CHAPTER-1: INTRODUCTION

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CHAPTER 1: INTRODUCTION

1.1. Introduction

Banking is considered to be the nerve center of trade, commerce and business in a country. It plays a vital role in distributing money for development of trade, industry and commerce. Therefore we may say that banking is the lifeblood of modern commerce. The banking sector is important to the world economy as it influences the strength of every nation’s economy. The overall development and growth of any economy depends more on the service sector. The role of the service sector in Indian economic development has increased by several notches from the fact that service sector which was contributing only 20% during the time of independence, now it is contributing over 50% GDP of India. Indian economy is the fastest growing major economy in the world with a GDP growth rate of 8.4% at the end of the third quarter of 2007-08. When the ARPANET project of Defense academy of US began, a new technology was born with the advent of the internet. The two technological breakthroughs – computers and internet have radically changed the way the world can interact and business can be done. Metamorphosis and clubbing of these technologies gave rise to the growth of the ITES (Information Technology Enabled Services) across the globe. There has been a marked improvement particularly in the area of maintenance, storage, availability and transfer of the data. The world has literally shrunk to become a "global village". Hence, Indian banking industry is also growing at the cost of new competitive changes after liberalization, privatization and globalization. Now, banking sector is performing well to make every citizen free from poverty, ignorance, financial problems that plagued millions of our people for centuries. Information Technology is very powerful 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. Nowadays banks have
moved from distributed to a centralized environment, which shows the impact of IT on banks.

Technology has opened up new markets, products, services and efficient delivery channels for the banking industry. The deregulation of the banking industry coupled with the emergence of new technologies, are enabling new competitors to enter the financial services market quickly and efficiently. The driving forces behind the rapid transformation of banks are influencing changes in the economic environment, innovations in information technology, innovations in financial products, liberalization and consolidation of financial markets, deregulation of financial inter-mediation etc. From acquiring a customer, servicing the customer’s needs, building customer relationship to managing employees, processes and partners, every action in the bank’s value chain relies on technology to ensure efficacy and efficiency.

The new information technology plays an important role in the future development of banking. Online banking, mobile banking and internet banking are just a few examples. The IT revolution has set the stage for an unprecedented increasing financial activity across the globe. The progress of technology and the development of worldwide networks have significantly reduced the cost of global funds transfer. It is information technology that enables banks in meeting such high expectation of the customers who are more demanding, and are also more techno-savvy as compared to their counterparts of the yesteryears. They demand instant, anytime and anywhere banking facilities. With the entry of private players in retail banking, multi-nations focused on the individual consumer in a big way, the banking system underwent a phenomenal change. Multi-channel banking gained prominence. For the first time consumers got the choice of conducting transactions either the traditional way (through the bank branch), ATMs, telephone or through Net. Technology played a key role in providing multi-service platform.

Information Technology has provided banking industry with the power to deal with the challenges of the new economy. It has been the cornerstone of recent financial sector reforms aimed at increasing the speed and reliability of financial operations and making initiatives to strengthen the banking sector. Structural changes of the banking
sector and increasing networks of offices are the areas where information technology may be fully implemented and stimulate creation of new generation of banking software. Technological progress has enabled to implement deregulation. The reduction or elimination of government power in a particular industry usually enacts to create more competition within the industry. All banking services, such as electronic payments, loans, deposits, or securities have become heavily dependable on information and telecommunication technology. This is the main reason why banks are the biggest users of IT equipments. Due to the complexity of banking services, every opportunity to speed up their performance or to make them more accessible for customers is very well welcomed by banks.

**Banking in India**

The banking system plays a very important role in the development of an economy by enabling it to be competitive and strong enough to face any financial problem and hence forms the core of money market in an advance country. It is an integral part of an every economy. Bank is a financial institution that accepts money in form of deposits from public and lends money in form of loan from those deposits to the public. In other words, Bank is an institution that utilizes public money for public. It gives interest to public on its deposits and in return charges interest on the loans disbursed by the bank. In India the banks are being segregated in different groups. Each group has their own benefits and limitations in operating in India. Each has their own dedicated target market. Few of them work only in rural sector while others in both rural as well as urban. Many even are only catering in cities. Some are of Indian origin and some are foreign players.

As far as the present scenario is concerned the banking industry is in a transition phase. The Public Sector Banks (PSBs), which are the foundation of the Indian Banking system account for more than 78% of total banking industry assets. Unfortunately they are burdened with excessive Non Performing Assets (NPAs), massive manpower and lack of modern technology. On the other hand the Private Sector Banks in India are witnessing immense progress. They are leaders in Internet banking, mobile banking, phone banking and ATMs. Public Sector Banks are still facing the problem of unhappy
employees. There has been a decrease of 20% in the employee strength of the private sector in the wake of the Voluntary Retirement Schemes (VRS). As far as foreign banks are concerned they are likely to succeed in India. The Indian banking has finally worked up to the competitive dynamics of the ‘new’ Indian market and is addressing the relevant issues to take on the multifarious challenges of globalization. Banks that employ IT solutions are perceived to be ‘futuristic’ and proactive players capable of meeting the multifarious requirements of the large customers’ base. Private Banks have been fast on the uptake and are reorienting their strategies using the internet as a medium. The Internet has emerged as the new and challenging frontier of marketing with the conventional physical world tenets being just as applicable like in any other marketing medium.

The Indian banking has come from a long way from being a sleepy business institution to a highly proactive and dynamic entity. This transformation has been largely brought about by the large dose of liberalization and economic reforms that allowed banks to explore new business opportunities rather than generating revenues from conventional streams (i.e. borrowing and lending). The banking in India is highly fragmented with 30 banking units contributing to almost 50% of deposits and 60% of advances. Indian nationalized banks (banks owned by the government) continue to be the major lenders in the economy due to their sheer size and penetrative networks which assures them high deposit mobilization. The Indian banking can be broadly categorized into nationalized, private banks and specialize banking institutions.

1.2 Banking Structure

The banking structure of every economy is going to change with the changing environment. In Indian context, there were two phases of nationalization.

a) Introduction of RRBs 

b) Entry of private sector banks and foreign banks.

Now e-banking is an important major change that affects the structure as well as functioning of the banks from time to time. Indian banking too has proved many changes in response to the world economy where liberalization, privatization, technology introduction i.e. computerization are the major effects of globalization. Computerization of banking has received high importance in the recent years. Indian banking industry
today is in the midst of an IT revolution. A combination of regulatory and competitive forces has led to increasing importance of total banking automation in the Indian banking industry. The Reserve Bank of India acts as a centralized body monitoring any discrepancies and shortcomings in the system. It is the foremost monitoring body in the Indian financial sector. On the basis of Reserve Bank of India Act, 1934 banks are of two types:

i. Schedules Banks

ii. Non-Scheduled Banks

1.2.1. Scheduled Commercial Banks: According to RBI Act 1934, a scheduled bank is that bank which has been included in the second schedule of the Reserve Bank of India. To be eligible for this concession a bank must satisfy the following three conditions:-

- It must have a paid up capital and reserves of an aggregate value of at least Rs.5 lakhs.
- It must satisfy the RBI that its affairs are not conducted in a manner detrimental to the Interests of its depositors. It must be a corporation and not a partnership or a single owner firm.

RBI gives these banks number of facilities like credit, rediscount etc. These banks have to deposit fixed proportion of their demand and time deposits with RBI.

1.2.2. Non-Scheduled Commercial Banks: Non-scheduled commercial banks are the banks having total capital less than Rs.5 lakhs. These banks are not included in the second schedule of the RBI Act, 1934. RBI has no specific control upon these banks. But they have to send details of their business to the RBI every month. These banks are falling gradually in numbers, at present only 3 such banks are working in India. The nationalized banks (i.e. government-owned banks) continue to dominate the Indian banking arena. Industry estimates indicate that out of 274 commercial banks operating in India, 223 banks are in the public sector and 51 are in the private sector. The private sector bank grid also includes 24 foreign banks that have started their operations here.
1.2.3. Commercial Banks

Among the organized banking institutions, the commercial banks are the oldest institutions having a wide network of branches, commanding utmost public confidence and having the lion’s share in the total banking operations. Initially they were established as corporate bodies with shareholdings by private individuals but subsequently there has been adrift towards state ownership and control. Today 27 banks constitute the strong Public Sector Banks in Indian Commercial Banking (IDBI also included from 2005-06). Up to late sixties, they were mainly engaged in financing organized trade, commerce and industry but since then they are actively participating in financing, agriculture, small business and small borrowers also. The commercial banks operating in India fall under a number of sub-categories on the basis of ownership and control of management as is evident from the Figure 1.1.

Figure 1.1: Indian Banking Structure (As on March 31st 2009)

Source: Report on Trend and Progress of Banking in India, 2008-09
1.2.4. Public Sector Banks

Public sector Banks reached its present position in three stages.

At the first stage, the existing Imperial Bank of India was converted into the SBI in 1955 followed by the establishment of its seven subsidiary banks. Secondly, the nationalization of 14 major commercial banks on July 19, 1969 was completed and thirdly, 6 more commercial banks were nationalized on April 15, 1980. Bank of India was later on merged with PNB and Global Trust Bank with that of OBC Bank. Now IDBI Ltd is included in public sector banks in 2005 hence this sector constitute 27 banks in all.

1.2.5. Private Sector Banks

Private sector banks are those banks that are owned by the private sector. It was in mid 1990's when Indian banking scenario witnessed the entry of some new private sector banks and in the period between 2002 to 2007. These banks have grown by leaps and bounds. They have increased their incomes, asset sizes and outperformed their public sector counterparts in many areas; this growth was accompanied by a rapid branch expansion. The network of private sector bank grew at almost three times of all scheduled commercial banks and more than four times that of public sector banks. (Refer to the Table 1.2). The star performer among these banks were, HDFC Bank, ICICI Bank, and the AXIS Bank (formerly UTI Bank). These big four expanded their branch network at a rapid rate of 14-16 percent per annum in terms of compounded growth.

Another trend in banking sector during this period was the increase in staff strength of private sector banks, while the public sector banks witnessed a decline in the number of employees. The private sector banks recorded a compounded growth of 24% in their staff strength. The decline in public sector bank staff can be attributed to restructuring and adoption of IT infrastructure.
Table 1.1: Population Group Wise Number of Branches of Private Banks

<table>
<thead>
<tr>
<th>Banks</th>
<th>Bank Group , Bank and Population Group Wise Number Of Branches Of Commercial Banks</th>
<th>Total Offices</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rural</td>
<td>Semi Urban</td>
</tr>
<tr>
<td>ICICI Bank Limited</td>
<td>138</td>
<td>461</td>
</tr>
<tr>
<td>HDFC Bank Ltd.</td>
<td>67</td>
<td>325</td>
</tr>
<tr>
<td>Axis Bank Limited</td>
<td>30</td>
<td>189</td>
</tr>
<tr>
<td>Indusind Bank Ltd.</td>
<td>5</td>
<td>36</td>
</tr>
</tbody>
</table>

Source: RBI, ICAI Research

Private sector banks include Indian and Foreign banks:

1.2.6. Indian Private Sector Banks

There are two categories of Indian private sector banks as old and new private sector banks. Old private sector banks are 15 at present but from performance point of view they are not sound as showing deterioration in their profitability year after year. In accordance with the financial sector reforms adopted in 1991 New Private Sector Banks have been permitted to be set up. According to Narasimham Committee—“New Private Sector Banks should be allowed to be established in India. These New Private Sector Banks will complement the overall Financial Sector Reforms. They will provide a financially viable technologically up to date, customer friendly and efficiently competitive financial intermediation”. New private sector banks are those entered in Indian banking industry after liberalization policy of 1991 and now they are 7 in number. In October 2004, Global Trust Bank was merged with Oriental Bank of Commerce as it has been proved to be failure of paying it’s any of the liabilities. Again in 2004-05, Bank of Punjab and Centurion Bank were merged under new name Centurion Bank of Punjab to enjoy the higher market share and to compete in the global market and on 23rd May, 2008, Centurion Bank of Punjab merged with HDFC Bank creating the largest private sector in the country. UTI Bank has changed its name from ‘UTI Bank Ltd.’ To ‘Axis Bank Ltd.’ with effect from 30th July, 2007. Kotak Mahindra Bank and Yes Bank are two new banks
entered in new private sector banks group and they all are performing well as competing with the foreign banks working in India.

1.2.7. Foreign Banks

The banks those incorporated in a foreign country and set up their branches in India. Their principal function is to make credit available for the exports and imports of the country and deal with foreign exchange having their head office in their home country. In India, 32 foreign banks have been established and providing healthy competition to our banks with the use of latest technology. Hence, the liberalization as well as globalization has changed the ways of banking business and the banks are facing fierce competition to stay in foreign markets. They are facing number of challenges to improve their performance on one hand and to serve the customers in new ways with greater efficiency and effectiveness on the other hand. Now days, profitability and social objectives are the two opposing considerations, which a bank now requires to keep in mind. Although, profits today are no longer the be-all and end-all of banking business; nevertheless any concern for healthy growth, long-term viability and lasting contribution of banks must accord due emphasis on profitability.

1.3. List of Banks in India

i. **Central bank**: Reserve Bank of India · NABARD

ii. **Nationalized banks**: Allahabad Bank · Andhra Bank · Bank of Baroda · Bank of India · Bank of Maharashtra · Canara Bank · Central Bank of India · Corporation Bank · Dena Bank · IDBI Bank · Indian Bank · Indian Overseas Bank · Oriental Bank of Commerce · Punjab & Sind Bank · Punjab National Bank · Syndicate Bank · UCO Bank · Union Bank of India · United Bank of India · Vijaya Bank


iv. **Private Banks**: Axis Bank · Bank of Rajasthan · Bharat Overseas Bank · Catholic Syrian Bank · Dhanalakshmi Bank · South Indian Bank · City Union Bank · Federal Bank · HDFC Bank · ICICI Bank · IndusInd Bank · ING Vysya Bank ·
Jammu & Kashmir Bank · Karnataka Bank Limited · Karur Vysya Bank · Kotak Mahindra Bank · Lakshmi Vilas Bank · Nainital Bank · Ratnakar Bank · Saraswat Bank · Tamilnadu Mercantile Bank Limited · Yes Bank.

v. **Foreign banks**- ABN AMRO · Abu Dhabi Commercial Bank · Antwerp Diamond Bank · Arab Bangladesh Bank · Bank International Indonesia · Bank of America · Bank of Bahrain & Kuwait · Bank of Ceylon · Bank of Nova Scotia · Bank of Tokyo Mitsubishi UFJ · Barclays Bank · Citibank India · HSBC · Standard Tableered · Deutsche Bank · Royal Bank of Scotland.


