures of priority sector advances.

h) Consolidation of statements/figures to be sent to the RBI.

Based on the norms worked out by Rangarajan Committee (II), 7827 branches of the Public Sector banks were identified for full branch computerization up to March 2000 of which around 4620 were computerized as on March 99. Meanwhile, the networking of the already-computerized branches also assumed urgency and some of the Banks have started inter-connecting their computerized branches using leased telephone lines or Very Small Aperture Terminals (VSATS). This is meant to provide a more comprehensive service to customers and at the same time give banks better centralized control over the branch operations. As of now, New Private Sector and Foreign Banks have an edge over Public Sector Banks as far as implementation of technological solutions is concerned. However, the Public Sector Banks are in the process of making huge investments in technology.15

Initially, emphasis was laid on the transactions processed at the branch level. Systems were introduced in selected bank branches in urban and metropolitan areas. The progress of mechanization and computerization of branches was very slow. The second committee on computerization in Banks has set the tone in Indian Banking Industry, for computerization of operations at branches. Today, there are a number of banks, which have fully computerized their important branches covering about 80 to 85 per cent of their total business. This has resulted in improvement in the customer service, to certain extent but at the same time has created certain problems like redeployment of staff and branch profitability on account of huge capital expenditure etc. However, banks are making efforts for solving these problems.
Table 1.1
Computerisation in State Bank Group of Banks
(As on March 31, 2008)

<table>
<thead>
<tr>
<th>SlNo.</th>
<th>Name of the Bank</th>
<th>Branches Under Core Banking</th>
<th>Fully Computerised Branches#</th>
<th>Partially Computerised Branches</th>
<th>Total Number of Branches</th>
</tr>
</thead>
<tbody>
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<td>1</td>
<td>State Bank of India</td>
<td>9390 (92.19)</td>
<td>796 (7.81)</td>
<td>0 (0.00)</td>
<td>10186 (100)</td>
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<td>State Bank of Hyderabad</td>
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<td>0 (0.00)</td>
<td>0 (0)</td>
<td>460 (100)</td>
</tr>
<tr>
<td>8</td>
<td>State Bank of Travancore</td>
<td>710 (100.00)</td>
<td>0 (0.00)</td>
<td>0 (0.00)</td>
<td>710 (100)</td>
</tr>
<tr>
<td>---</td>
<td>State Bank Group</td>
<td>14357 (94.75)</td>
<td>796 (5.25)</td>
<td>0 (0.00)</td>
<td>15153 (100)</td>
</tr>
<tr>
<td>---</td>
<td>Public Sector Banks</td>
<td>35464 (67.02)</td>
<td>14094 (26.64)</td>
<td>3356 (6.34)</td>
<td>52914 (100)</td>
</tr>
</tbody>
</table>

Note: # Other than branches under Core Banking Solution.

Source: Records of the Reserve Bank of India.
Table 1.1 shows computerization of the State Bank group of banks as on March 31, 2008. State Bank group consists of eight banks. They are State Bank of India, State Bank of Bikaner and Jaipur, State Bank of Hyderabad, State Bank of Indore, State Bank of Mysore, State Bank of Patiala, State Bank of Saurashtra, and State Bank of Travancore. All the branches of all the banks in the group are fully computerized, and 92.19 per cent branches of State Bank of India and one hundred per cent branches of all other banks in the group were reported to have been under core banking solution by the end of March 2008 itself.

Table 1.2 shows the expenditure incurred on computerization and development of communication networks by the State Bank Group during half year ended 31 March 2008 and expenditure incurred between September 1999 and March 2008. State Bank Group of banks have spent more than Rs.5000 crore between September 1999 and March 2008 whereas all the public sector banks have put together have spent about Rs.15,000 crore since September 1999 to March 2008.
Table 1.2

Expenditure Incurred on Computerisation and Development of Communication Networks by State Bank of India Group

