Chapter - 2: Banking S Technology Trends Overview

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

There has been radical and perceptible transformation in the operational environment of the banking sector. However, these changes have been induced with a view to develop sound and efficient banking sector in India, at par with international banking standards and practices. The banking sector, which was one of the most protected sectors for first five decades of in the country and more precisely the public sector banks were slowly exposed to deregulated environment in slow and phased manner. The environmental changes have threatened the so-called invincibility and market leadership of public sector banks and financial institutions. The recent "Report of the working group on Restructuring of Weak Public Sector Banks" known as Verma Committee is a pointer in the direction. The banks can no longer take their business shares or profitability as Ceteris paribus, as also the loyalty of their customer base. The Information Technology (IT) revolution is entirely changing the way banking business is done and has considerably widened the range of products and services as well as the demands and expectations of customers. Risk management, Asset Liability Management, Product and Service Innovation, Securitization, Relationship Banking and Environment Management are some of the current buzz words in the banking scene. There have been few important developments in response to change forces necessitating the Learning Phenomenon for the banks:

2.1 Impacting Developments

Some of the developments in the banking sector are intense competition, changing customer profile, increasing role of IT, innovation, profit orientation aspects etc. These developments have implications not only for present but also for the future in terms of operational aspects such as:

- Who would be the competitors both direct and indirect?
- What scales and capabilities are needed to deliver products and services to customers?
- Areas of focus for improvement of profitability

The qualitative aspects of change include prudential norms like asset classification, provisioning capital adequacy, risk management requirements, transparency, corporate governance, changing
regulatory supervisory system etc. In order to cope up with changes out of internal as well as external environment, it has become imperative for the players i.e., banks to have a clearly defined corporate goals encompassing vision and mission, which the banks have to strive to achieve in long term. Strategic intent has become inevitable and important in the sense of providing direction to the organizations as well as employees. Long range planning not only provides sustainable growth and profit but would also make these organizations continue to be alive and vibrant.

2.2 Transition of Indian Banking
Banking system remains the focal point in the financial set-up of country and more so in the context of a developing country like India. There is importance attached to the banking system, in view of their financial intermediary role in payment system. The economic development in the country is dependent on the banking system in the country. The system has come a long way from the independence era, when the inherited legacy was just 2,876 branches, serving an average population of 82,000 with deposit base of Rs. 860/- Crore and advances portfolio of Rs. 470/- Crore. The progress of Indian Banking System (IBS), during the past five decades can be captured in the following four phases:

2.3 Foundation Phase (1950-1969)
In the initial period, the need of the hour was to re-organize and consolidate the prevailing banking network, to meet the requirements of the economy. The first step in this direction was enactment of Banking Companies Act, 1949 followed by raid industrial finance. Banks played a facilitative role in the industrialization process. The adoption of social control lead to banks extending credit to agriculture and priority sectors. On July 19, 1969, 4 banks were nationalized to extend credit to all segments of economy and to address the regional imbalance issues. The systems made rapid growth strides, from an annual growth of 1.6% during 1950s i.e., 1950-1960, with deposits and credit growth of 6.9% and 8.2% respectively. During the 60s i.e., 1960-1970, the annual growth expansion of the banks, as well as deposit and credit was significantly higher. The population served per branch increased to 60,000.

2.4 Rapid Expansion Phase (1970-1984)
The motto of the nationalization, was to make Banking system, accessible to common man which was indeed "The first Banking Revolution", Commercial banks acted as vital instruments, for this purpose, through rapid branch expansion, deposits mobilization and credit expansion. A series of measures, were taken up by the given including, introduction of Lead Bank Scheme, District Credit
Plans, setting up of Regional Rural Banks in 1975 etc., for ensuring the penetration into rural areas. During 1970-1980, the pace of branch expansion was 12.0% per annum and during 1980-85, it was around 8.8% per annum. The resources of banks grew significantly and they were deploying these funds, both in credit as well as investments. During, 1970-1980, the net profit grew annually by 14.7% and during 1980-85; the annual growth was 11.7%.