### 1.4. Nationalization of Banks in India

The RBI was nationalized on January 1, 1949 in terms of the RBI (Transfer to public ownership) Act, 1948 (RBI. 2005b). 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 nationalize the banking Industry. In 1969, The Prime Minister Mrs. Indira Gandhi expressed the intention of the GOI in the annual conference of the All India Congress meeting in a paper entitled “Stray thoughts on Bank nationalization”. The paper was received with positive enthusiasm. Thereafter her move was swift and sudden. The GOI issued an ordinance and nationalized the 14th largest commercial banks with effect from the mid night of July 19, 1969.

Before the steps of nationalization of Indian banks, only State Bank of India (SBI) was nationalized. It took place in July 1955 under the SBI Act of 1955. Nationalization of Seven State Banks of India (formed subsidiary) took place on 19th July 1960. The State Bank of India is India's largest commercial bank and is ranked one of the top five banks worldwide. It serves 90 million customers through a network of 9,000 branches and it offers either directly or through subsidiaries a wide range of banking services.
The second phase of nationalization of Indian banks took place in the year 1980. Seven more banks were nationalized with deposits over 200 crores. Till this year, approximately 80% of the banking segments in India were under Government ownership. After the nationalization of banks in India, the branches of the public sector banks rose to approximately 800% in deposits and advances took a huge jump by 11,000%.

- 1955: Nationalization of State Bank of India.
- 1959: Nationalization of SBI subsidiaries.
- 1980: Nationalization of seven banks with deposits over 200 crores.

1.5. Liberalization

In the early 1990s, the Prime minister of India Mr. P.V. Narshima Rao government embarked on a policy of liberalization, licensing a small number of private banks. This came to be known as new generation tech savvy banks, and included global Trust bank (The first of new generation banks to be set up), which later amalgamated with Oriental bank of Commerce, AXIS bank (earlier known as UTI bank) ,ICICI Bank and HDFC bank. This move along with the rapid growth and the economy of India revitalized the banking sector in India, which has seen rapid growth with strong contribution from all three sectors of banks, namely, Government banks, private banks and foreign banks.

Currently (2010) banking in India is generally fairly mature in terms of supply, product range and reach—even though reach in rural India still remain a challenge for the private sector and foreign banks. In terms of quality of assets and capital adequacy, Indian banks are considered to have clean, strong and transparent balance sheet relative to other banks in comparable economies in its region. The RBI is an autonomous body; with minimal pressure from the government .The stated policy of the bank on the Indian rupee is to manage volatility but without any fix exchange rate and this has mostly been true. With the growth in the Indian economy expected to be strong for quite some time – especially in its service sector, the demand for banking services especially retail banking, mortgages and Investment services are expected to be strong. One may also expect Mergers & Acquisition, Take overs.
1.6. Banking Sector Reforms

In the beginning of 90’s, there were so many deficiencies prevailing in the Indian economy, particularly in the financial sector and also in the banking sector. The major deficiencies prevailing at the time of early 90’s were low productivity and efficiency of the system. Some public sector banks have been incurring losses year after year, their customer service was poor, their work technology was outdated and they were unable to meet the challenges of a competitive environment. Due to this problem, the government of India and the RBI thought it was necessary to introduce reforms in the financial and banking sector also, so as to promote rapid economic growth and development with stability through the process of globalization, liberalization and privatization in the financial system. It becomes more competitive and gets integrated with the world economy through internationalizations of financial markets in the world.

1.6.1. Narasimham Committee Recommendations for Banking Sector Reforms

The government of India, under the chairmanship of Sh. M. Narasimham, an Ex-Governor of RBI, appointed the Narasimham Committee-I (NC-I) in April 1991. The committee examined all the aspects relating to the structural organization, functions and procedures of financial system and submitted its report on November 16, 1991. The NC-I had proposed wide ranging reforms for improving the financial viability of the banks, increasing their autonomy from government directions, restructuring unviable banks, allowing a greater entry of the private sector in banking, liberalizing the capital market, further improving the operational flexibility and competition among the financial institutions and setting up of proper supervisory system.

1.6.2. First Phase of Banking Sector Reforms (1991)

A number of reform initiations have been taken to improve or minimize the distortions impinging upon the efficient and profitable functioning of banks, especially reduction in SLR & CRR, transparent guidelines or norms for entry and exit of private sector banks, public sector banks allowed to direct access to capital markets, deregulation of interest rates, branch licensing policy has been liberalized, setting up of debt recovery tribunals,
asset classification and provisioning, income recognition and Asset Reconstruction Fund (ARF). These and other measures that have been taken would help the highly regulated and directed banking system to transform itself into one characterized by openness, competition, prudential and supervisory discipline.

1.6.3. Second Phase of Banking Sector Reforms (1998)

The recommendations of the NC-I in 1991 provided the blueprint for the first generation reforms of the financial sector. The period 1992-97 witnessed the laying of foundations for reforms in the banking system. Cataclysmic changes were taking place in the world economy, coinciding with the movement towards global integration of financial services. Against such backdrop, the committee NC-II, appointed for the said purpose generated its report in 1998, provided the roadmap for the second-generation reform process. The NC-II with Mr. M. Narasimham as the chairman was constituted on December 26, 1997 to review the banking sector reforms since 1991 and to suggest measures of further strengthening the banking sector of India. The NC-II examined the second-generation of reforms in terms of three broad interrelated issues:

(i) Action that should be taken to strengthen the foundation of the banking system.

(ii) Strengthening procedures, upgrading technology and HRD.

(iii) Structural changes in the system.

These cover the aspects of banking policy, institutional, supervisory and legislative documents. The major recommendations of the committee were strengthening banking system, systems and methods of banking, structural issues, integration of financial markets, rural and small scale industrial credit, regulation and supervision.

1.7. The era of deregulation

The eventual 1993 RBI guidelines encouraged the rise of young, private banks, as well as a new focus on 'modern infrastructure'. It leads to emergence of an agile and IT-enabled approach to banking: where banks functioned as automated, networked entities. The rise of competition also encouraged new private players as well as older public sector banks
to experiment with remote service delivery, the use of smart cards and other efforts to reach customers in the most efficient ways possible. In addition, technological advances such as core banking, the use of ATMs and telecom connectivity brought convenience for bank customers. Considering the progress and the many innovations, the continued lack of penetration of bank services especially in rural India, seems baffling today. Fully 40% of rural Indians lack bank account number, which rises among marginalized communities. This exclusion is debilitating for the poor, whose small, volatile incomes makes financial access all the more important for savings, and to insure themselves against crisis.

In the last decade, we have seen access to basic services become a priority in government policies. Since the 1999 telecom policy opened up the sector, the penetration of mobile phones in India exploded, from less than five million connections in 1997 to over 700 million today. But we have yet to see comparable growth in the similarly essential service of banking.

1.8. Information Technology and Bank Transformation

The term transformation in Indian Banking Industry relates to intermediately stage when the industry is passing from the earlier social banking era to the newly conceived technology based customer centric and competitive banking. The activities of banks have grown in multi-directional as well as in multi-dimensional manners. During transformation, all known parameters of the earlier regime continuously change. The current transformation process in the Indian Banking has many aspects.

They pertain to:

- Capital Restructuring
- Financial Re-engineering
- Information Technology
- Human Resource Development.
### Table 1.2: Phases of Transformation in Indian Banking

<table>
<thead>
<tr>
<th>Stage of Transformation</th>
<th>Structure of Banks</th>
<th>Objectives of the Banks</th>
<th>Mode of Transformation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Nationalization of Banks (before 1969)</td>
<td>Private Control of Banks</td>
<td>Higher Profitability</td>
<td>Manual Work</td>
</tr>
<tr>
<td>Post-Nationalization of Banks (1969 - 90)</td>
<td>Control of Govt.</td>
<td>Social banking</td>
<td>Limited Computerization</td>
</tr>
<tr>
<td>Economic Reforms (1991-2000)</td>
<td>- Entry and exit of Foreign and New Private Sector - Social Banking through IT Based Banks</td>
<td>- Higher Profitability - Fierce Competition</td>
<td>e-banking</td>
</tr>
<tr>
<td>Current Stage (Post 2000)</td>
<td>Implementation of various Committees’ Reports</td>
<td>- New Products and Services - Entry in Insurance - CRM with IT</td>
<td>- Maximum use of IT - Mobile ATMs - Credit/Smart Cards - Internet/mobile/tele-Banking</td>
</tr>
</tbody>
</table>

The Second banking sector reforms gave much importance to the modernization and technology up-gradation. The next 10 years will be defined by:

- Accelerated expansion
- Process efficiency
- Greater Country sophistication
- More intense regulatory demands
- Opening up markets in existing and new member countries.

### 1.9. Profile of Rajasthan

Rajasthan is the largest State in the country, and presents a unique combination of geographical and cultural diversity. It is predominantly an agrarian economy with agriculture and related activities accounting for about one-third the State's income. However, the recent wave of industrialization has brought about a change in Rajasthan’s economic landscape and new industries are coming up in the State. Rajasthan currently has a marked presence in the Tourism and Hospitality, Handicrafts, Textiles, Engineering, Gems & Jewellery, Minerals, Marble, Oil & Gas. However, to be able to support its growth plans, attract investments and there by fully realize its economic
potential, the State, among other things, needs to bridge the wide gap in the local availability of skilled human resources, a key growth enabling factor.

Rajasthan is a vibrant, exotic state where tradition and royal glory meet in a riot of colors against the vast backdrop of sand and desert. It has an unusual diversity in its entire forms- people, customs, culture, costumes, music, manners, dialects, cuisine and physiographic. The land is endowed with invincible forts, magnificent palace havelis, rich culture and heritage, beauty and natural resources. It is a land rich in music, dance, art & craft and adventure, a land that never ceases to intrigue & enchant. This abode of kings is one of the most exotic locales for tourist world over. The state has not only survived in all its ethnicity but owes its charisma and color to its enduring traditional way of life. It is one of the 28 states that, along with seven union territories, form the republic of India. So rich is the history of the land that every roadside village has its own tales of valour and sacrifice, the winds sing them and the sands shift to spread them. Rajasthan is Spicy, but then, what is life after all without little bit of spice, Rajasthan provides abundant scope to explore it. The panoramic outlook of the state is simply mesmerizing; with lofty hills of Aravali’s, one of the oldest mountain ranges of the world and the golden sand dunes of the Great Indian Desert - the only desert of the sub-continent. No other region in the country is a conglomeration of so many paradoxes. It is a land of superlatives; everything over here is breathtakingly beautiful, impressive and fascinating! The state is well connected with other parts of the country and can be easily approached from Delhi and Bombay.

1.9.1. Changing Economy of Rajasthan

The Rajasthan economy has shown a healthy growth path during the recent years. GSDP (at current prices) has almost doubled from Rs1, 17,274 crore in FY05 to Rs3, 03,358 crore in FY11. This has made Rajasthan one of India’s faster growing states with the average growth rate of around 7.43% (real GSDP) during FY05-FY11. The services sector contributes around 47% in GSDP followed by the industry and agriculture sectors at 27% and 26% respectively. Over the last ten year period (FY01-10) the share to
the GSDP has changed from 27% to 26%, from 28% to 27% and 45% to 47% in the agriculture, industry and services sectors respectively.

**Table 1.3 State Domestic Products and its composition:**

<table>
<thead>
<tr>
<th>Components</th>
<th>FY01</th>
<th>FY05</th>
<th>FY11</th>
</tr>
</thead>
<tbody>
<tr>
<td>GSDP at Current prices (Rs Crore)</td>
<td>82434</td>
<td>117274</td>
<td>303358</td>
</tr>
<tr>
<td>NSDP at Current Prices (Rs Crore)</td>
<td>72766</td>
<td>102375</td>
<td>269381</td>
</tr>
<tr>
<td>Economic Growth (Real GSDP)</td>
<td>(-)2%</td>
<td>1.50%</td>
<td>9.60%</td>
</tr>
<tr>
<td>Contribution in GSDP at current prices</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agriculture</td>
<td>27%</td>
<td>27%</td>
<td>26%</td>
</tr>
<tr>
<td>Industry</td>
<td>28%</td>
<td>29%</td>
<td>27%</td>
</tr>
<tr>
<td>Services</td>
<td>45%</td>
<td>44%</td>
<td>47%</td>
</tr>
</tbody>
</table>

Source: PHD RESEARCH BUREAU, Compiled from Economic Review of Rajasthan 2009-10. Sectoral contribution to GSDP is round off figure.

Some of the Socio-Economic factors of Rajasthan’s Economy are as follows:

**Table 1.4 Socio Economic Indicators of Rajasthan:**

<table>
<thead>
<tr>
<th>Component</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (2011 Census)</td>
<td>6.86 crores</td>
</tr>
<tr>
<td>Population Density (per sq. km)</td>
<td>201 persons</td>
</tr>
<tr>
<td>No. of Districts</td>
<td>33</td>
</tr>
<tr>
<td>Economic Growth (2010-11)</td>
<td>9.6%</td>
</tr>
<tr>
<td>Per capita income (2010-11)</td>
<td>Rs39,967</td>
</tr>
<tr>
<td>Literacy Rate (2011 Census)</td>
<td>67.06</td>
</tr>
<tr>
<td>Gender Ratio (2011 Census)</td>
<td>926 females</td>
</tr>
<tr>
<td>Key Industries</td>
<td>Mineral Based Industries, Textiles, Tourism, Gem and Jewellery, Dimensional stones, Agro Processing</td>
</tr>
<tr>
<td>Prospective Industries</td>
<td>Oil and Gas, IT and ITES, Electricity generation and</td>
</tr>
<tr>
<td>Composite ranking of the state</td>
<td>12th rank</td>
</tr>
<tr>
<td>Macro economy</td>
<td>14th rank</td>
</tr>
<tr>
<td>Agriculture</td>
<td>10th rank</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>11th rank</td>
</tr>
<tr>
<td>Investment environment</td>
<td>15th rank</td>
</tr>
</tbody>
</table>

Source: PHD RESEARCH BUREAU, Compiled from Government of Rajasthan, Annual Report to people on Health, Sep 2010 * Human Development Index lies between 0 and 1, * Indus Today, 29th Nov 2010, an article by Bibeck Debroy and Lavleen Bhandari

### 1.9.2. Economic Profile of Rajasthan

Rajasthan enjoys a strategic geographical position where in it is situated between Northern and Western growth hubs in the country and 40% of Delhi Mumbai Industrial Corridor
(DMIC) runs through it. Rajasthan has been successful in attracting a large number of multinational as well as domestic companies to set up operations in the state. Investors have set up ventures in fields as diverse as Information Technology, Electronics, textiles, chemicals, agro-processing, cement, granite, and engineering. The state has 322 industrial areas at present and setting up of three new is in pipeline.