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Rs.Crores</td>
<td>%</td>
</tr>
<tr>
<td>1</td>
<td>State Bank of India</td>
<td>279.96</td>
<td>21.24</td>
</tr>
<tr>
<td>2</td>
<td>State Bank of Bikaner and Jaipur</td>
<td>57.34</td>
<td>4.35</td>
</tr>
<tr>
<td>3</td>
<td>State Bank of Hyderabad</td>
<td>17.96</td>
<td>1.36</td>
</tr>
<tr>
<td>4</td>
<td>State Bank of Indore</td>
<td>16.72</td>
<td>1.27</td>
</tr>
<tr>
<td>5</td>
<td>State Bank of Mysore</td>
<td>27.86</td>
<td>2.11</td>
</tr>
<tr>
<td>6</td>
<td>State Bank of Patiala</td>
<td>23.56</td>
<td>1.79</td>
</tr>
<tr>
<td>7</td>
<td>State Bank of Saurashtra</td>
<td>28.07</td>
<td>2.13</td>
</tr>
<tr>
<td>8</td>
<td>State Bank of Travancore</td>
<td>13.59</td>
<td>1.03</td>
</tr>
<tr>
<td>---</td>
<td>Total</td>
<td>465.06</td>
<td>35.28</td>
</tr>
<tr>
<td>---</td>
<td>Public Sector Banks</td>
<td>1,318.35</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Source: Records of the Reserve Bank of India.
### Table 1.3

Computerisation in Nationalised Banks

(As on March 31, 2008)

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Name of the Bank</th>
<th>Branches Under Core Banking</th>
<th>Fully Computerised Branches</th>
<th>Partially Computerised Branches</th>
<th>Total Number of Branches</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Allahabad Bank</td>
<td>209 (9.70)</td>
<td>1,891 (87.75)</td>
<td>55 (2.55)</td>
<td>2,155 (100)</td>
</tr>
<tr>
<td>2</td>
<td>Andhra Bank</td>
<td>1,122 (82.14)</td>
<td>244 (17.86)</td>
<td>0 (0.00)</td>
<td>1,366 (100)</td>
</tr>
<tr>
<td>3</td>
<td>Bank of Baroda</td>
<td>1,717 (60.18)</td>
<td>1,136 (39.82)</td>
<td>0 (0.00)</td>
<td>2,853 (100)</td>
</tr>
<tr>
<td>4</td>
<td>Bank of India</td>
<td>1,526 (52.93)</td>
<td>1,357 (47.07)</td>
<td>0 (0.00)</td>
<td>2,883 (100)</td>
</tr>
<tr>
<td>5</td>
<td>Bank of Maharashtra</td>
<td>650 (47.27)</td>
<td>725 (52.73)</td>
<td>0 (0.00)</td>
<td>1,375 (100)</td>
</tr>
<tr>
<td>6</td>
<td>Canara Bank</td>
<td>569 (21.27)</td>
<td>2,106 (78.73)</td>
<td>0 (0.00)</td>
<td>2,675 (100)</td>
</tr>
<tr>
<td>7</td>
<td>Central Bank of India</td>
<td>1,020 (30.83)</td>
<td>1,843 (55.71)</td>
<td>445 (13.45)</td>
<td>3,308 (100)</td>
</tr>
<tr>
<td>8</td>
<td>Corporation Bank</td>
<td>1,035 (100.00)</td>
<td>0 (0.00)</td>
<td>0 (0.00)</td>
<td>1,035 (100)</td>
</tr>
<tr>
<td>9</td>
<td>Dena Bank</td>
<td>108 (9.30)</td>
<td>1,052 (90.61)</td>
<td>1 (0.09)</td>
<td>1,161 (100)</td>
</tr>
<tr>
<td>10</td>
<td>Indian Bank</td>
<td>1,541 (100.00)</td>
<td>0 (0.00)</td>
<td>0 (0.00)</td>
<td>1,541 (100)</td>
</tr>
</tbody>
</table>
Table 1.3 Computerisation in Nationalised Banks (As on March 31, 2008) (Contd.)