During second phase of nationalization, six more commercial banks were nationalized on April 5, 1980, and thereby expanding the scope of public sector banks. The government tilt towards socialistic economic approach, had effect on approach towards nationalization of banks, social banking and implementing of government-sponsored schemes. The government came up with a number of stipulations, such as priority sector lending up to 40%, rural credit-deposit ratio of 60%, and weaker section credit ratio of 25% etc.,

2.5 Consolidation Phase (1985-1990)

This period was a phase of consolidation, where there was more thrust on aspects such as internal control and increasing profitability through new activities. The branch expansion increased from 52,721 to 58,914, thereby registering a compounded annual growth rate of 2.6%. The growth in the areas of deposits and credit grew by 17.7% and 14.6% respectively, whereas investment grew by 19.0%. The thrust area of profit during the period recorded an annual growth of 51.7%.

2.6 Reforms Phase (1991 onwards)

The Indian Banking system has been subject to widespread structural reforms since 1991. This phase can be termed as "Second Banking Revolution". A wide gamut of reform measures such as introduction of new accounting and prudential norms, liberalization measures etc., aimed at creation of truly competitive and well-structured system resilient from an international perspective. The annual growth rate of branch expansion during the period was 1.1% and the population served per branch was 15,000 members. During the period 1990-2000, the annual growth rates of deposits and credit were 16.1% and 14.8% respectively. The growth of investments was 20.0% as compared to 16.0% during 1985-90 and 18.8% during 1980-85. The net profit of the banking system increased from 555.33 crores at March-end 1990 to 7306.36 crores as at March-end 2000.

Ever since the onset of economic reforms in Indian Economy, in the year 1991, the Indian Banking Sector, which can be described as the backbone of Indian Economy has undergone complete transformation, changing the character, and face of the Sector. The focus of the regulator, the
Reserve Bank of India, and the nodal ministry for the sector in Government of India — Finance Ministry —, have been attempting to transform the Indian Banking System (IBS), from being a large domestic one to a truly international one. In this direction, it has initiated several regulatory measures. Even those who were scripting the reforms, would have not visualized the pace and intensity of changes that have taken place in IBS in the recent period. The competitive pressures are intensifying and resultantly the shakeout phase has begun. The merger and acquisition phase, which are presently globally, are becoming more pronounced now. The collapse of banking systems in so many countries particularly the East Asian economies is due to the inability of IBS to withstand tremendous challenges in an effective and efficient manner. Some of the major impacting changes being witnessed over the last one decade in the systems are:

- Deregulation of the Banking System
- Changing Structural Dynamics
- Stringent Prudential Norms
- Financial Innovation and Focus on Customized Banking.
- Technology Driven Banking
- Qualitative Human Resources, have emerged as Competitive Differentiators

### 2.6.1 Deregulation of Indian Banking System

After nationalization phase during early seventies, the Banking System has assumed very rigid stature. The lines of competition were clearly drawn to create three major segments i.e., The Dominant Public sector having major market share due to the policy directive of the government, to permit the commanding heights of the economy, due to socialist approach and goals in macro-governance in the country. The balance was divided between the old private sector banks, servicing the niche segments in terms of geographical as well as business segments. The Reserve Bank, as a measure towards increasing the competition has accorded permission for entry several new players into the system. A few to mention are ICICI Bank, UTI Bank, Global Trust Bank, IndusInd Bank. These players, armed with technology, as competitive weapon, and the advantage having no lineage as baggage, have come to assume the Leadership position, both in terms of Technology Deployment and service innovation. This has forced the existing players to redefine their competencies and competitive advantages, which is imperative for their very survival.