Rajasthan is one of the favored destinations for cement industry, being endowed with limestone which acts as the base for cement production and also the concessions provided by the state to the industry. The state boasts of tremendous bio diversity, rarely to be found in others state. Thus has a potential to create immense industrial activity in the field of biotechnology and modern biotech products like recombinant DNA products and Bio Informatics. Construction of four state-of-art Biotech Parks is under consideration. The recent Rajasthan budget for FY12 has made allocations of Rs 178 Crores to develop industry and minerals sectors. The economic agenda of Rajasthan focuses on the following four sectors, contributing over two-thirds of the state’s economic output:

1.9.3. Following are the Performance of six thrust areas of Rajasthan:

<table>
<thead>
<tr>
<th>Table 1.5: Six thrust areas of Rajasthan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture and Agribusiness</td>
</tr>
<tr>
<td>There have been measures taken up by the state government towards improving agriculture on a whole, by providing irrigation facilities, promoting agro processing and agri business etc. Rajasthan ranks 7th in terms of food grain production in India. It is a leading producer of coarse cereals, pulses, grams etc. But on the contrary the contribution of the sector has been decreasing over time in states GDSP and also it has a low per hectare yield. So the outcome is mixed in terms of its overall performance. According to the survey published in India Today it ranks 10th amongst the 20 big states of India.</td>
</tr>
<tr>
<td><strong>Education and Skill Development</strong></td>
</tr>
<tr>
<td><strong>Health</strong></td>
</tr>
<tr>
<td><strong>Housing</strong></td>
</tr>
<tr>
<td><strong>Industry</strong></td>
</tr>
</tbody>
</table>
The situation in terms of electricity generation, roads, railways, aviation has improved in the state. The government has formed various boards like RUIDP and BIDI in order to develop the urban infrastructure. Rajasthan ranks 11th among 20 big states which reflect the progress it has made over time, although there is much more scope to progress yet we cannot deny the efforts it has made. There have been efforts made towards involving private sector in the infrastructural activity.

Source: PHD RESEARCH BUREAU: Rajasthan state profile, April 2011

1.9.4. Banking scenario in Rajasthan

Table 1.6: Banking scenario in Rajasthan

<table>
<thead>
<tr>
<th>Banks in Rajasthan</th>
<th>No. of offices in Rajasthan</th>
<th>No of offices all over India</th>
<th>Offices in Rajasthan as % of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBI and its Associates</td>
<td>1028</td>
<td>16563</td>
<td>6.21%</td>
</tr>
<tr>
<td>Nationalized Banks</td>
<td>1583</td>
<td>40011</td>
<td>3.96%</td>
</tr>
<tr>
<td>Private Sector Banks</td>
<td>495</td>
<td>10417</td>
<td>4.75%</td>
</tr>
</tbody>
</table>

Source: PHD RESEARCH BUREAU, Compiled from RBI, September 2010

In Rajasthan, SBI and its associates have 6.21%, private banks accounting for 4.75% and nationalized banks have 3.96% which portrays a good picture. One bank branch in Rajasthan caters to the needs of 16623 persons and covers an average area of 86 sq. km.

1.9.5. Banking Developments in Rajasthan:

Government of Rajasthan has set up state and District level consultative committees on banks to increase the scope of banking. Following are the initiatives taken by the state Government of Rajasthan:

- State Government assist in the opening of bank accounts where there are large settlements of households and obtaining proof of address and identity may be
difficult. Banks having the largest presence in each city with more than one million populations (to start with) may take the leadership in convening a meeting of bankers and allocating responsibility for various wards to different banks, to ensure that all urban households have easier access to bank accounts and banking services.

- Banks are seriously looking at expanding their reach to the unbanked and under-banked sections
- Bank of Baroda is looking at 100% financial inclusion in a district in Rajasthan. It has adopted the Dugarpur district in Rajasthan and is tying up with microfinance institutions for this purpose.
- HDFC Bank and officials from Vodafone dropped in to review the bank's pilot project aimed at financial inclusion through mobile banking. MPaisa used select mobile retailers as bank sub-agents and offered basic banking services in remote villages. The project already covers 2,200 retailers across 320 villages in Rajasthan, which is the first stop for HDFC bank to launch its mobile banking initiative. The bank is now looking to go pan India and bring 10 million customers under the financial inclusion cover.
- ICICI Bank, India’s largest private sector bank has taken initiate to launch Data recovery center, Financial literacy and credit counseling center, Rural self employment training institute and Quality education programme.
- To improve the efficiency of the financial system by ensuring the presence of a safe, secure and effective payment and settlement system.
- To promoting the system’s functionality and modernization of banks on an ongoing basis.
- Expansion of credit card facilities to customers.
- Lead bank scheme to get business potential by providing suitable banking services to unbanked areas.
- Branch expansion service area plan are created to expand branches and to enhance financial literacy.
- With new technology and computerization of banking operations, new remittance products have been introduced in the market, which have increased the speed, cost
effectiveness and efficiency of the payments and settlement system. The critical elements of the developmental strategy are the opening of new clearing houses, interconnection of clearing houses through the Indian Financial Network (INFINET) and the development of a Real-Time Gross Settlement (RTGS) System, a Centralized Funds Management System (CFMS), a Negotiated Dealing System (NDS) and the Structured Financial Messaging System (SFMS). Similarly, integration of the various payment products with the systems of individual banks has been another thrust area.

- Ombudsmen scheme to resolve customer’s complaint.
- RBI has facilitated successful pilot projects in use of IT for extending the banking outreach for the “excluded”. These projects are premised on technology which uses hand-held devices and connectivity with host computers through General Packet Radio Service (GPRS)/Global System for Mobile Communications (GSM)/Code Division Multiple Access (CDMA) landline networks. The devices also come in several forms like SIMC (Simple Inexpensive Multi-lingual Computers) personal digital assistants, programmed mobiles, etc.
- Rural bio-metric ATMs which have been introduced by banks and found to be very popular among rural masses. Some major banks are introducing low cost rural ATMs for cash dispensing and other services in rural areas.

1.10. District Profile

1.10.1. Profile of Jaipur

This famous city is the capital of Rajasthan and has earned universal renown as the “Pink City ”, and pink it is, with beautiful constructed palaces, havelis and forts. Tall, rugged men with handle-bar whiskers sport bright pink turbans. Jaipur which means the city of victory was built exactly 273 years back and is 262 km by road from Delhi (Capital of India). A strong wall encircles the old city and even today has a suggestion of formidable strength; its function of protecting all within is obvious.
The plains of Rajasthan of which Jaipur is the capital once thundered and echoed with clash of swords and the drums of wars. Built in 1727 by Sawai Jai Singh-II, Jaipur was the first planned city of its time (the earlier planned city in northern India having been built near Taxila sometime in the 2nd century BC). Jaipur was planned by Vidhyadhar Bhattacharya, a Bengali architect, in a grid system with wide straight avenues, roads, streets and lanes and uniform rows of shops on either side of the main bazaars, all arranged in nine rectangular city sectors (chokris). The city itself is an attractive creation worthy of universal admiration.

Geographical Conditions

Geographical area of Jaipur district is 11117.8 Sqr.Km. Total number of villages is 2369. It is situated in the east of Rajasthan state. In the North of it Sikar, Mahendragarh district (State Haryana), In the South Tonk, In the East Alwar, Dausa, Sawai Madhopur, and In the West Nagaur, Ajmer district situated. East and North area of Jaipur district is surrounded by Arawali hills. The important rainy rivers are Ban Ganga and Sabi. To provide drinking water to old city there is Ramgarh dam on Ban Ganga River. There is a single natural lake named Sambhar Lake, the water of which is salty and is the largest source of good quality salt in India. Copper, Dolomite, Iron, White Marvel, Glass, Silicon are the minerals of Jaipur District.

Height of it is 122 to 183 m. from sea level. Ground water level of Jaipur district is 14 m. currently. Total length of district from East to West is 180 Km. and total width from North to South is 110 Km.

| Area:            | 11117.8 sq.km.          |
| Altitude:        | 431 metres             |
| Temperature:     | 45 max. 25 min. ( summer ) |
|                  | 22 max. 05 min. ( winter ) |
| Languages:       | English, Hindi, Rajasthani |
Climate

Climate of Jaipur is extreme with hot and humid summers and chilly winters. Maximum temperature during the summers (from April to July) reaches a high of around 45ºC. On the other hand winters have sunny and pleasant days and bitterly cold nights. Temperature can touch a low of around 5ºC, mostly during the nights. Major problems in the winter are fog that envelops the city in the evening. If you are planning to visit Jaipur in summers, bring with you light cotton clothes. Light woolen clothes during would do the needful in the winters. Monsoon starts in the third week of July, but the state does not experience much of rainy days.

Demographic Profile of Jaipur

According to Census Data 2011, Jaipur had population of 6,663,971 of which male and female were 3,490,787 and 3,173,184 respectively. There was change of 26.91 percent in the population compared to population as per 2001. The population density of Jaipur is 598 in 2011 as compared to 471 of 2001. Average literacy rate of Jaipur in 2011 were 76.44 as compared to 69.90 of 2001. Gender wise, male and female literacy were 87.27 and 64.63 respectively as compared to 2001. Total literate in Jaipur district were 4,395,012 of which male and female were 2,617,028 and 1,777,984 respectively. With regards to gender ratio in Jaipur it stood at 909 per 1000 male compared to 2001 census figure of 897. The percentage decadal growth rate of total population (2001-2011) is 26.91 and for rural and urban areas is 19.02 and 35.0 respectively.

<table>
<thead>
<tr>
<th>Description</th>
<th>2001</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Population</td>
<td>5,251,071</td>
<td>6,663,971</td>
</tr>
<tr>
<td>Total Male Population</td>
<td>2,768,203</td>
<td>3,490,787</td>
</tr>
<tr>
<td>Total Female Population</td>
<td>2,482,868</td>
<td>3,173,184</td>
</tr>
<tr>
<td>Population Growth</td>
<td>32.40%</td>
<td>26.91%</td>
</tr>
<tr>
<td>Population Density per sq metre</td>
<td>471</td>
<td>598</td>
</tr>
<tr>
<td>Gender Ratio (Per 1000)</td>
<td>897</td>
<td>909</td>
</tr>
<tr>
<td>Total literates in Jaipur city</td>
<td>3,027,923</td>
<td>4,395,012</td>
</tr>
<tr>
<td>Average Male literates in Jaipur city</td>
<td>82.80</td>
<td>87.27</td>
</tr>
<tr>
<td>Average Female literates in Jaipur city</td>
<td>55.52</td>
<td>64.63</td>
</tr>
<tr>
<td>Average literacy rate of Jaipur city</td>
<td>69.90</td>
<td>76.44</td>
</tr>
</tbody>
</table>

*Source: Census of India 2011*
Table 1.8: Jaipur Population and decadal growth rate by residence - Persons

<table>
<thead>
<tr>
<th>State/District/Code</th>
<th>India/Rajasthan/District</th>
<th>population 2011</th>
<th>Percentage decade Growth (Persons) 2001-2011</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Rural</td>
<td>Urban</td>
</tr>
<tr>
<td>12</td>
<td>Jaipur</td>
<td>6,663,971</td>
<td>3,164,767</td>
</tr>
</tbody>
</table>

Source: RBI, ICAI Research

Table 1.9: Jaipur literacy rate by gender

<table>
<thead>
<tr>
<th>District Code</th>
<th>State/ District</th>
<th>Literacy Rate (in percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Persons</td>
</tr>
<tr>
<td>12</td>
<td>Jaipur</td>
<td>69.9</td>
</tr>
</tbody>
</table>

Source: RBI, ICAI Research

Banking Developments:

- The Lead bank scheme envisaged allotment of districts to banks to enable them to assume leadership in bringing about banking developments in the respective districts. Development in the districts was sought to be achieved by making banks the key instruments for local deployment of credit, entrusting them with the responsibility of locating growth centres, mobilizing deposits, and identifying credit gaps and evolving a coordinated programme for credit deployment in each district, in concert with other banks and credit agencies. In order to enable the banks to assume ‘leadership’ in an effective and systematic manner.

- The Lead Bank was also expected to work for expansion of branch banking facilities and assume a major role in the development of banking and credit in the allocated districts.

- The e-kiosks in villages could be yet another source of operating a remittance system that is accessible to the poor.
1.10.2. Profile of Sikar

The district is located in the North-eastern part of the state. It is connected in the North by Jhunjhunu District, in the North-west by Churu district, in the South-west by Nagaur district and in the South-east by Jaipur district. It is adjacent to Mehandergarh district of Haryana on its North-east corner. Sikar Town is 116 Km, from the capital of Rajasthan Jaipur. It is an important town of Rajasthan. It is well connected with road & railway from Jaipur & other cities of the State. A religious place Khatushyam ji is 65 Km. away from SIKAR & 80 Km. from Jaipur via Reengus. This little village is famous for Shyam ji Temple built in white marble. Temple, ponds for holy dip and shyam garden are worth visiting. A large fair is held every year in the month of Falgunsudi Ekadasi when lacs of people thronged there. A large number of Dharamshala's are there to accommodate thousands of pilgrims. The population of city is 186506 souls as per Census 2001. To improve infrastructure facilities in the city, proposals for water supply, sewerage, etc. of worth 62.50 crores have been tentatively identified by line agency concerned/District Administration. District Collector is working for identifying the total likely investments based on the priority work and deficiencies in the infrastructure sectors in consultation with public representatives including other infrastructure development work like solid waste management, road connectivity, bridges, drainage and development of water bodies work etc.