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Name of the Bank</th>
<th>Branches Under Core Banking</th>
<th>Fully Computerised Branches#</th>
<th>Partially Computerised Branches</th>
<th>Total Number of Branches</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>Indian Overseas Bank</td>
<td>1,149 (62.21)</td>
<td>222 (12.02)</td>
<td>476 (25.77)</td>
<td>1,847 (100)</td>
</tr>
<tr>
<td>12</td>
<td>Oriental Bank of Commerce</td>
<td>1,425 (100.00)</td>
<td>0 (0.00)</td>
<td>0 (0.00)</td>
<td>1,425 (100)</td>
</tr>
<tr>
<td>13</td>
<td>Punjab National Bank</td>
<td>3,063 (71.20)</td>
<td>1,239 (28.80)</td>
<td>0 (0.00)</td>
<td>4,302 (100)</td>
</tr>
<tr>
<td>14</td>
<td>Punjab and Sind Bank</td>
<td>0 (0.00)</td>
<td>84 (9.38)</td>
<td>812 (90.63)</td>
<td>896 (100)</td>
</tr>
<tr>
<td>15</td>
<td>Syndicate Bank</td>
<td>1,793 (82.66)</td>
<td>130 (5.99)</td>
<td>246 (11.34)</td>
<td>2,169 (100)</td>
</tr>
<tr>
<td>16</td>
<td>UCO Bank</td>
<td>701 (35.82)</td>
<td>149 (7.61)</td>
<td>1,107 (56.57)</td>
<td>1,957 (100)</td>
</tr>
<tr>
<td>17</td>
<td>Union Bank of India</td>
<td>2,361 (100.00)</td>
<td>0 (0.00)</td>
<td>0 (0.00)</td>
<td>2,361 (100)</td>
</tr>
<tr>
<td>18</td>
<td>United Bank of India</td>
<td>379 (27.05)</td>
<td>808 (57.67)</td>
<td>214 (15.27)</td>
<td>1,401 (100)</td>
</tr>
<tr>
<td>19</td>
<td>Vijaya Bank</td>
<td>739 (70.31)</td>
<td>312 (29.69)</td>
<td>0 (0.00)</td>
<td>1,051 (100)</td>
</tr>
<tr>
<td></td>
<td><strong>Nationalised Banks</strong></td>
<td><strong>21,107 (55.90)</strong></td>
<td><strong>13,298 (35.22)</strong></td>
<td><strong>3,356 (8.89)</strong></td>
<td><strong>37,761 (100)</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Public Sector Banks</strong></td>
<td><strong>35,464 (67.02)</strong></td>
<td><strong>14,094 (26.64)</strong></td>
<td><strong>3,356 (6.34)</strong></td>
<td><strong>52,914 (100)</strong></td>
</tr>
</tbody>
</table>

Note: # Other than branches under Core Banking Solution.

Source: Records of the Reserve Bank of India.
Table 1.3 shows computerization in nationalized banks. That is the number of the branches under core banking, fully computerized branches and partially computerized branches in nationalized banks are given in the table.

- About 60 per cent of the nationalized bank branches (as against 67.02 per cent of the public sector bank branches) are under core banking system, 35.22 per cent of the branches are only fully computerized (as against 26.64 per cent of the public sector bank branches) and 8.89 per cent of the branches are partially computerized branches. This shows the level of computerization in nationalized banks.

- All the branches of Corporation Bank, Indian Bank, Oriental Bank of Commerce, and Union Bank of India are under core banking system.

- All the branches of Andhra Bank, Bank of Baroda, Bank of India, Bank of Maharashtra, Canara Bank, Punjab National Bank and Vijaya Bank were fully computerized though not under core banking system.

- None of the branches of Punjab and Sind Bank were under core banking system and only 9.38 per cent were fully computerized branches.

- A few branches of Dena Bank (9.30 per cent), Allahabad Bank (9.70 per cent), Canara Bank (21.27 per cent), United Bank of India (27.05 per cent), Central Bank of India (30.83 per cent), and UCO Bank (35.82 per cent) were under Core Banking System.