### 2.6.2 Changing Structural Dynamics

The entry of new players other related factors have completed transformed the structure and composition of the entire banking system. There is alignment of the players, based on factors such
as financial strength and size, market share, increase of branch network etc., Some of the recent mergers are:

- Merger of Times Bank with HDFC bank
- Merger of Bank of Madura with ICICI bank

In addition, there is an increased convergence of Banking and Insurance segments and evolution of integrated bank assurance system, aimed at delivering Banking and Insurance services to the customer. The players are trying to leverage their mutual strengths through strategic partnerships. Some of the indicative movements witnessed of late are:

- Life Insurance Corporation of India increasing its equity in a Saudi-based public sector bank — Corporation Bank.
- Max Life insurance entered into a strategic partnership with public sector Bank- Oriental Bank of Commerce and a few old private sector banks for dispensing the Insurance products.
- Bangalore based old private sector bank — Vysya Bank, in collaboration with ING group becomes one of the first licensees to enter into the insurance market.

The structure and assets composition of Scheduled commercial Banks, as indicated by Reserve Bank of India, in its Report titled "Report on Trends and Progress of Banking in India (1998-99)" is as under:
Some of the Development Financial Institutions line ICICI have already transformed themselves into universal banks, while other DFI’s, such as IDBI, IFCI etc., are planning to transform themselves into universal banks. The reason being that long-term finance or project-finance, which was hitherto, the exclusive domain of DFI's is now transgressed by banks, due to better asset liability management practices and DFI's are also finding it lucrative to lend through short-term finance. Further, the DFI's are facing the problems such as under-capitalization, non-performing performing assets, and asset-liability mismatches, are finding the route towards conversion into universal banks as panacea for all these problems. The Reserve Bank Governor, in his inaugural address of Bank Economist Conference - 2001, indicated that, conversion into banks, can only be a strategic initiative on the part of FI's and cannot be a solution to their maladies and added that "The Overriding consideration should be the objectives and strategic interests of the institutions concerned in the context of meeting the varied needs of customers, subject to normal prudential norms applicable to banks. From the regulatory perspective the movement towards universal banking would firmly entrench the stability of the financial system and preserve the safety of public deposits." The comments of the Governor, assume significance in the context, where the FI's are not only suffering from asset-liability mismatches and non-performing assets. These approaches are in consonance with recommendations of Second Narasimham Committee and Working Group Chaired by Shri S.H.Khan, regarding harmonizing the role and operations of DFI's and Banks. It is increasingly recognized that "Size Does matter" in the Indian banking Industry as well.

The evolving financial structure, lays emphasis on safety and soundness of the banking system, stringer prudential norms, better disclosures, market discipline, improved internal governance and effective official oversight that provide the building blocks in helping the banks to rise to the challenges ahead of them. The reforms and the resultant gradual freedom that banks have now been bestowed with, adjustment to market-led conditions will have to be completed. In short, Indian Banking system is on a "Learning Curve".

### 2.6.3 Stringent Prudential Norms

The Reserve Bank of India, in its attempt preparing the banking systems towards the strengthening the banking system, has introduced several far-reaching measures, aimed at eliminating the shackles of the system and simultaneously strengthening the financial health of banking system. The major change has been the policy shift of the government and the market regulator (RBI), from dreggiest approach to a market oriented approach.
The reduction of Cash Reserve Ratio (CRR) and Statutory Liquidity Ratio (SLR), to the historic low of 5% and 25% is to release the funds from unwanted regulatory provisions and facilitate their investment/lending by banks in the economy. The rising rates of Non-Performing Assets (NPA's), in both the private and public sector players is a cause of concern for the RBI. According to the recent statistics, the total amount of NPA's is close to Rs. 1,00,000/- crores. The RBI, with a view to ensure the well-being of the system, has tightened the NPA provision norms and has also reduced the hitherto non-payment period from 180 days to 90 days, for classification of problem loan accounts as NPA's. The measures taken up by RBI, to tackle this menace, include, creation of Asset Reconstruction Company (ARC) to handle the NPA's, Debt Recovery Tribunals (DRTs) for faster resolution, and Credit Information Bureau (CIB) to enable the banks to share information regarding their defaulters. Further, the Basle Committee on Banking Supervision in its new consultative paper on capital adequacy framework in June 1999, which was released after consultation with several national supervisory authorities was finalized March, 2000 with three objectives of (a) promotion of safety and soundness in the financial system, (b) enhancement of competitive equality, and (c) constitution of a more comprehensive approach to addressing risks. The current Basle Accord is based on the following aspects: -