Demographic Profile of Sikar

In 2011, Sikar had population of 2,677,737 of which male and female were 1,377,120 and 1,300,617 respectively. In 2001 census, Sikar had a population of 2,287,788 of which males were 1,172,753 and remaining 1,115,035 were females. Average literacy rate of Sikar in 2011 were 72.98 compared to 70.47 of 2001. If things are looked out at gender wise, male and female literacy were 86.66 and 58.76 respectively. For 2001 census, same figures stood at 84.34 and 56.11 in Sikar District. Total literate in Sikar District were 1,679,913 of which male and female were 1,016,609 and 663,304 respectively. With regards to gender ratio, it stood at 944 per 1000 male compared to 2001 census figure of 951.
Table 1.10: Population of Sikar

<table>
<thead>
<tr>
<th>Description</th>
<th>2001</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Population</td>
<td>2,287,788</td>
<td>2,677,737</td>
</tr>
<tr>
<td>Total Male Population</td>
<td>1,300,617</td>
<td>1,377,120</td>
</tr>
<tr>
<td>Total Female Population</td>
<td>1,115,035</td>
<td>1,172,753</td>
</tr>
<tr>
<td>Population Density per sq metre</td>
<td>296 people per sq. km</td>
<td>346 people per sq. km</td>
</tr>
<tr>
<td>Gender Ratio (Per 1000)</td>
<td>951</td>
<td>944</td>
</tr>
<tr>
<td>Total literates in Sikar city</td>
<td>1,317,144</td>
<td>1,679,913</td>
</tr>
<tr>
<td>Average Male literates in Sikar city</td>
<td>84.34</td>
<td>86.66</td>
</tr>
<tr>
<td>Average Female literates in Sikar city</td>
<td>56.11</td>
<td>58.76</td>
</tr>
<tr>
<td>Average literacy rate of Sikar city</td>
<td>70.47</td>
<td>72.98</td>
</tr>
</tbody>
</table>

Source: Census of India 2011

Table 1.11: Sikar Population and decadal growth rate by residence - Persons

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>Rural</td>
</tr>
<tr>
<td>13 sikar</td>
<td>2,677,737</td>
<td>2,044,437</td>
<td>633,300</td>
</tr>
</tbody>
</table>

Source: RBI, ICAI Research

Table 1.12.: Sikar literacy rate by gender

<table>
<thead>
<tr>
<th>District Code</th>
<th>State/ District</th>
<th>Literacy Rate (in percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Persons Male</td>
<td>Female</td>
</tr>
<tr>
<td>13  sikar</td>
<td>70.47 72.98 84.34 86.66</td>
<td>56.11 58.76</td>
</tr>
</tbody>
</table>

Source: RBI, ICAI Research

The various works proposed in Sikar are as follows:

To improve infrastructure facilities in the city, proposals for Water Supply (Rs. 22.09 Crore), Sewerage (Rs. 37.98 Crores), Urban Transport and Roads (Rs.14.00 Crores), Solid Waste management(Rs.2.00 Crores), Social Infrastructure(Rs.0.50 Crores) and Urban Drainage (Rs.3.79 Crores) have been identified by concerned line agency / District Administration. Total cost of works is Rs. 80.39 Crores. District Collector is working for identifying the total likely investments based on the priority works and deficiencies in the infrastructure sectors in consultation with public representatives including other infrastructure development works.
1.10.3. Profile of Bikaner

Development of a country or a state is reflected on what and how much it is contributing in the main stream of the flow of currency. In 1962 Bikaner joined the Industrial Development movement. Though somewhat late but in this short span of time its rise is far too long. The first industrial area was delineated and the Bikaner district association formed, in between 1967-70. The callous condition of living in Bikaner which made most of the Bikaneries to move to other regions and start their business there. But now the circumstances have been changed by the hard working and strength of Bikaneries. And also businessmen were encouraged by the state authorities to start industries in their home district. Now not only Bikaneries but people from nearby areas are also participating in this eruption of industrial development. It was early eighties that the small scale industries got the focus and the advancement was achieved at the end of eighties. Industries based on wool, Agricultural products, Chemicals and Ceramics were started in this period. In the present industrial estate, there are 250 fully developed plots with industries working on them. In 1980, the Bikaner industries association mooted the idea of a second industrial estate and accordingly an area of 250 acres of land was set aside and the foundation stone for the scheme was laid by the Chief Minister Shiv Charan Mathur, on October 20, 1982. The most flourishing industries in Bikaner are:

**Woolen Industry**

Bikaner has been the biggest Woolen mandi (Mart) not only in India but also in Asia. The city has been a center of wool trade for over 185 years. The wool from Bikaner is being used at Badhohi, Uttar Pradesh for making of quality carpets. It has been famous for carpet making for centuries. Bikaner Jail is still famous for its carpet weaving.

**Ceramic Industry**

Bikaner has some good deposit of Gypsum at Jamsar, Kolayat 40km from Bikaner. Industries based on white clay, fullers-earth, and yellow ocher are working in Bikaner. Maharaja Ganga Singh had sent silica-sand to Belgium and quality glass articles using this raw material had been specially manufactured and can be seen in the museum in Bikaner even today.
Bhujia and Namkeen Industry

Bikaner is famous worldwide for its Papad and Bhujia. Bhujia has always been identified with Bikaner. The tasty Rajasthani food can never be completed without Bhujia, which is actually a Namkeen prepared with the strength of arm. There are hundreds of big and small units making Papad and Bhujia which provide employment to thousands of people. At present there are about 425 units producing Bhujia in Bikaner district and nearby areas of Shri Dungargarh, Churu, Nagaur and Sri-Gaganagar. Out of these only a few have a proper plant and well planned production system, the rest are small and cottage type industries. The future of industrial development of Bikaner is bright with two essential ingredients, water from the Rajasthan canal and power from the Suratgarh Thermal Power Plant. Development in Bikaner is likely to get a major boost plus the ever hard working population of Bikaner which has evolved itself from the hard terrain life with very less resources and now after Rajasthan canal it is definitely going to be an emerging city.

Demographic Profile of Bikaner

According to Census Data 2011, Bikaner had population of 2,367,745 of which male and female were 1,243,916 and 1,123,329 respectively. There was change of 41.42 percent in the population compared to population as per 2001. The population density of Bikaner is 78 in 2011 as compared to 63 of 2001. Average literacy rate of Bikaner in 2011 were 65.92 as compared to 57.36 of 2001. Gender wise, male and female literacy were 76.90 and 53.77 respectively as compared to 2001. Total literate in Bikaner district were 1,300,806 of which male and female were 797,119 and 503,687 respectively. With regards to gender ratio in Bikaner it stood at 903 per 1000 male compared to 2001 census figure of 890. The percentage decadal growth rate of total population (2001-2011) is 24.48 and for rural and urban areas is 23.93 and 25.57 respectively.
Table 1.13: Population of Bikaner

<table>
<thead>
<tr>
<th>Description</th>
<th>2001</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Population</td>
<td>1,674,271</td>
<td>2,367,745</td>
</tr>
<tr>
<td>Total Male Population</td>
<td>886,075</td>
<td>1,243,916</td>
</tr>
<tr>
<td>Total Female Population</td>
<td>788,196</td>
<td>1,123,329</td>
</tr>
<tr>
<td>Population Growth</td>
<td>29.62%</td>
<td>41.42%</td>
</tr>
<tr>
<td>Population Density per sq metre</td>
<td>63</td>
<td>78</td>
</tr>
<tr>
<td>Gender Ratio (Per 1000)</td>
<td>890</td>
<td>903</td>
</tr>
<tr>
<td>Total literates in Bikaner city</td>
<td>7,66,862</td>
<td>1,300,806</td>
</tr>
<tr>
<td>Average Male literates in Bikaner city</td>
<td>70.65</td>
<td>76.90</td>
</tr>
<tr>
<td>Average Female literates in Bikaner city</td>
<td>42.45</td>
<td>53.77</td>
</tr>
<tr>
<td>Average literacy rate of Bikaner city</td>
<td>57.36</td>
<td>65.92</td>
</tr>
</tbody>
</table>

Source: Census of India 2011

Table 1.14: Bikaner Population and decadal growth rate by residence - Persons

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Bikaner</td>
<td>2,367,745</td>
<td>24.48 23.93 25.57</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1,564,009</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>803,736</td>
<td></td>
</tr>
</tbody>
</table>

Source: RBI, ICAI Research

Table 1.15: Bikaner literacy rate by gender

<table>
<thead>
<tr>
<th>District Code</th>
<th>State/ District</th>
<th>Literacy Rate (in percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Persons</td>
<td>Male</td>
</tr>
<tr>
<td>3</td>
<td>Bikaner</td>
<td>57.36</td>
</tr>
</tbody>
</table>

Source: RBI, ICAI Research

1.10.4. Profile of Churu

Churu, the desert city like an oasis, situated in the middle of the shifting golden sand dunes, opens the gate to the great desert of Thar. Geographically, it lies in 28° 18’ N latitude and 74° 58’ E longitude. Churu has a population of 1, 01,874 as per 2001 census. Churu is a junction station on Rewari-Bikaner railway line. The railway track is meter gauge and is being converted to broad gauge. Churu lies on NH 65 and is connected to all major cities by all-weather roads. The town gets drinking water from local wells which are hard and brackish. In the town, area drinking water supply is managed by water dept.
of Govt. of Rajasthan. The Govt. is trying to get drinking water for the area from Indira Canal. The main source of irrigation for farmers continues to be rain water and wells at a few places. To improve infrastructure facilities in the city, proposals for augmentation of Water Supply, Sewerage, etc. of worth 88.48 crores have been tentatively identified by line agency concerned/District Administration. District Collector is working for identifying the total likely investments based on the priority work and deficiencies in the infrastructure sectors in consultation with public representatives including other infrastructure development work like solid waste management, road connectivity, bridges, drainage and development of water bodies work etc.

**Demographic Profile of Churu:**

In 2011, Churu had population of 2,041,172 of which male and female were 1,053,375 and 987,797 respectively. In 2001 census, Churu had a population of 1,923,878 of which males were 987,781 and remaining 936,097 were females. There was change of 6.10% in the population compared to population as per 2001. In the previous census of India 2001, Average literacy rate of Churu in 2011 were 67.46 compared to 67.59 of 2001. If things are looked out at gender wise, male and female literacy were 79.95 and 54.25 respectively. For 2001 census, same figures stood at 80.26 and 54.36 in Churu District. Total literate in Churu District were 1,165,255 of which male and female were 709,852 and 455,403 respectively. In 2001, Churu District had 1,028,880 in its district. With regards to gender ratio it stood at 938 per 1000 male compared to 2001 census figure of 948.

<table>
<thead>
<tr>
<th>Description</th>
<th>2001</th>
<th>2011</th>
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<tbody>
<tr>
<td>Actual Population</td>
<td>1,923,878</td>
<td>2,041,172</td>
</tr>
<tr>
<td>Total Male Population</td>
<td>987,781</td>
<td>1,053,375</td>
</tr>
<tr>
<td>Total Female Population</td>
<td>936,097</td>
<td>987,797</td>
</tr>
<tr>
<td>Population Growth</td>
<td>26.08%</td>
<td>6.10%</td>
</tr>
<tr>
<td>Population Density per sq metre</td>
<td>123</td>
<td>148</td>
</tr>
<tr>
<td>Gender Ratio (Per 1000)</td>
<td>948</td>
<td>938</td>
</tr>
<tr>
<td>Total literates in Churu city</td>
<td>1,028,880</td>
<td>1,165,255</td>
</tr>
<tr>
<td>Average Male literates in Churu city</td>
<td>79.95</td>
<td>80.26</td>
</tr>
<tr>
<td>Average Female literates in Churu city</td>
<td>54.36</td>
<td>54.25</td>
</tr>
<tr>
<td>Average literacy rate of Churu city</td>
<td>67.59</td>
<td>67.46</td>
</tr>
</tbody>
</table>

*Source: Census of India 2011*
Table 1.17: Churu Population and decadal growth rate by residence - Persons

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<tr>
<td></td>
<td></td>
<td>Total</td>
<td>Rural</td>
</tr>
<tr>
<td>4</td>
<td>Churu</td>
<td>2,041,172</td>
<td>1,464,691</td>
</tr>
</tbody>
</table>

*Source: RBI, ICAI Research*

Table 1.18.: Churu literacy rate by gender

<table>
<thead>
<tr>
<th>District Code</th>
<th>State/ District</th>
<th>Literacy Rate (in percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Persons</td>
<td>Male</td>
</tr>
<tr>
<td>4</td>
<td>Churu</td>
<td>67.59</td>
</tr>
</tbody>
</table>

*Source: RBI, ICAI Research*

The various works proposed in Churu are as follows:

To improve infrastructure facilities in the city, proposals for augmentation of Water Supply (Rs. 27.60 Crores), Sewerage (Rs 35.00 Crores), Urban Transport and Roads(Rs 22.63 Crores),Solid Waste management (Rs 2.00 Crores) and Social Infrastructure(Rs 1.25 Crores)has been identified by concerned line agency / District Administration. Total cost is Rs.88.48 Crores. District Collector is working for identifying the total likely investments based on the priority works and deficiencies in the infrastructure sectors in consultation with public representatives including other infrastructure development works like Solid Waste Management, road connectivity, Bridges, Drainage and Development of Water Bodies works etc.
1.11. Profile of Banks and their Banking services

Private Sector Banks

All the banks in India were earlier private banks. They were founded in the pre-independence era to cater to the banking needs of the people. But after nationalisation of banks in 1969 public sector banks came to occupy dominant role in the banking structure. Private sector banking in India received a flip in 1994 when Reserve Bank of India encouraged setting up of private banks as part of its policy of liberalisation of the Indian Banking Industry. Housing Development Finance Corporation Limited (HDFC) was amongst the first to receive an 'in principle' approval from the Reserve Bank of India (RBI) to set up a bank in the private sector.

Private Banks have played a major role in the development of Indian banking industry. They have made banking more efficient and customer friendly. In the process they have jolted public sector banks out of complacency and forced them to become more competitive. It is by now well recognised that India is one of the fastest growing economies in the world. Evidence from across the world suggests that a sound and evolved banking system is required for sustained economic development. India has a better banking system in place of other developing countries. Some of the commonly known private sector banks which have used in this study are as below:

1.11.1. ICICI Bank:

ICICI Bank is the largest private sector bank in India in terms of market capitalization. It is also the second largest bank in India in terms of assets with a total asset of Rs. 3,674.19 billion (US$ 77 billion) as on June 30, 2009, the total profit after tax has been Rs. 8.78 billion. Formerly known as Industrial Credit and Investment Corporation of India, ICICI Bank has an extensive network of 2,546 branches with about 7,440 ATMs located across India and in 18 other countries. ICICI Bank serves about 24 million customers throughout the world. It is considered as one of the big four banks in India along with State Bank of India, HDFC Bank and Axis Bank. ICICI Bank provides a wide range of banking products and financial services to its retail and corporate customers. It has a wide variety of delivery channels and specialized affiliates and subsidiaries that ensure the flow of its offerings in the areas like investment banking, venture capital, life and non-life insurance and asset management. This bank is also India largest credit card issuer. The equity share
of ICICI Bank is listed on various stock exchanges like NSE, BSE, Calcutta Stock Exchange and Vadodara Stock Exchange etc. Its ADRs are also listed on the New York Stock Exchange. ICICI Bank also has the largest international balance sheet among all the banks in India. It is also expanding its business in the overseas market at an enviable pace. The Bank currently has subsidiaries in the United Kingdom, Russia and Canada, branches in United States, Singapore, Bahrain, Hong Kong, Sri Lanka, Qatar and Dubai International Finance Centre and representative offices in United Arab Emirates, China, South Africa, Bangladesh, Thailand, Malaysia and Indonesia. Our UK subsidiary has established branches in Belgium and Germany.