- A majority of the branches of Punjab and Sind Bank (90.63 per cent) and UCO Bank (56.57 per cent) were partially computerized branches.
Table 1.4
Expenditure Incurred on Computerisation and Development of Communication Networks by the Nationalised Banks

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Rs.Crores   %</td>
<td>Rs.Crores   %</td>
</tr>
<tr>
<td>1</td>
<td>Allahabad Bank</td>
<td>17.68       1.34</td>
<td>218.47      1.45</td>
</tr>
<tr>
<td>2</td>
<td>Andhra Bank</td>
<td>36.55       2.77</td>
<td>434.94      2.90</td>
</tr>
<tr>
<td>3</td>
<td>Bank of Baroda</td>
<td>34.67       2.63</td>
<td>809.85      5.39</td>
</tr>
<tr>
<td>4</td>
<td>Bank of India</td>
<td>83.75       6.35</td>
<td>1,241.92    8.27</td>
</tr>
<tr>
<td>5</td>
<td>Bank of Maharashtra</td>
<td>38.17       2.90</td>
<td>334.06      2.22</td>
</tr>
<tr>
<td>6</td>
<td>Canara Bank</td>
<td>63.84       4.84</td>
<td>952.64      6.34</td>
</tr>
<tr>
<td>7</td>
<td>Central Bank of India</td>
<td>19.90       1.51</td>
<td>448.50      2.99</td>
</tr>
<tr>
<td>8</td>
<td>Corporation Bank</td>
<td>20.68       1.57</td>
<td>413.11      2.75</td>
</tr>
<tr>
<td>9</td>
<td>Dena Bank</td>
<td>2.77        0.21</td>
<td>174.18      1.16</td>
</tr>
<tr>
<td>10</td>
<td>Indian Bank</td>
<td>51.71       3.92</td>
<td>473.69      3.15</td>
</tr>
<tr>
<td>11</td>
<td>Indian Overseas Bank</td>
<td>57.47       4.36</td>
<td>350.77      2.34</td>
</tr>
<tr>
<td>12</td>
<td>Oriental Bank of Commerce</td>
<td>28.45    2.16</td>
<td>376.96      2.51</td>
</tr>
<tr>
<td>13</td>
<td>Punjab and Sind Bank</td>
<td>4.19        0.32</td>
<td>58.01       0.39</td>
</tr>
<tr>
<td>14</td>
<td>Punjab National Bank</td>
<td>99.36       7.54</td>
<td>1,092.76    7.28</td>
</tr>
<tr>
<td>15</td>
<td>Syndicate Bank</td>
<td>34.95       2.65</td>
<td>448.20      2.98</td>
</tr>
<tr>
<td>16</td>
<td>UCO Bank</td>
<td>91.92       6.97</td>
<td>450.72      3.00</td>
</tr>
<tr>
<td>17</td>
<td>Union Bank of India</td>
<td>77.85       5.91</td>
<td>529.70      3.53</td>
</tr>
<tr>
<td>18</td>
<td>United Bank of India</td>
<td>35.57       2.70</td>
<td>258.47      1.72</td>
</tr>
<tr>
<td>19</td>
<td>Vijaya Bank</td>
<td>53.81       4.08</td>
<td>524.15      3.49</td>
</tr>
<tr>
<td>---</td>
<td>Nationalised Banks</td>
<td>853.29      64.72</td>
<td>9,591.10    63.87</td>
</tr>
<tr>
<td>---</td>
<td>Public Sector Banks</td>
<td>1,318.35    100.00</td>
<td>15,015.84   100.00</td>
</tr>
</tbody>
</table>

Source: Records of the Reserve Bank of India.
Table 1.4 shows expenditure incurred on computerisation and development of communication networks by the nationalised banks in the country.