- Minimum Capital Requirements.
- Interest Rate Deregulation
- Supervisory review process.
- Effective use of market discipline.
- Transparency and Disclosure norms
- Reduction of Non-Performing Assets (NPA's)

2.6.4 Qualitative Human Resources - Competitive Differentiators
Apart from the organizational structure, systems and technology, which have impacting influence on the performance of banks, the key competitive differentiator is the quality of human resources. The new generation banks and the foreign banks had the option of recruiting the best available manpower from the market. Further they have also been training their employees regularly on the emerging trends, which helps them to maintain the competitive differentiation. The other aspect is the average age profile of the employees with the new generation banks and foreign banks, which is on a lower side. This has helped these banks in maintaining a young organization with vibrant performance culture. In case of public sector banks, they have the legacy of five to six decades of existence and most of the decision makers in these banks in their late 40’s and early 50’s. These banks also have the award staff whose age profile is similar to that of the officers/executives. The
age profile of the employees is leading to skill and competency gaps required for a technology driven banking scenario. Some of the public sector banks have initiated corrective measures for the last one decade by trying to create specialists pool in emerging areas such as information technology, asset liability management etc. Inspite of these measures the skills and competency gaps remain yet to be matched with the new generation/foreign banks. It is for this reason that most of the public sector banks had offered Voluntary Retirement Scheme (VRS) and in the process they have off-loaded about 10% of their surplus manpower.

2.6.5 IT Environment and Risks
The Reserve Bank of India, in its paper "Risks and controls in computer and telecommunication systems (February 1998)", categorized the risks under three broad heads (1) Environment Risks (2) IT operations Risks and (3) IT product Risks. They represent the inherent risks that arise in a technology driven banking scenario are:

* Regulatory Risk
  * Strategic Risk
  * Organisation Risk
  * location Risk
  * Outsourcing Risk
  * Error Risk
  * Computerised Fraud Risk
  * Disclosure Risk

There is an imperative need for banks to conscious of the risk factors detailed above, and the training system in banks has the onerous responsibility of training and facilitating the learning of employees, for functioning effectively in such a risky environment.

2.7 Sectoral Analysis for New Generation Banks (NGBs)
The NGBs who are the trendsetters in terms of technology adoption and electronic banking services are in advanced stages. All of them are fully connected through wide area network (WAN)/ Local Area Network (LAN)/ VSAT Network, have their websites and are offering a host of online banking facilities to the customers. They are effectively leveraging technology for innovation in product and service and are offsetting their small branch network with off-site ATMs, Net-banking etc., and are thereby giving tough competition to the dominant public sector banks. A brief summary of the various facilities being provided by some of the players is indicated below:
<table>
<thead>
<tr>
<th>Name of the Bank</th>
<th>About the bank</th>
<th>Online Banking Facilities provided</th>
</tr>
</thead>
</table>
| HDFC Bank        | • Aggressive player in the market  
                   • Rapidly increasing share of target customers in corporate as well as retail segments.  
                   • Believes in leveraging Technology for growth opportunities | • WAP (Wireless application protocol) banking  
                   • Debit Cards  
                   • Business Payment Solution & ePay debit payment gateway (B2B, B2C)  
                   • Online Mobile messaging (MyCBOL ON-SMS)  
                   • Internet Banking (online querying, funds transfer facility) |
| ICICI Bank       | • Aggressive Player in the Market  
                   • Attempting to grow both organically and through mergers and acquisitions | • Internet Banking Facility  
                   • Business Payment solutions  
                   • Strong focus on retail segment |
| Global Trust Bank| • One of the active players  
                   • Attempting to grow organically after failure in attempts to grow through mergers ("with UTI bank)  
                   • Offers wide range of electronic and online payment solutions | • Internet Banking facility  
                   • Investment banking (De-mat account facility)  
                   • E-payment solutions  
                   • Mobile banking |
| UTI Bank         | • Promoted by giant in Indian Mutual Fund Market (UTI)  
                   • Steady and organic growth philosophy | • Internet Banking  
                   • Depository Account facility  
                   • Online funds transfer  
                   • Overdraft against Fixed Deposits through ATMs  
                   • Corporate Advisory Services |
| IDBI Bank        | • One of the new generation private sector banks | • Offers a host of online banking services including Demat Account operations, Electronic Funds Transfer, Insurance in collaboration with Tata AIG, Mobile Banking, Free Phone and Internet Banking |
| IndusInd Bank    | • Aggressive player in market with special emphasis on NRI banking | • Offers a range of IT facilitated banking facilities such as Anybranch banking, Internet Banking, Depository Services etc. |
Name of the Bank | About the bank | Online Banking Facilities provided
--- | --- | ---
Centurion Bank | • One of the players | • Offers host of new generation banking facilities such as Anybranch banking, WAP Banking (Mobile banking), Internet Banking, Electronic Funds Transfer, ePay Debit Payment Gateway