To maximize the benefits of these innovations, the development of a high quality shared banking technology platform which can be used by MFIs as well as by cooperatives banks and regional rural banks is needed. ICICI is strongly encouraging such an effort to take place. Wipro and Infosys, I-Flex, 3iInfotech, some of the best Indian information technology companies specialized in financial services. And the reason why ICICI Bank is spending so much on technology is primarily because of two reasons - customer expectations and behaviour is changing rapidly in India and second, the diversified customer base in India.

1.11.2. HDFC Bank:

The Housing Development Finance Corporation Limited (HDFC) was amongst the first to receive an 'in principle' approval from the Reserve Bank of India (RBI) to set up a bank in the private sector, as part of the RBI's liberalisation of the Indian Banking Industry in 1994. The bank was incorporated in August 1994 in the name of 'HDFC Bank Limited', with its registered office in Mumbai, India. HDFC Bank commenced operations as a Scheduled Commercial Bank in January 1995.

HDFC Bank's mission is to be a World-Class Indian Bank. The objective is to build sound customer franchises across distinct businesses so as to be the preferred provider of banking services for target retail and wholesale customer segments, and to achieve healthy growth in profitability, consistent with the bank's risk appetite. The bank is committed to maintain the highest level of ethical standards, professional integrity, corporate governance and regulatory compliance. HDFC Bank's business philosophy is
based on four core values - Operational Excellence, Customer Focus, Product Leadership and People. HDFC Bank operates in a highly automated environment in terms of information technology and communication systems. All the bank's branches have online connectivity, which enables the bank to offer speedy funds transfer facilities to its customers. Multi-branch access is also provided to retail customers through the branch network and Automated Teller Machines (ATMs). Currently has a nationwide network of 2,150 Branches and 6,838 ATM's in 1,141 Indian towns and cities.

The Bank has made substantial efforts and investments in acquiring the best technology available internationally, to build the infrastructure for a world class bank. The Bank's business is supported by scalable and robust systems which ensure that our clients always get the finest services. HDFC Bank offered its customers the use of ATMs, internet, phone and mobile banking in addition to its expanded branch network to serve their banking needs. The increase in the Bank’s debit card base this year coupled with a growth in its ATM network translated to an increase in ATM transactions by 14%. The Bank also made strong inroads in its internet banking channel with around 60% of its registered customers now using net banking facilities for their banking requirements. Your bank now offers phone banking in 996 locations in addition to giving its customers the convenience of accessing their bank accounts over their mobile phones. The success of the Bank’s multi-channel strategy is evidenced in the fact that over 80% of customer initiated transactions are serviced through the non-branch channels.

The Bank has prioritised its engagement in technology and the internet as one of its key goals and has already made significant progress in web-enabling its core businesses. In each of its businesses, the Bank has succeeded in leveraging its market position, expertise and technology to create a competitive advantage and build market share. Following are the initiatives taken by HDFC bank:

a. **Information Technology**

HDFC Bank has made substantial investments in its technology platform and systems, built multiple distribution channels, including an electronically linked branch network, Automated telephone banking, internet banking and banking through mobile phones, to offer its customers convenient access to various products. The Bank has templatized credit underwriting through automated customer data de-duplication and real-time
scoring in its loan origination process. Having enhanced its cross selling and up-selling capabilities through data mining and analytical customer relationship management solutions, the Bank’s technology enables it to have a 360° view of its customers. Bank employs event detection technology based customer messaging and has deployed an enterprise wide data warehousing solution as a back bone to its business intelligence system. Implementation of a risk management engine for internet transactions has reduced the phishing and man in the middle attacks significantly. The bank has also implemented a digital certificates based security engine for corporate internet banking customers. Credit and debit cards usage of the Bank’s customers is secured by powerful proactive risk manager technology solutions which does rules based SMS alerts as well as prompts customer service representatives to call the customer on detecting abnormal usage behaviour. This prevents frauds and minimizes losses to customers, if the card has been stolen and yet to be hot listed.

Sophisticated automated switch-over and switch-back solutions power the Bank’s disaster recovery management strategy for key core banking solutions in its data centre, improving availability of your Bank’s services to its customers. With the various initiatives that Bank has taken using technology, it has been successful in driving the development of innovative product features, reducing operating costs, enhancing customer service delivery and minimizing inherent risks.

**ii. Rural Initiative**

The Bank has a number of its branches in rural and under-banked locations. In these branches the Bank offers products and services such as savings, current, fixed & recurring deposits, loans, ATM facilities, investment products such as mutual funds and insurance, electronic fund transfers, drafts and remittances etc. The Bank also leverages some of these branches as hubs for other inclusion initiatives such as direct linkages to self help groups and to promote mutual guarantee micro loans, POS terminals and information technology enabled kiosks, as well as other ICT initiatives such as mobile banking in these locations. The Bank covers over 4,000 villages in the country through
various distribution set ups; these include branches and business correspondents. Over half of the above villages are those having a population of less than 2,000 that have typically been financially excluded from the formal banking sector.

A number of retail credit products such as two-wheeler loans, car loans, mortgages etc. that are consumption products in urban centres happen to be means of income generation for rural consumers. Apart from loans directly linked to agriculture such as pre and post harvest credit, there are many other credit products that the Bank uses to aid financial betterment in rural locations. The Bank has extended provision of its retail loans to large segments of the rural population where the end use of the products acquired (by availing our loans) issued for income generating activities. For example, loans for tractors, commercial vehicles, two wheelers etc. supplement the farmer’s income by improving productivity and reducing expenses.

1.11.3. IndusInd Bank:

IndusInd Bank Ltd., one of the leading new generation private-sector banks in India, commenced operations in 1994 and built up its net worth to Rs. 866 crore as at March 31, 2006. Indusind Bank is the first among the new-generation private banks in India. Driven by technology, the Bank constantly upgrades its support systems for the introduction of retail banking products and alternative delivery channels, while continuing to expand its network of branches. It is also working on expanding its network of branches all across the country along with meeting the global benchmark. According to the bank, its name is derived from the rich and vivid Civilisation. In its twelve years of existence, the Bank has displayed its commitment to global benchmarks in retail banking by proactively adopting the requirements of ISO 9001:2000 quality certification for its entire network of branches. It was one of the first banks to go live on the RTGS platform and enjoys clearing bank status for both major stock exchanges - BSE and NSE and both major commodity exchanges in the country Bank has expanded its retail portfolio. It is a large player in the financing of commercial vehicles, utility vehicles, 2/3-wheelers and construction equipment. The Bank has been given the highest A1+ rating for its Certificates of Deposits by ICRA. The Bank has been awarded the highest P1+ rating for its FDs by CRISIL, who have also assigned the highest safety ratings to the Bank’s pass through Certificates for securitized assets. It also offers DP facilities for stock and commodity segments. The Bank has been bestowed with the mandate of being a Settlement Banker for six tea auction centres. In a pioneering initiative in 'Green Banking' project, the Bank opened its first solar-power ATM in Maharashtra. The Bank received a series of accolades commencing with the prestigious 'Technology Bank of the Year-2009' award in the private and foreign bank category from the Indian Banks' Association (IBA).
1.11.4. **AXIS Bank**

Axis Bank was the first of the new private banks to have begun operations in 1994, after the Government of India allowed new private banks to be established. The Bank was promoted jointly by the Administrator of the specified undertaking of the Unit Trust of India (UTI-I), Life Insurance Corporation of India (LIC) and General Insurance Corporation of India (GIC) and other four PSU insurance companies, i.e. National Insurance Company Ltd., The New India Assurance Company Ltd., The Oriental Insurance Company Ltd. and United India Insurance Company Ltd. The Bank as on 30th September, 2011 is capitalized to the extent of Rs. 412.32 crores with the public holding (other than promoters and GDRs) at 52.07%. The Bank's Registered Office is at Ahmedabad and its Central Office is located at Mumbai. The Bank has a very wide network of more than 1281 branches (including 169 Service Branches/CPCs as on 31st March, 2011). The Bank has a network of over 7591 ATMs (as on 30th September, 2011) providing 24 hrs a day banking convenience to its customers. This is one of the largest ATM networks in the country. The Bank has strengths in both retail and corporate banking and is committed to adopting the best industry practices internationally in order to achieve excellence.

Axis Technical Group's Custom Software Development services provide clients with the same advantages found during their own in-house development but without the additional payroll and benefit demands on the bottom line.

1.12. **Technology in Banking**

Technology is expected to be the main facilitator of change in the financial sector. Implementation of technology solutions involves huge capital outlay. Besides the heavy investment costs, technology applications also have a high degree of obsolescence. 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 to best deliver the 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.

d) How to create a customer-centric operation model.

Rationalization of a very large network of branches, which at present has rendered the system cost ineffective and deficient in service, would take place. Most of the banks would have adopted core-banking solutions in a fully networked environment. Back office functions would be taken away from branches to a centralized place. While brick and mortar branches would continue to be relevant in the Indian scenario, the real growth driver for cost cutting would be virtual branches viz., ATMs, Internet Banking, mobile banking, kiosks etc., which can be manned by a few persons and run on 24x7 basis to harness the real potential of these technological utilities. There will be strategic alliances/partnership amongst banks and this phenomenon has already set in. Entry of ATMs has changed the profile of front offices in bank branches. Customers no longer need to visit branches for their day to day banking transactions like cash deposits, withdrawals, cherub collection, balance enquiry etc. E-banking and Internet banking will open new avenues in “convenience banking” as follows:

- Technology solutions would make flow of information much faster, more accurate and enable quicker analysis of data received. Operational effectiveness & internal efficiency
- Collaborative tools to help create, cultivate, and disseminate knowledge.
- Accessibility to data, information, and knowledge.
- The ability to easily search across and retrieve relevant information.
- A project management system based on complete project lifecycle.
- Resource management systems which improve linkages.
This would make the decision making process faster and more efficient. For the Banks, this would also enable development of appraisal and monitoring tools which would make credit management much more effective. The result would be a definite reduction in transaction costs, the benefits of which would be shared between banks and customers. While application of technology would help banks reduce their operating costs in the long run, the initial investments would be sizeable. IT spent by banking and financial services industry in USA is approximately 7% of the revenue as against around 1% by Indian Banks. With greater use of technology solutions, IT spent of Indian banking system will go up significantly.

Payment and Settlement system is the backbone of any financial market place.

The present Payment and Settlement systems such as Structured Financial Messaging System (SFMS), Centralized Funds Management System (CFMS), Centralized Funds Transfer System (CFTS) and Real Time Gross Settlement System (RTGS) will undergo further fine-tuning to meet international standards. Needless to add, necessary security checks and controls will have to be in place. In this regard, Institutions such as IDRBT will have a greater role to play. The composition of bank staff will change. As total computerization will render a part of the workforce surplus, banks will go for a rightsizing exercise. Some may resort to another round of VRS to shed excess flab while some other may go for re-deployment to strengthen marketing arms. With greater use of technology and outsourcing of services in different areas, the manpower recruitment will mostly be in specialized areas and technology applications. With commitment shifting from the organization to the profession, greater lateral movement of banking personnel is seen. Training and skill development will, however, continue to be key HR functions. With the age profile of staff undergoing changes, banks will have to focus on leadership development and succession planning. Knowledge management will become a critical issue.
1.12.1. Banking services in India

With years, banks are adding services to their customers. The Indian banking industry is passing through a phase of customers market. The customers have more choices in choosing their banks. A competition has been established within the banks operating in India. With stiff competition and advancement of technology, the service provided by banks has become more easy and convenient. The past days are witness to an hour wait before withdrawing cash from accounts or a cheque from north of the country being cleared in one month in the south.

This section of banking deals with the latest discovery in the banking instruments along with the polished version of their old systems. Extending loans to individuals and businesses

- Cashing cheques
- Facilitating money transactions such as wire transfers and cashier's checks
- Issuing credit cards, ATM cards, and debit cards
- Storing valuables, particularly in a safe deposit box
- Cashing and distributing bank rolls
- Consumer & commercial financial advisory services.
- Pension & retirement planning.

The followings are the few technologies, which are very commonly used by public and private banks-

1.12.2. Electronic banking

The changing need of customer reflects the expectation of value added service for basic banking requirements. This is made possible in the post liberalization environment where technology enables banks to provide “Anytime-Anywhere-Banking” to the increasingly demanding customers. The new concept of e-banking has broken the barriers of branch banking. Customer whether individuals or corporate no longer have to go to the bank to do their business. It can be done from home and office 24x7 using the PC or the telephone and through the system of Internet banking.
Electronic Banking’ means banking done through electronic systems for customer transactions (front office computerization) and internal accounting and book keeping (back office computerization), as against the traditional manual system of banking. It may also include the decision support system for various levels of management and marketing/ cross-selling through electronic medium. E-banking is a mix of services which include internet banking, mobile banking, ATM kiosks, fund transfer system, real time gross settlement, cash management services, credit/debit/kisan cards/smart cards, operational data for MIS and customer relationship management. Electronic banking is the result of the several useful advancements in the Information technology and Communication technology made in the last two decades. Communication channel can be of three types – bit serial, byte serial and parallel. For faster communication, data compressions techniques are used. For secure transmission data encryption techniques are used. E-mail is used for transmission of data from one place to another with speed, accuracy and security. Email can be used over dial-up line or a dedicated line. The dedicated leased line connectivity can be via satellite link or terrestrial link. VSAT networks are used across banking industry for many on-line applications. Following are the new banking technologies:

i. Automated Teller Machines (ATMs):

ATM is a computer driven system which is user friendly and operates 24 hours a day and 7 days a week. It is totally menu-driven, which displays step-by-step instructions for the customer. ATM can be accessed by a customer by using his ATM card to gain entry into the ATM room and the Personal Identification Number (PIN) for desired transactions. ATMs are installed at banking premises (on-site ATMs) for which no license is required from RBI. For non-branch ATMs at public places (off-site ATMs), banks have to obtain license post-facto. Many banks have opened off-site ATMs at airports, railway stations, petrol pumps, market centre’s, universities etc.

ATM on ship or airliner: This can be even lighter than an on-road ATM and should be able to perform certain specific travel needs, e.g. main currency exchanges relating to the destination, acceptance of certain kinds of credit cards (global cards), debit cards for payments/purchases. This requires communication with the central data base which is
compatible with the navigational system of the aircraft/ ship. A full-fledged ATM can perform the following functions, although only some of them are being provided in the ATMs of most banks in India:

a) Cash dispensing
b) Generating statement of account
c) Account balance enquiry
d) Request for cheque book.
e) Deposit of cash/ cheques etc.
f) Issue of gift cheques/ traveler’s cheques
g) Utility payments like telephone bills, electricity bills.

The main **advantages** of ATMs are:

- Round the clock banking for 365 days in a year.
- Customer can choose his own time of banking at any time or any day of the week.
- They offer quick and efficient service.
- Their response is uniform and fixed for all customers as per the programme set. There is no scope for discourteous or subjective behavior as happens with human interaction at a bank’s counters.