1.10 Need for the Study and Statement of the Problem

It is an undisputed fact that Computerisation and Information Technology (IT) innovations in the last few years have changed the landscape of banks in India. Today, Computerisation and IT seem to be the prime movers of all banking transactions. Electronic and Information Technology together are bringing a swift change in the way banks operate, especially offering better delivery channels and customers' friendly services. Anywhere banking, telebanking, mobile banking, net banking, automated teller machine (ATMs), credit cards, debit cards, smart cards, call centres, CRM, data warehousing have totally transformed the banking industry. Today almost all the major banks in India are offering online services to their customers. ATMs have emerged as the most favoured channel for offering banking services to the customers. In India, currently, there are two types of customers – one who is a multi-channel user and the other who still relies on the branch as the main channel. The primary challenge for banks is to provide consistent service to the customers irrespective of the kind of channel they use. The channels broadly cover the primary channels of branch (i.e. teller and ATM), phone (i.e. call centre, interactive voice response unit), and internet channel (i.e. personal computer, browser, wireless) banking. Banks in India have all set for transformed branches, enhanced telephone services, and internet banking functions. Even for PSBs, the ongoing and future investments are massive. The available data about the investment plans in PSBs in IT in the year 2003–04 indicates that all major PSBs have earmarked the hefty amount of Rs. 2200 crore.16
 Keeping in view the developments in banking (the massive investments on computerization) and the influence of computer technology on banking (introduction of alternate technology-based delivery channels), it was desired to study the impact of computers on banking through the perceptions of the customers and employees. As it is not possible to cover a wide area it has been decided to restrict the study to Anantapur District in Rayalaseema region of Andhra Pradesh.

1.11 Significance of the Study

The study is useful to the customers, commercial banks and the policy makers. The study is useful to the customers because it brings to the fore the utilities/conveniences of the use of computer technology. It is useful to the Bank because it unravels the problems and expectations of the customers which are necessary for improving the functioning of the banks. It is also useful to the policy makers.

1.12 Review of Literature

Not much literature is available on the subject. Any how an effort has been made to review the available literature on the subject. Over the years several studies have been conducted both at the industry and firm level to examine the impact of IT on productivity and profitability.

Dos Santos et al; (1993)\(^7\) have drawn on statistical correlation between IT spending and performance measures such as profitability or stock’s value for their analysis. They found an insignificant correlation between IT spending and profitability measures, implying thereby that IT spending is unproductive.
Brynjolfsson and Hitt (1996)\textsuperscript{18} however, caution that the above findings do not account for the economic theory of equilibrium which implies that increased IT spending does not imply increased profitability. More recent firm level studies, however, point a more positive picture of IT contributions towards productivity. These findings raise several questions about mis-measurement of output by not accounting for improved variety and quality and about whether IT benefits are seen at firm level or at the industry level. Such issues have been discussed in detail by Brynjolfsson (1993)\textsuperscript{19} and to a lesser extent by Brynjolfsson and Hitt (1996)\textsuperscript{20}.

Morrison and Bernlt (1990)\textsuperscript{21} in one of the industry level studies found that in manufacturing industry 'estimated marginal benefits of investment in IT are less than the marginal cost, implying the problem of over investment. More specifically they found that for each dollar spent on IT, the marginal increase in output was only 80 cents. Similarly Loveman (1994)\textsuperscript{22} found insignificant contribution of IT expenditure to the output of manufacturing firms.

Lichtenberg (1995)\textsuperscript{23}, on the other hand, concludes that there are significant benefits from investment in IT to the firms. Using Cobb-Douglas production function, he found increasing returns on investment in computers. They further found that one information system (IS) employee is equivalent to six non-information system employees in terms of marginal productivity.

Brynjolfsson and Hitt (1996)\textsuperscript{24} in their study by using Cobb-Douglas production function have found that computerization aids to the firm's level output significantly. In fact they found that computer related capital investment contributes 81 percent to the marginal increase in output, where as non-information technology capital contributes
only six per cent to the marginal output. They also show that information system labour is more than twice as productive as non-information system labour.

Parsons, Gotlieb and Denny (1993)\textsuperscript{25}, in their study, dealt with the impact of IT on productivity in banking sector. From the analysis of data relating to five Canadian banks, they have concluded that though there is 17 to 23 per cent increase in productivity with the use of computers, the returns are considered very modest when compared to the levels of investments in IT. For the purpose of analysis they have used translog production function.