However, there are some **limitations** of ATMs as follows:

- Cash withdrawals are restricted to certain amounts fixed by the bank and notified to ATM card holders.
- Cash dispensation is restricted to certain denomination of currency notes- usually Rs. 50/100/ 500.
- ATM performs only the limited functions. For other functions, the customer has to visit branch or make enquiries from the concern call centre.

Big banks have installed their own ATMs – on-site and off-site. Banks which do not have their own ATMs or which have only few ATMs and want to have a wider use of ATMs for their customers enter into arrangements with other banks for such usage on a mutually
agreed sharing arrangement on fee basis. **Shared Payment Network System** (SPNS) is used by the participating banks that are connected to the network by a host computer. SPNS was in vogue in 1990’s in Mumbai among commercial banks, when the number of ATMs was limited due to high capital cost of installing ATMs. SPNS enables one bank/branch customer to access another bank/branch ATM, nearer to his residence/office, for putting through the permitted transactions. It also helps better utilization of resources to a larger section of customers.

**Future perspectives of ATMS**

1. E-ticketing in railways, roadways, movies and railways.
2. Providing international payment networks such as visa and MasterCard.
3. ATM with multicity lingual biometric facility.
4. Establishing connectivity with point of sale (pos) terminals at merchant establishments.

ATM is designed to perform the most important function of bank. It is operated by plastic card with its special features. The plastic card is replacing cheque, personal attendance of the customer, banking hour’s restrictions and paper based verification. There are debit cards. ATMs used as spring board for Electronic Fund Transfer. ATM itself can provide information about customers account and also receive instructions from customers - ATM cardholders. An ATM is an Electronic Fund Transfer terminal capable of handling cash deposits, transfer between accounts, balance enquiries, cash withdrawals and pay bills. It may be on-line or off-line. The on-line ATM enables the customer to avail banking facilities from anywhere. In off-line the facilities are confined to that particular ATM assigned. Any customer possessing ATM card issued by the Shared Payment Network System can go to any ATM linked to Shared Payment Networks and perform his transactions.
ii. Biometric ATM:

A biometric system is a real-time identification system which identifies a person by measuring a particular physical or behavioural characteristic and later comparing it to a library of characteristics belonging to many people. Fingerprint and other biometric devices consist of a reader or scanning device, software that converts the scanned information into digital form, and wherever the data is to be analyzed, a database that stores the biometric data for comparison with previous records. When converting the biometric input, the software identifies specific points of data as match points. The match points are processed using an algorithm into a value that can be compared with biometric data scanned when a user tries to gain access. Thus biometric devices can be explained as:

- A sensor takes an observation. The type of sensor and its observation depend on the type of biometrics device used. This observation gives us a **Biometric Signature** of the individual.
- A computer algorithm **Anomalies** the biometric signature so that it is in the same format (size, resolution, etc.) as the signatures on the system's database. The normalization of the biometric signature gives us an **Normalized Signature** of the individual. A matcher compares the normalized signature with the set (or sub-set) of normalized signatures on the system's database and provides a **similarity score** that compares the individual's normalized signature with each signature in the database set (or sub-set). What is then done with the similarity scores depends on the biometric system's application.

Thus a biometric system is essentially a **pattern recognition system**, which makes a personal identification by determining the authenticity of a specific physiological or behavioural characteristic possessed by the user. An important issue in designing a practical system is to determine how an individual is identified. Depending on the context, a biometric system can be either a **verification (authentication) system** or an **identification system**. Banks in India have started introducing biometric automatic teller machines (ATMs) as it seems to be an effective way of preventing PIN theft and is also a channel to expand a bank's reach to the rural & illiterate masses, according to Bank net India's Report on Indian ATMs. Union Bank of India installed a first such 'Kisan ATM' at Sivagangai branch Tamil Nadu. Dena Bank has launched the Bio-metric ATMs in Gujarat. Andhra Bank has launched two mobile biometric-access ATMs, one each for the Twin Cities of Hyderabad and Secunderabad. Corporation bank has also introduced 'talking' biometric ATMs. These ATMs 'talk' to the farmers in their local language. The
biometric ATM replaces personal identity number (PIN) with thumb impression. The fingerprint scanner fitted in the machine only recognizes the customer's thumb impression. These Kisan ATMs are designed for the rural farmer and incorporate video & voice animation system coupled with single-touch application that makes things not only easier but also safer for farmers who no longer have to depend on others to withdraw money from the bank. Such ATMs from some providers also accept traditional PIN based cards. Two of India's largest banks, ICICI Bank and State Bank of India, are partners in the Centre's national rural employment guarantee scheme (NREGS) in certain parts of rural Tamil Nadu. As many as 10 'gram tellers', or low-cost ATMs, will be rolled out in the test phase in the state.

iii. **Mobile Banking:**

Mobile banking, as the name indicates, is in contrast to the traditional ‘brick and mortar’ banking which is done from a fixed branch premises where the customers have to go for transacting the desired banking transactions. Mobile banking tries to reach the customer to enable him/ her to transact banking. Mobile banking is used in two different senses. Banking through a mobile van (called mobile bank), with or without computerized banking system, which moves from one place to other on designated routes at designated hours and the customers can transact their routine banking, like cash deposit and withdrawals, draft issue, cheque collection, cheque book issue, pass book update.

The main advantages of this type of mobile bank are:

a) lower capital investment as compared to a ‘brick and mortar’ bank.

b) Larger area coverage.

c) Banker visiting customers for banking, rather than the other way in a conventional bank.

d) It also serves as a tool for marketing on special events, like exhibitions, melas, festivals.

e) Safety and security of cash, equipments and records.
f) On-line communication with base office.

g) Wireless technology for data communication and on-line back-up for transactions.

iv. SMS banking:

SMS banking is a technology-enabled service offering from banks to its customers, permitting them to operate selected banking services over their mobile phones using SMS messaging. Individuals or customers can manage their bank accounts, check their account balances, money transfers, paying bills and perform other banking transactions using their mobile phones. There are two methods of SMS widely used in applications; they are the PUSH & PULL.

Push messages are those that bank chooses to send to a customer's mobile phone, without the customer initiating a request for the information. It is a one way message. Typically push messages could be either mobile marketing messages or messages alerting an event which happens in the customer's bank account, such as a large withdrawal of funds from the ATM or a large payment using the customer's credit card, etc. Another type of push message is One-time password (OTPs). OTPs are the latest tool used by financial and banking service providers in the fight against cyber fraud. Instead of relying on traditional memorized passwords, OTPs are requested by consumers each time they want to perform transactions using the online or mobile banking interface. When the request is received the password is sent to the consumer’s phone via SMS. The password is expired once it has been used or once its scheduled life-cycle has expired.

Pull messages are those that are initiated by the customer, using a mobile phone, for obtaining information or performing a transaction in the bank account. This is a full duplex scenario where a user sends a request to the SMS banking application and the application replies with the information requested. Examples of pull messages for information include an account balance enquiry, or requests for current information like currency exchange rates and deposit interest rates, as published and updated by the bank. The bank’s customer is empowered with the capability to select the list of activities (or alerts) that he/she needs to be informed. This functionality to choose activities can be
done either by integrating to the internet banking channel or through the bank’s customer service centre. Depending on the selected extent of SMS banking transactions offered by the bank, a customer can be authorized to carry out either non-financial transactions, or both and financial and non-financial transactions. SMS banking solutions offer customers a range of functionality, classified by push and pull services as outlined below:

Typical push services would include:

- Periodic account balance reporting (say at the end of month).
- Reporting of salary and other credits to the bank account.
- Successful or un-successful execution of a standing order.
- Successful payment of a cheque issued on the account.
- SMS alerts when your salary is credited to your account, or when you make ATM cash withdrawal.
- Insufficient funds.
- Large value withdrawals on an account.
- Large value withdrawals on the ATM or EFTPOS on a debit card.
- Large value payment on a credit card or out of country activity on a credit card.
- One-time password and authentication

Typical pull services would include:

- Account balance enquiry.
- Mini statement request.
- Electronic bill payment.
- Transfers between customers own accounts, like moving money from a savings account to a current account to fund a cheque.
- Stop payment instruction on a cheque.
- Requesting for an ATM card or credit card to be suspended.
- De-activating a credit or debit card when it is lost or the PIN is known to be compromised.
- Foreign currency exchange rates enquiry.
• Fixed deposit interest rates enquiry.

v. Tele- Banking:

Tele-banking refers to banking on phone services a customer can access information about his/her account through a telephone call and by giving the coded Personal Identification Number (PIN) to the bank. Tele-banking is extensively user friendly and effective in nature.

i. To get a particular work done through the bank, the users may leave his instructions in the form of message with bank.

ii. Facility to stop payment on request. One can easily know about the cheque status.

iii. Information on the current interest rates.

iv. Information with regard to foreign exchange rates.

v. Request for a DD or pay order.

vi. D-Mat Account related service.

Tele-banking requires the authorized customers to use a special telephone number of the bank from anywhere and at any time. Thus the chief advantage of tele-banking is that there are no geographic or time restrictions for the customer for banking transactions. Tele-banking is of two kinds:

a) **Public enquiry:** General information about the banking services/ facilities can be obtained by customers and non-customers alike, by dialing a special enquiry number of the bank (call centre) and the desired information can be obtained after reaching the concerned extension number/ desk.

b) **Private enquiry:** This relates to account specific information and can be accessed only by the account holder by disclosing his/ her secret Personal Identification Number (PIN) and customer ID. The following banking facilities are available via Tele-banking:
• Balance enquiry,
• Request for cheque book/ statement of account: which are sent by courier to the customer,
• Request for draft or cash withdrawal: These facilities are made by few banks and to selective clients by using a special telephone number. The customer gives his PIN and customer ID and tells the amount of the withdrawal. Draft and other particulars. The cash or draft is sent by the bank to the customer at the recorded address and delivered to him/her against the cheque for the amount plus service charges.

vi. **Internet Banking:**

Internet banking is on-line banking from home or anywhere and it provides ‘anywhere and anytime’ banking access to one’s accounts and public information put on its web site by the bank. It has been introduced by most of the commercial banks in India which have fully computerized their operations involving back-office and internal accounting system. Just as the bank staff accesses the account of a customer on-line, the customer can also access his/her account on-line via internet.

Requisites of Internet banking: These are

1. A Personal Computer,
2. A telephone link
3. A modem
4. An arrangement with one of the Internet Service Providers, e.g. VSNL, Satyam.

Internet banking is different from Tele-banking in the following ways:

• In Internet banking the customer himself accesses the desired information about his account through internet connected to the bank data base and the position of the accounts is displayed on his PC screen, which can be browsed by him. In Tele-banking the information is furnished to the customer from the call centre over telephone line.
The customer cannot order cash withdrawal through internet banking, but he can transfer amount from one of his account to another and also to the third parties account within the authorized limits.

The advantages of internet banking are:

- To improve customer access
- To facilitate more services
- To increase customer loyalty
- To attract new customers
- To provide services offered by competitors
- To reduce customer attrition

The Limitation of internet banking is as:

i) Security and trust

ii) Frequent changes in site features

Internet banking (or E-banking) means any user with a personal computer and a browser can get connected to his bank -s website to perform any of the virtual banking functions. In internet banking system the bank has a centralized database that is web-enabled. All the services that the bank has permitted on the internet are displayed in menu. Any service can be selected and further interaction is dictated by the nature of service. The traditional branch model of bank is now giving place to an alternative delivery channels with ATM network. Once the branch offices of bank are interconnected through terrestrial or satellite links, there would be no physical identity for any branch. It would a borderless entity permitting anytime, anywhere and anyhow banking.

The network which connects the various locations and gives connectivity to the central office within the organization is called intranet. These networks are limited to organizations for which they are set up. SWIFT is a live example of intranet application.
vii. IVRS (Interactive Voice Response System):

Interactive Voice Response System is a technology that allows a computer to detect voice and keypad inputs. IVR technology is used extensively in telecommunications. IVR System can respond with pre recorded or dynamically generated audio to further direct users on how to proceed. IVR System can be used to control almost any functions where the interface can be broken down into a series of simple menu choices. In telecommunications applications, such as customer support lines, IVR Systems generally scale well to handle large call volumes.

viii. Electronic Data Interchange (EDI):

EDI is a technique used to communicate business, financial and transaction information between computer systems of different organizations and their business partners. EDI was first used in North America by retail industries in the late 1960s. In mid-1980s EDI was introduced in other areas including automotive, manufacturing, distribution and tourism sectors. In banks, Financial EDI (FEDI) is mostly used to settle the bills with the objective of ‘making the right financial resources available at the right time’. Banks can play a vital role in FEDI for the payments in real time. Banks have to interact with the systems of customers on one side and the service providers on the other side. It enables the customers to view/download account details. EDI implementation in banks results in reduced cost, improved efficiency and customer satisfaction resulting in improved growth and profitability. In India, EDI is implemented between the Indian Bank and Chennai Customs and Port Trust.

1.12.3. Payment and Settlement Systems

As part of the restructuring of the banking sector, special emphasis has been accorded to improvements in payment and settlement systems. Prominent among the measures initiated in these areas include introduction of Electronic Funds Transfer (EFT), Centralized Funds Management System (CFMS), the NDS and the Structured Financial
Messaging Solution (SFMS). The SFMS is the backbone for all messages-based communication over the Indian Financial Network (INFINET).

**Importance of Payment System**

Payment systems are a vital part of the financial infrastructure of a country. The efficient functioning of electronic payment system allows transactions to be completed safely and in a timely manner contributing to overall economic performance. It is important to enhance customer’s base and to maintain and enhances stiff competition in the system. Safe and efficient payment systems are fundamental to promote financial stability. It enhances the efficiency of the banking system and the economy as a whole. In India large value payment system, clearing house system is the faster and speedier clearing system that transfers money between banks and financial institutions. The failure of payment system could contribute to systemic crisis and transmit financial shocks to the financial system.

**Benefits of Electronic Payment Systems**

i. Security: E-payment is secure. Improved payment verification and auditing through real-time authorization and verification.

ii. Speed: Confirmation of the payment made by customers reaches in moments.

iii. Cost: Reduced transaction processing time and costs.

iv. Convenience: Electronic payment system helps in improving customer retention.

v. No risks: when processing the order, the customer is sure, that the order has been paid for. Credit risks are thereby significantly reduced.

vi. It's simple: It’s easy for customers to pay with e-payment. They only have to use their codes to approve the pre-filled payment order and the transaction is done. Improved fund availability by reducing check float and enhancing cash flow.

vii. Increase customer satisfaction and loyalty leads to the growth of banks.

viii. Better decision making and smooth functioning of banks.

ix. Balancing the competitive pressure faced by banks.

x. Increases concern for safety and secure measures.
Types of Payment and Settlement Systems:

i. Electronic Funds Transfer (EFT)

Traditionally, the funds are transferred by banks from one place to another by mail transfer and telegraphic transfer and the latter is faster than the former. In both kinds of transfer, banks use the postal and telegraph department services and use certain codes to keep confidentiality and safety in transmission of the messages. In electronic system of communication, the transmission is much faster and safer. Several banks have started the following systems for funds transfer:

i. State Bank of India has electronic payment system called STEPS whereby funds can be effectively remitted electronically from one customer’s account at one centre to another customer’s account at another centre on the same day.

ii. Under Core Banking solutions the technology platform connects several branches at distant places, transfer of funds from one account to another account at different places can be easily done between inter-connected branches.

ii. SWIFT:

The Society for World-wide Inter-bank Financial Telecommunication is an international society for electronic funds transfer internationally between member banks world-wide. State Bank of India and several other banks in India are members of the society. The member banks are connected through a high speed closed user group communication system. Structured and codified financial messages are sent by remitting bank to receiving bank for credit of the beneficiary’s account with it. The inter-bank settlement of account is done via the correspondent banks. The funds transfer system is fast, secure and efficient.

The society for Worldwide Inter-bank Financial Telecommunication (SWIFT) provides reliable, secure and cost effective mode of transmitting the financial messages all over the world through leased lines/public data network. The banks have to become the member
of International Financial Messages Communication Network. The banks can do foreign exchange business safely and secured mode. We can say, the foreign exchange business which the banks are conducting today would not have been possible without SWIFT. Swift provides 24 hours facilities such as transfer of message relating to fixed deposits, interest payment and debit-credit statements of foreign exchange etc. It bears liability arising from loss or delays in delivery of messages, assumes the responsibility for proper function of the network and it security. SWIFT has helped in standardizing and automating the international payments messaging.

Main features of SWIFT

- Information is confidential and is protected against unauthorized disclosure and tampering.

- SWIFT assumes financial liability for the accuracy and timely delivery of all validated messages from the point they enter the network to the point they leave the network.

- Method of transmission is cost-effective.

- Transmission of the message to any part of the world is almost immediate.

- It is operational throughout the year twenty-four hours a day.

- All the message formats for inter-bank transactions are standardized. At present, about 400 different standardized formats are used by SWIFT for message transmission.

- All messages are acknowledged (either accepted or rejected).

Major Message Types

Standard message formats have been developed by SWIFT to handle the following business areas:

- Documentary credits and guarantees,

- Cash management and customer status
- Traveler cheques
- Financial institution transfer
- Collections and cash letters
- Securities
- Customer transfer and cheques,
- Financial trading
- Supporting system messages

In addition, free format messages are also permitted, enabling any sort of message.

**Security in SWIFT**

The responsibility of SWIFT with respect of security of data message is between the regional processors. SWIFT does not assume any responsibility of the message between the regional processor and the bank. The security features in SWIFT provides for protecting the network against unauthorized access and protection of transmission against loss or mutilation of messages, errors in transmission, loss of privacy and fraudulent change.

**Encryption:** Encryption is a security control to ensure data confidentiality. It is done on the SWIFT network and is available to the users.

**Checksum:** It is a security control to prevent automatic changes during transmission. It users, as a part of mechanism, both the text and the receivers address.

**Key authentication mechanism:** The SWIFT authentication mechanism is an improved and automated version of the telegraphic test keys, traditionally used for the authentication and confirmation of amounts in messages between banks. It is automatically calculated on the entire message text. This ensures that any change in the message text would be detected.
iii. National Electronic Funds Transfer System (NEFT)

NEFT was launched by an RBI by replacing Special Electronic Funds Transfer (SEFT) system. It was established for carrying out the inter bank funds transfer through NEFT centres connected by a network. NEFT is a nationwide system that facilitates individuals, firms and corporate to transfer funds electronically from any bank branch to any individual, firm, or corporate having an account with any other bank branch in the country. Currently, NEFT operates in hourly batches—there are eleven settlements from 9 A.M to 7 P.M on weekdays and five settlements from 9 A.M to 1 P.M on Saturdays. NEFT clearing at RBI, Mumbai and comprises two parts: Inter bank funds transfer Payment and Settlement system. NEFT facilitate an efficient, secure, economical, reliable and expeditious system of funds transfer and clearing in the banking sector throughout India. It relieve the stress on the existing paper based funds transfer and clearing system. It helps in settlement of payment obligations arising out of such funds transfer between customers of participating banks and payment order issued for execution shall become irrevocable when it is executed by the sending bank. Payment instructions are flowing in the form of messages, a message carrier in the form of core banking or structured financial messaging system which is necessary. Parties involved in NEFT are:

- Sender
- Sending branch
- A service branch of sending bank
- RBI NEFT center
- Beneficiary bank
- Beneficiary

<table>
<thead>
<tr>
<th>Item</th>
<th>Volume (in million)</th>
<th>Value (Rupees in Crore)</th>
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<td>2008-09</td>
<td>2009-10</td>
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<tr>
<td>EFT/ NEFT</td>
<td>32.2</td>
<td>66.3</td>
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</table>

*Source: RBI, Annual Report 2010-11*
iv. Centralized Funds Management System (CFMS)

CFMS project aims at interconnecting the 17 Deposit Accounts Departments (DAD) of the Reserve Bank of India which would enable the funds and treasury managers of commercial banks to obtain the consolidated account-wise, the center-wise position of their overall funds availability position. The system has been tested prior to installation and phase-wise implementation commenced from November 2001. This system enables the fund manager of a bank in its Central Treasury Department to transfer funds from any DAD resulting in optimizing the use of available funds of the bank.

v. Structured Financial Messaging Solution (SFMS)

At the base of all inter-bank message transfers using the INFINET is the SFMS. SFMS serves as a safe, secure communication carrier built with templates for transmission of intra and inter-bank messages in fixed message formats, which facilitates "Straight through Processing". SFMS comprises the central server in the form of a hub located at the Institute for Development and Research in Banking Technology (IDRBT), Hyderabad and individual bank gateways to which the branches of the banks are connected with a provision for banks to have multiple bank level gateways. The SFMS provides all inter-bank transactions to be stored and switched at the central hub, while intra-bank messages switched and stored by the bank gateway. Adequate security in the form of smart card authentication would be an integral part of the SFMS.

vi. Indian Financial Network (INFINET)

The INFINET has been operational for almost two years. Started as a closed user group communication network for the banking sector in India, the members of this network are the public sector banks. During the year 2000-01, the membership was opened up for other banks and financial institutions that need to communicate with one another. Indian Financial Network (INFINET), the satellite based VSAT network developed by Institute for development and Research in Banking Technology (IDRBT- Hyderabad, an RBI sponsored organization) is fast and secure intra-bank and inter-bank communication system.
The details of the applications on INFINET are as under:

a) **Intra bank:**
   i. Funds transfer and payment messages.
   ii. Bank Owned ATM/credit card, debit card and other applications on corporate network.
   iii. Inter-branch reconciliation.
   iv. Quick disposal of loan/investment proposal.
   v. FOREX information from branches.
   vi. Fund information from clearing centers.
   vii. Cash and treasury management.
   viii. Any branch banking.
   ix. Asset liability management.
   x. Auditing and inspecting computerized branches using the network.
   xi. Organizational bulletin boards.
   xii. Timely information to the top management.
   xiii. Help in developing new products.
   xiv. Speedy communication among branches controlling offices.

b) **Inter banks:**
   i. Electronic fund transfer.
   ii. Clearing and settlement system for securities.
   iii. Transferring balances from net settlement systems of real time gross settlement server at periodical intervals.
   iv. Exchange of defaulting borrowers’ list among RBI and banks.
   vi. Asset liability management for reporting to RBI.
   vii. Intranet in RBI to enable banks to get circulars and press releases.
   viii. Reporting of section 42 data to RBI.
   ix. Returns to be submitted by banks to debt of banking Supervision for on-site supervision and monitoring.
vii. **Negotiated Dealing System (NDS)**

Reserve Bank of India (RBI), has decided to introduce an electronic order matching trading platform for government securities on the Negotiated Dealing System (NDS). Negotiated Dealing System (NDS) is an electronic platform for facilitating dealing in government securities and money market instruments. NDS facilitates electronic submission of bids/application by members for primary issuance of government securities by RBI through auction and flotation. NDS provides interface to Securities Settlement System (SSS) of public debt office, RBI, thereby facilitating settlement of transactions in Government Securities including treasury bills, both outright and repose. NDS uses **INFINET**, a closed user group network as communication backbone.

viii. **Real Time Gross Settlement System (RTGS):**

Real Time Gross Settlement (RTGS) is a comprehensive secured on line settlement solution, set up, operated and maintained by Reserve Bank of India to enable funds settlement across banks in the country on real time basis to minimize costs and maximize benefits, increase velocity of funds-flow both inter- city and interbank, reduce credit risk, increase transparency of payments and better liquidity management. RTGS is managed by RBI. In India RTGS System has been implemented since March 26, 2004. The inter Bank Payments handle large amounts of money. The RTGS system is one in which payment instructions between banks are processed and settled individually and continuously throughout the day. In India currently it covers more than 28,000 branches of banks. The attraction of RTGS is that the payee banks and their customers receive funds with certainty and finality during the same day enabling them to use the funds immediately without exposing themselves to risk. RTGS system, do not create credit risk for the receiving participant because they settle the each payment individually, as soon as it is accepted, liquidity risks remains, as well as the possibility of the risks being shifted outside the system. The security has to ensure that hacking is not possible at the site. Importance of RTGS is as follows:
• It was launched for setting up of integrated payment and settlement system in India by RBI

• Payment instructions between banks are processed and settled individually and continuously throughout the RTGS day through RBI server.

• It is a settlement process which minimizes the settlement risks by settling individual payment in real-time in the books of RBI and Individual Customer account.

Some of the new facilities provided include:

• Funds transfer options to cover third party customer accounts within the same bank.

• Funds transfer across banks.

• Utility bill payments and other regular periodical payment facilities.

• Integration with 3rd parties for transactions such as for booking of tickets for rail and air.

• It ensures fast, secure, final and irrevocable settlement of payment transaction within two days.

<table>
<thead>
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<th>Item</th>
<th>Volume (in million)</th>
<th>Value (Rupees in Crore)</th>
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<td></td>
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<td></td>
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<td>RTGS</td>
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<td></td>
<td>3,94,53,359</td>
<td>4,84,87,234</td>
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</tbody>
</table>

Source: Annual RBI report 2010-11

ix. Electronic Clearing System:

a) Clearing House System:

Inter-bank cheques drawn on branches of a city/town are cleared through a system of clearing house. Out-station cheques are sending for collection through a different system. Clearing house is a common service provided by RBI in metros and by scheduled banks in other cities. Clearing house functions in all cities/ towns where there are 5 or more banks. In big cities and metros, service branch of each bank does the clearing house
operations and centralized raft payment function. Conduct of clearing house operations require huge expenditure by way of premises/equipment/staff costs. The number of cheques in clearing house transactions is very large and the volume of transactions is huge. For speedier processing, manual systems have been replaced by Automated Clearing System (ACS). The main elements of ACS are as follows:

- **MICR cheques**: Magnetic Ink Character Recognition (MICR) cheques are used for clearing system in India. As the cheques are processed on high speed machines, the cheques are printed on specific type of paper are meet other specifications including two white bands on top and bottom, which should be free from any marking or impressions.. In these bands the details are encoded with special magnetic ink. The details encoded on the lower band are as follows:

  i) First 6 digits - Cheque no. in 6 digit code is pre-printed
  ii) Centre code in 9 digits: first 3 digits represent city code, next 3 digits represent the bank code and the last 3 digits are for the branch code.
  iii) Transaction code of 2 digits indicating the type of the account (e.g. savings/current).

- **E-cheques**: The e-cheques consists five primary facts. They are the consumers, the merchant, consumer’s bank the merchant’s bank and the e-mint and the clearing process. This cheque system uses the network services to issue and process payment that emulates real world cheque the payer issue digital cheques to the payee ant the entire transactions are done through internet. Electronic version of cheques are issued, received and processed. A typical electronic cheque transaction takes place in the following manner:

  i) The customer accesses the merchant server and the merchant server presents its goods to the customer.
  ii) The consumer selects the goods and purchases them by sending an e-cheque to the merchant.
  iii) The merchant validates the e-cheque with its bank for payment authorization.
iv) The merchant electronically forwards the e-cheque to its bank.

v) The merchant’s bank forwards the e-cheque to the clearing house for cashing.

vi) The clearing house jointly works with the consumer’s bank clears the cheque and transfers the money to the merchant’s banks.

vii) The merchant’s bank updates the merchant’s account.

viii) The consumer’s bank updates the consumer’s account with the withdrawal information.

The e-cheque is a great boon to big corporate as well as small retailers. Most major banks accept e-cheques. Thus this system offers secure means of collecting payments, transferring value and managing cash flow.

Table 1.21: Payment System Indicators-Annual Turnover

<table>
<thead>
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<th>Item</th>
<th>Volume (in million)</th>
<th>Value (Rupees in Crore)</th>
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<tr>
<td></td>
<td>2008-09</td>
<td>2009-10</td>
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<tr>
<td>MICR Clearing</td>
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<tr>
<td>Non MICR Clearing</td>
<td>233.6</td>
<td>230.6</td>
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Source: RBI, annual report 2010-11

- **Encoder**: This machine is used to write with magnetic ink the details of the cheque in the lower band. In power encoder, the data on cheques are keyed elsewhere at branches and sent to the service branch along with a floppy/CD containing the information. When the cheques are passed through the power encoder, the data from the floppy are encoded on the cheque.