Oded Shenkar (1993)\textsuperscript{26}, in his article entitled "Perceptions of Computerisation by Bank Branch Employees", has presented perceptions of the bank branch employees regarding the introduction of computer terminals in the branches of an Israeli bank. Employees appear to believe that computers improved service to customers and facilitated data gathering and communication, but were somewhat less optimistic regarding their impact on job content variables. Employee perceptions in branches where computer terminals have already been installed do not differ significantly from those of employees in branches where the terminals have not been installed yet, except regarding the computer contribution to the provision of new types of banking services. A Smallest Space Analysis generated six spatial regions of employee perceptions concerning computer impact: efficiency, authority, employee redundancy, job problems, communications problems, and computer problems. Gender and hierarchical differences were also discussed.

The other study to examine the effect of IT investment on both productivity and profitability in the US retail banking sector was conducted by Prasad and Harker
They concluded that additional investment in IT capital may have no real benefits and may be more of strategic necessity to stay within the competition. However, the results indicate that there are substantially high returns to increase in investment in IT labour.

Launardi, Becker and Macada (2003)\(^2\) in another study, found that competition, products/services, and customers - the main strategic variables affecting the IT – found that there is no difference of opinion between IT executives and other functional executives, regarding their perception of the impact of IT on strategic variables.

Mahammed Shakeel\(^\circ\) in his book entitled "Applications of Information Technology in Banks in India" has stated that while computer by itself is the most cherished invention that man has ever accomplished, its union with communication technology which is at its pinnacle, has brought yet another amazing extension to its already fabulous capabilities. Joining this powerful communication environment, the IT has opened flood gates for global economic activity. The contribution of economic and political changes that have so far taken place to encourage international trade will bear fruit only when banking and the associated services can catch up with the new trends. The modern IT has enough capabilities to enable banks, financial institutions and others to bring about the desired changes.

Another important study undertaken by offsite monitoring and surveillance division of department of Banking Supervision (2002)\(^3\) used financial indicators to derive indirect linkages by assuming computerization as one of the factor in the improvement in efficiency. They concluded that higher performance levels have been
achieved without corresponding increase in the number of employees. Also, it has been possible for Public Sector Banks and Old Private Banks to improve their productivity and efficiency over a period of five years.

Choudhari and Tripathy (2004) applied DEA to measure the relative performance of public sector banks and concluded that the Corporation Bank is the efficient in all indicators i.e. profitability, financial management, growth, productivity, and liquidity, while Oriental Bank of Commerce is next most efficient.

Kamakura and Ratchford (1996) evaluated multiple retail stores for their efficiency using DEA and translog cost function.

Dr. Yashawant Patil, in his article entitled “Information Technology Deployment in Cooperative Banks” said that the banking system in modern times has become part and parcel of life and one cannot do anything without banking. In the age of information technology, the banking system has reengineered and has changed its total functioning. The banks of all types - private, public, cooperative - have all been in the race for deployment of latest technology solutions. Though, in comparison to other sector banks, cooperative banks are slow in IT deployment. Therefore expenditure on IT in the banking sector has increased. A number of cooperative banks used the opportunity afforded by the Y2K scare to update their computerisation systems, procure new Y2Kcompliant computers to extend computerisation to cover some front- and back-office operations. Customers are demanding access to sophisticated products and services through multiple channels like the telephone, Internet, cellular phones and the ATM. Today, the top managements of several Indian banks are viewing IT as a
business enabler and a vital part of their strategy. Banks are revisiting their technology architecture.

In the last decade, considerable a number of cooperative banks have increased their computerization base by adding Any Branch Banking, Telebanking and ATM interface wherever required. This has facilitated the banks to provide efficient and effective customer services and has resulted in economising on the costs per transaction. Apart from computerization of basic operational systems, the cooperative banks, especially Urban Cooperative banks have also computerized major loan accounts, the investment operations, and clearing systems. However still there are gaps in technology upgradation in the Cooperative banks.

It is true that a majority of cooperative banks especially the customers of cooperative banks located in rural and semi urban areas are not comfortable with computers, there is no reason why technologically laggard banks should impose on their customers high transaction costs in terms of the time and money spent on visits to branch offices and in terms of the delays in completing their transactions. It is also true that the staff of the cooperative banks at operational, middle and top level is not very keen in making use of the information technology to fullest extent in their day to day activities which is also one of the main reason for the gap in implementation of information technology. It would obviously be difficult for laggard cooperative banks to attract new young customers if they do not increase their investments on IT in right direction with cautious approach.

It is now high time for the decision makers in cooperative banks to realize the need to enlarge the base of computerization and see that the real benefits are delivered
at all the levels, customers and stakeholders of the bank. The decision makers have to work out a definitive time frame for technological advancement in their respective banks with complete involvement in monitoring, controlling and evaluating the progress with set parameters.

Mittal and Dhingra (2007)\(^3\) in their article entitled “Assessing the Impact of Computerization on Productivity and Profitability of Indian Banks”, have stated that Indian banks are investing heavily in the technologies such as telebanking, mobile banking, net banking, automated teller machine (ATMs), credit cards, debit cards, smart cards, call centers, CRM, data warehousing etc. To convince the management, investors and other stakeholders for this heavy investment in technology, it is desirable to evaluate the impact of computerization on the performance of Indian banks in terms of their profitability and productivity. In this paper, after defining input and output parameters, Data Envelopment Analysis (DEA) is used to study the impact of computerization on Indian banks’ profitability and productivity. Private sector banks, which took more IT initiative, were found to be more efficient in productivity and profitability parameters than public sector banks.

Sharma and Thakur\(^3\) have conducted “A Comparative Study of Computerisation in Public and Private Sector Banks”. As part of their study they conducted a survey of public and private bank employee’s responses toward computerisation of banking services. The objective of the study was to measure the employees' awareness, perception, and the level of satisfaction with regard to IT Services offered by the Indian public and private sector banks in the Jaipur city. The study has been divided into four major segments. They are: (1) Information
Technologies Strategic advantages, (2) Technological know-how and organizational capacity, (3) Decision making process, and (4) Motivations toward Information Technology. Although this survey declares that in comparison, private banks are well ahead in above said segments but now because of the increasing competition and awareness, the public banks are also trying hard to satisfy their customers and employees by providing virtual banking services through better IT infrastructure.

1.13 Research Design

Electronics and information technologies are rapidly changing the banking industry. In the world of banking, the developments in IT had an enormous effect on flexible payment methods and more user-friendly banking services. The amounts of transactions have increased so rapidly during the last decade. This study intends to the perceptions of the customers and employees on computerization of banks in general and the nature and extent, purposes, problems and prospects of using alternate technology-based delivery channels.

(i) Objectives of the Study

One cannot afford to introduce computers for computers sake. Computerisation involves lot of expenditure/investment in terms of hardware, software and human-ware. Computers are used in business for improving efficiency and for improving profitability. These in turn depend upon acceptability by the employees and customers. Keeping this in view the following objectives have been set.

The main objective, to study the impact of computerization on banking industry, can be delineated into the following sub-objectives.
a) To study the exposure of bank customers to technology-based delivery channels.

b) To study awareness among the customers, usage of different channels by the customers and channel preferences of the customers.

c) To study the problems faced by the customers in using the technology-based delivery channels.

d) To study the time taken for different transactions by the customers before and after computerization.

e) To study the perceptions of the bank employees on computerization of banks.

f) To suggest the measures to be taken by different parties for improving the utility, usage and cost effectiveness of technology-based delivery channels by solving the problems associated with their usage.

(ii) Sample

All the scheduled commercial banks, their customers and employees in Anantapur district form the universe for the purpose. As it is not possible to collect data from all the customers and employees, 350 customers and 150 employees of different scheduled commercial banks in the district have been selected on random basis.

(iii) Data Collection

The required primary data have been collected from the selected customers and employees through two different questionnaires consisting of structured and unstructured questions/statements. The questionnaires used in the survey have been given in Appendix “A”. In addition to that, periodical formal and informal discussions
were held with bank officials/employees in the district and necessary information was collected. The required secondary data were collected from different publications.