- **Cheque Reader-cum-sorter**: Cheques in the clearing house are run through this machine, which records the drawee bank wise/branch wise presentation of cheques from the magnetic ink impression on the lower white band. The sorter portion of the machine automatically sorts the cheques drawee bank wise/branch wise and also lists out the cheques in the same order. The cheques are made into packets to the service branch of each bank for further processing. The payee branches process the payments on the next day and all returns are submitted to the
clearing house in the next day clearing. The customer therefore gets the credit on the third day.

b) **Debit Clearing system:**

Under this system, the utility service provider (like telephone, electricity, gas, insurance company) obtains an authorization from the customer to debit his specified bank account with the amount of the bills at regular intervals. The letter of authority is submitted by the service provider to his banker which raises a debit for the amount listed on the other bank maintaining the client’s account. The advantages of the debit clearing system are:

- The customer is not required to keep a track of his bills for ensuring payment before the due date and need not write and cheques in payment thereof.
- The service provider need not print out the bills and sends it to the customer before payment.
- The system helps the banker in saving expenses as cheques are not used for payment of the bills.

c) **Credit Clearing System:**

This is just opposite of the debit clearing system. It is used by a company for making payments to its shareholders/depositors dividends/interest at periodic intervals. Instead of sending out cheques to the investors, the company directly credits through the clearing system. It banks the amounts to their bank accounts, in terms of letter of authority (or mandate) obtained from the customers. The letter of authority contains all the relevant particulars, e.g. bank, branch, account number. The advantages of credit clearing system to various parties are:

- The company need not print the dividend/interest warrants and reconcile the paid and outstanding amounts.
- The investors need not deposit the cheques to their bankers every time and wait for the clearing credit. Under the Credit clearing system, credits to the customer’s account are on the fixed date.
• The bank saves time in processing the large number of cheques/warrants deposited by
• The customers in the manual system.

d) Automated Clearing Systems:-

Most of the large banks in the European countries and USA have their independent communication network. Other banks are also members of some of the network, on a sharing basis. The banks then use distributed data processing, techniques with a central system acting as the main database server. This has helped them to provide certain specialized functions like transfer of funds, automated teller system, and credit card system in an online real-time mode. CHIPS, CHAPS, CHATS are some of these networked systems which allow direct funds transfer facilities in the USA, UK and Hong Kong respectively and are largely responsible for bringing about the true concept of Electronic Funds Transfer in these countries.

e) Clearing House Inter-bank payment system (CHIPS)

The CHIPS started operating in 1970, run by a New York clearing house, the world’s premier system for transfer of payments internationally. Settlement failures in the history of CHIPS operation have never been reported and the operational time is claimed to be 99.9 per cent to 100 per cent. Most of the international fund transfers go through CHIPS, as most of the international trade is transacted in USA dollars. The financial transactions such as – foreign and domestic trade services, international loans, syndicated loans, foreign exchange sales and purchases, Eurodollar placements, sale of short-term funds, etc. are done through CHIPS. Domestic EFT payments are also made on CHIPS. The settlement of payment carried on CHIPS is done through Federal Reserve Bank. CHIPS have dual computers at two different sites with a high-speed line like. The participating banks are also required to maintain a dual system with a dual link channel. To protect from fraud, full payment message authentication has been implemented. The CHIPS have direct interface with the SWIFT system.
f) Clearing House Automated Payment System (CHAPS)

The CHAPS system set-up in the UK provides almost instantaneous service for settlement of payments and the payments are guaranteed on receipt and cannot be recalled. The network has been built around the most advanced computer and communication systems and offers a guaranteed payment system. Major clearing branches are equipped with CHAPS terminals, which allow payments to be sent to the system through several diverse locations. Its format has been devised from SWIFT and the system allows direct transmission from SWIFT system. The main system to the participating banks is connected to the CHAPS, which uses the packet switched stream (PSS) for the communication network. CHAPS network protects the high value payments and the messages by passing it through encryption and authentications techniques.

g) Clearing House Automated Transfer System (CHATS)

CHATS provide the inter bank funds transfer facilities in Hong Kong, which has long been regarded as the hub of financial activities the world over. The success of this system depends largely on the superb and reliable communication networks. CHATS provide same day inter-bank settlement, instant online confirmation and enquiry facilities. All the inter-bank entries are first validated at the point of entry before transmission to the CHATS central system for settlement. All POS transaction are also supported and settled over this network. The network can be switched fully to alternate routes for transmission, in case of failure of a particular route. The integrity of message traveling over the network is ensured through authentication and encryption techniques.

x. Cheque Truncation System (CTS)

Cheque Truncation speeds up collection of cheques and therefore enhances customer service, reduces the scope for clearing related frauds, minimizes cost of collection of cheques, reduces reconciliation problems, eliminates logistics problems etc. Cheque Truncation is a more secure system than the current exchange of physical documents in which the Cheque moves from one point to another, thus, not only creating delays but
inconvenience to the customer in case the instrument is lost in transit or manipulated during the clearing cycle. Cheque Truncation System helps in order to enhance the efficiency of the paper based clearing system; RBI has implemented a cheque truncation system (CTS). Truncation is the process of stopping the flow of a physical cheque issued by a drawer at some point enroute to the drawee branch. In its place, an electronic image of the cheque is transmitted to the drawee branch along with relevant information like data on the MICR band, date of presentation, and presenting bank. This effectively eliminates the associated cost of movement of physical cheques, reduces the time required for their collection, and brings elegance to the entire activity of cheque processing. RBI has implemented CTS as pilot project in the National Capital Region (NCR) with effect from February 1, 2008. After the migration of the entire cheque volume from MICR system to CTS effective July 1, 2009, the traditional MICR-based cheque processing has been discontinued in NCR. Based on the advantages realized by the stakeholders and experience gained from the pilot roll-out in NCR, RBI has decided to operationalize CTS across the country. In addition to operational efficiency, cheque Truncation has several benefits to the banks and customers which includes introduction of new products, re-engineering the total receipt and payments mechanism of the customers, human resource rationalization, cost effectiveness etc.

**Ways in which truncation can be done:-**

1. **Using MICR data**: MICR cheques have the cheque number, city, bank and branch number, and transaction code pre-coded. Abroad, even the account number of the customer is pre-coded. During encoding at the collecting bank, the amount, as well as the payee’s name, is inserted in the MICR line. The entire MICR line is then captured electronically. The electronic information is then exchanged with other for clearing (Inter Bank Data Exchange or IBDE). The cheques do not move any further.

2. **Using image processing**: Image Processing, is the latest document handling system. Cheque image processing involves scanning of both sides of the cheque and storing the image in digital form. The cheque itself is moved to some offsite storage and the image is used for further processing.
Advantages of cheque truncation

Cheque truncates or stops the flow of cheque through the banking system. At some point after a cheque enters the banking system, information from the cheque is converted to a medium for electronic processing. The cheque itself is then stored (or truncated). Further processing of cheque is done with the electronic information rather than paper (i.e. the cheque itself). Truncation can occur at the branch in which the customer deposits the cheque, i.e. the collecting branch. The collecting branch truncates the cheque and sends the electronic data to the clearing house or directly to the paying branch.

xi. Credit/Debit Cards

A credit card is a plastic card bearing an account number assigned to a cardholder with a credit limit that can be used to pay taxes or fees on credit, for which a cardholder is subsequently billed by an issuer for repayment of the credit extended, at once or on an installment basis. Other credit cards categories are charge cards, smart cards.

A debit card is a plastic card with which a customer may withdraw funds on deposit in the customer’s account. A debit card transaction pays the merchant (in this case the state) by withdrawing funds already on deposit in the buyer’s account, as opposed to a credit card transaction in which funds are loaned to the buyer by the card issuer.

Table 1.22: Card based payment Transaction Value (Rupees Crores)

<table>
<thead>
<tr>
<th>Item</th>
<th>Volume (in million)</th>
<th>Value (Rupees in Crore)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2008-09</td>
<td>2009-10</td>
</tr>
<tr>
<td>Credit Cards</td>
<td>259.6</td>
<td>234.2</td>
</tr>
<tr>
<td>Debit Cards</td>
<td>127.7</td>
<td>170.2</td>
</tr>
</tbody>
</table>

Source: RBI, Annual Report 2010-11

xii. Smart Cards:

The function and characteristics of smart card is as follows:

(i) Stored value cards
(ii) As a replacement for all types of magnetic stripes cards like ATM Cards, Debit/Credit Cards, Charge Cards etc.
- One smart card to carry out all these functions
- One smart card can contain the functionality of several different types of cards issued by different banks while running different types of networks.
- Smart card a truly powerful financial token, giving user access
  - STM
  - Debit facility
  - Charge facilities
  - Credit facilities
  - Electronic purse facilities at national and international level.

1.13. Core Banking

CORE stands for “Centralized Online Real-Time Exchange”. A CBS branch is like a sales and service delivery center interconnected with each other. Core Banking or Centralized Banking is a term used to describe a service provided by a group of networked bank branches. Bank customers may access their funds from any of the member branch offices. Core banking consists of a networking process by which the servers of different branches of a bank are joined to a common server and henceforth an account holder may access, deposit, and withdraw money from his/her account from any of the branches of the bank. In 21st United States, core banking has become common place. Today 67.7 % of public sector bank branches are all branches of private and foreign banks are under core banking solution in India.

“Core Banking Process for a bank” is thus a generic term for the complete administration of transactions for the bank through a central database. In an ideal core banking scenario, all products, processes, channels and customer relationship management tools are integrated and administered via a central database of the bank with branches and channels as delivery points. Core banking applications had provided customers with the right
products at the right time through the right channels 24 hours a day, 7 days a week and helped banks in complete front and backend automation. These application also help banks to achieve centralized processing a step towards enhancing customer convenience and interface through anywhere, anytime non stop services. Retention of customers, lowering services costs, standardization of processing within the bank, and optimization of IT infrastructure are the major advantages. Normal core banking functions include deposit accounts, loans, mortgages and payments. Banks make these services available across multiple channels like ATMs, Internet banking, and branches. Leading global and Indian core banking application vendors are Misys, Infosys, TCS, Accenture, SAPAG, Oracle and CSC.

Banks having core banking application are assigned an Indian Financial System Code (IFSC) for perspective, since centralised core banking solutions required banks to invest huge amounts of money towards building infrastructure. Once this infrastructure was in place, banks started venturing into newer opportunities in the area of ATMs, debit cards and Internet banking, which in turn raised the expectations from core banking solutions. An RBI report shows that 94.6 per cent public sector bank branches have been fully computerized while 67.7 percent have installed core banking systems to leverage from this technological advancement and to sustain market leadership, retain customer base, improves customer experience and widen portfolio of incoming generating avenues.

1.13.1. Core banking Technology

Normal core banking functions will include deposit accounts, loans, mortgages and payments. Banks make these services available across multiple channels like ATMs, Internet banking, and branches. Following are the facilities of core banking technology:

- Instant fund transfer from anywhere through internet/mobile banking
- Multicity cheques
- Pay taxes online
- SMS alerts
- E-ticketing
- Utility bill payments
- Interactive voice response system

### Table 1.23: Branches under Core Banking (in %)

<table>
<thead>
<tr>
<th>Name of the Bank</th>
<th>Branches under core banking solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Sector Banks</td>
<td>90%</td>
</tr>
<tr>
<td>Nationalized Banks</td>
<td>85.9%</td>
</tr>
<tr>
<td>State Bank Group</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Report on Trend and Progress of Banking in India 2009-10, P-55

1.13. 2. Core Banking Solutions

Core Banking Solutions is new jargon frequently used in banking circles of India. The advancement in technology especially internet and information technology has led to new way of doing business in banking. The Technologies have cut down time, working simultaneously on different issues and increased efficiency. The platform where communication technology and information technology are merged to suit core needs of banking is known as Core Banking Solutions. Here core market software is developed to perform core operations of banking like recording of transactions, passbook maintenance, and interest calculations on loans and deposits, customer records, balance of payments and withdrawal are done which help in online inter branch transactions, online remittances and other contemporary services. This software is installed at different branches of bank and then interconnected by means of communication lines like telephones, satellite, internet etc. It allows the user (customers) to operate accounts from any branch if it has installed core banking solutions. This new platform has changed the way banks are working. Now many advanced features like regulatory requirements and other specialized services like share (stock) trading are being provided. Core banking solutions is very helpful to small industries.

1.13. 3. Advantages of IT in Bank

- **Convenience**: Unlike your normal physical bank, computerized banking sites never close. They're available 24 hours a day, seven days a week, 365 days a year and they're only just a mouse click away
• **Ubiquity:** If the customer is out of station or even out of the country on a tour or on an official trip, and he faces a money, at that time the customer can log on to the internet and transfer funds from one account to another and take care of your needs and business 24/7.

• **Transaction speed:** Computerized banking initiates speedy transactions and they are very cost effective and is generally quicker than the transactions conducted at the ATM’s or at the bank

• **Efficiency:** Feel free to access, manage and control all your bank accounts, including Individual Retirement Accounts, CDs, even securities, from one secure site

• **Effectiveness:** Manage money, investment, bank accounts without even going to the bank. Get statements online and make bill payments online and transfer funds, all for free.

All banks today are encouraging customers to bank online rather than going to the bank and making transactions. This helps the customers to save money and time. The transactions conducted online are absolutely free and within the customers control too. All you need to do is just log on and make life easier for yourself. Transactions like bill payments, viewing of statements, requisition of cheque books and directing the bank to make auto debits are increasing features of online banking.

**Table 1.24: Dimensions of IT Innovation**

<table>
<thead>
<tr>
<th>Dimensions of IT Innovation</th>
<th>Limitations for electronic Banking</th>
<th>Potential for electronic Banking</th>
</tr>
</thead>
</table>
| Innovation in Service Offering | • Each new technological innovation accounts for (proportionally) smaller reductions in price differentials.  
• Bank customers remain unwilling to pay for interfaces for the new technology, while merchants expect to share the revenue of new payment media through | • Greater price transparency.  
• Greater convenience to customers (including congenial resolution of customer complains through electronic media).  
• Each customer segment interacts with the bank through the most cost effective |
Lower commission charges.
- Defection rates remain low thanks to the inertia of bank customers, which has been historically high.
- Unknown brand name and associated high marketing expenditure (to attract long-term core deposits)

Distribution channel.
- Innovations (such as smart cards and digital cash) that circumvent banks’ proprietary networks with alternative distribution or payment systems.
- Creation of new customer segments and improved relationship

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- Innovations (such as smart cards and digital cash) that circumvent banks’ proprietary networks with alternative distribution or payment systems.
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Operational Function Innovation
- The possibility of scale economies make it very hard for potential entrants to catch up, even with technically better systems.
- Continued importance of contextual non-standard elements to assess risk
- The potential for fraud, money laundering and systemic failure requires supervision, regulation and minimum capital requirement.
- More specialized (and expensive) labor force.
- Enhanced financial performance due to Reductions in overhead expenses (i.e. no retail branch network) which are not offset by reductions in revenue or increases in other expenses.
- Standardization of activities in payment and lending services eliminates the uniqueness of banks’ proven expertise and ability to control losses from payment activities efficiently.
- Access to a much wider base of depositors and high rates of asset growth.

1.14. Conclusion:

The chapter concludes that transformation is taking place almost in all categories of the banks. This transformation will helpful to cope with new economic and financial policies of the banks. IT is playing a crucial role to create the drastic changes in the banking industry particularly in the new private sector and foreign banks. The private banks take a big share of cake; our public sector banks are still lagging behind regarding the various financial parameters. The immense opportunities are also available for the public sector banks if they change/modify and adopt new policies to combat the different recent challenges. It can be concluded that mere introduction of IT alone will not be sufficient to bring necessary performance improvement and to get the competitive edge. Intelligent
people are required to use such intelligent tools. Thus, even though IT management is a challenge flow in future banking scenario, marketing not technology is going to be the challenge.

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