(iv) Analysis and Presentation

The data so collected were analysed by using simple statistics like averages and percentages. The processed data have been presented in the form of tables. In this study the terms 'computerisation' and 'technology' have been used interchangeably, and little distinction has been maintained between the terms 'computerisation' and 'information technology' as they generally go together. The terms automation and mechanisation also have been used here and there to give similar meaning. In this study 'customers' means 'bank customers' and 'employees' means 'bank employees'. For obvious reasons names of the banks and identity of the selected employees have been kept confidential.

1.14 Limitations of the Study

No study is limitation free. Limitations of the study are:

- The research was confined to one district.
- Some of the respondents required lot of persuasion to part with information.
- The time factor did not permit the researcher to cover all the customers and employees in the district.
- One cannot rule out the possibility of existence of personal bias on the part of the respondents.
- This study is confined to retail banking.

However adequate care has been taken to minimize the affect of limitations and to make the study a representative one.
1.15 Chapterisation

The study has been divided into seven chapters. They are:

**Chapter 1: Introduction:** This chapter introduces the subject, emphasizes the need, reviews the literature, states the objectives, gives methodology, limitations, and chapterisation.

**Chapter 2: Profile of the District and the Respondents:** In this chapter a profile of the district, profiles of a few banks and a profile of the respondents from whom the information has been collected have been discussed. All these profiles form a backdrop for the discussion.

**Chapter 3: Technology-Based Delivery Channels:** In this chapter an attempt has been made to explain how computerization and developments in information technology have made possible the change, how banks have been forced to adopt themselves to this change and how the transition has taken place from traditional banking to technology-based modern banking.

**Chapter 4: ATM - A Popular Technology-Based Delivery Channel:** In this chapter a detailed account of ATM - a popular technology-based delivery channel has been given.

**Chapter 5: Customers' Opinions on Computerisation / Use of Information Technology in Banks:** In this chapter the primary data, collected from the selected customers through a schedule on different aspects of computerization / use of information technology in banks, have been analysed and interpreted.
Chapter 6: Employees’ Opinions on Computerisation / Use of Information Technology in Banks: In this chapter responses of the selected 150 employees, working in different banks in the district, have been analysed.

Chapter 7: Summary, Conclusions and Suggestions: Summary, conclusions and suggestions have been given in this chapter.

1. Retrieved from Wikipedia, the free encyclopedia
9. Ibid.
10. Ibid.


35. Sourabh Sharma and K.S.Thakur, *A Comparative Study of Computerisation in Public and Private Sector Banks*, Retrieved from: [http://docs.google.com/viewer?a=v&q=cache:_cASGgl3spIJ:maintm.com/download.aspx%3Fid%3DArticles%26id2%3DA_Comparative_Study_of_Computerisation_in_Public_and_Private_Sector_Banks.pdf+Free+Articles+on+Computerisation+of+Banks&hl=en&gl=us&pid=bl&srcid=ADGEESihP9m7GDrbrOk8wBpMm_hQmbK1VrGlks63BKpXWwpJLkp59PQNbUcUR7fa_ZXcWjKQOUQvJ256pZ8Fx2aHJLWWeOM6VfpZozP7TyDUUSbG8DYaFFIY9UudsMr6YGcdkicS2Z7b&sig=AHIEtbSjTTBrOoPO-sxcsz5qKA07yBix8w](http://docs.google.com/viewer?a=v&q=cache:_cASGgl3spIJ:maintm.com/download.aspx%3Fid%3DArticles%26id2%3DA_Comparative_Study_of_Computerisation_in_Public_and_Private_Sector_Banks.pdf+Free+Articles+on+Computerisation+of+Banks&hl=en&gl=us&pid=bl&srcid=ADGEESihP9m7GDrbrOk8wBpMm_hQmbK1VrGlks63BKpXWwpJLkp59PQNbUcUR7fa_ZXcWjKQOUQvJ256pZ8Fx2aHJLWWeOM6VfpZozP7TyDUUSbG8DYaFFIY9UudsMr6YGcdkicS2Z7b&sig=AHIEtbSjTTBrOoPO-sxcsz5qKA07yBix8w)