2.8 Sectoral Analysis for Traditional Banks

a) Public Sector Banks: The public sector banks that have market share of over 70% are slowly catching up with the process of technology adoption. The Market leader SBI has already linked up the main business branches by through a strong VSAT network. It has started to offer facilities like online banking, and is planning to set-up about 1000 ATMs by the end of year 2002-2003. The agile players like corporation bank who are early adopters of technology are advancing ahead with their security plans. The other players like Punjab National Bank, Bank of India, Bank of Baroda, Bank of Maharashtra, Oriental Bank of Commerce, Allahabad Bank etc., are on the verge of finalizing their IT strategy/road maps, Information architecture, software architecture with the assistance of Multinational and Indian Consultants. Few of them are into implementation stage of the advice given by the consultants. The other banks are attempting to think in the direction.

b) Old Private Sector Banks: The initiation of economic reforms, deregulation of the financial sector coupled with entry of new generation private sector banks, foreign banks has intensified the competition levels faced by the 24 old private sector banks. They have the challenge of carving out a niche in the market, if they have to continue to remain relevant for the system. The deposit base of these banks as of March 2000 is Rs. 55,716.00 crores and the advances stand at Rs38,294.00 crores. They enjoy a market share of 6.54% in deposits and 8.43% in advances respectively. The new private sector banks have been making a big dent into their deposits and advances portfolio. It is imperative for these banks to sustain maintain strong financials to withstand the breeze and storm of competition. They are focusing on adoption of technology and technology upgradation, asset-liability management, improvement of marketing skills of their personnel and are slowing gearing up for providing customized solutions at par with those of the new private sector banks. A significant trend is the consolidation phase being witnessed through mergers and acquisitions. The merger of Bank of Madura with ICICI bank, the new generation financial giant, merger of smaller private sector banks such as Sikkim Bank, Benares State Bank with public sector banks is another
noticeable phenomenon. In case of some banks such as Federal bank, The Vysya Bank there have been moves towards change of ownership by some of the existing partners. These banks will have to adopt strategies of a) quickly improvise on their IT solutions b) create dedicated marketing force and c) provide personalized relationship banking, in order to survive. The major trends in the operational and systems related improvement are:

- Credit Deployment through Innovative
- Niche Marketing to provide customised services.
- Focus on Improving Profitability
- Organisational Restructuring/or improving flexibility & responsiveness
- Redefining HR Strategies with emphasis on competence & performance Management

2.10 Comparative Performance Analysis of Indian Banks
A study of the performance of the banks in various categories, i.e., Public, Private and Foreign banks, based on the data published by Reserve Bank of India in the Reports "Trends and progress of Banking In India, during the period, 1991-92 to 2000-01 reveals the following trends:

- Asset Quality: The return on assets is measured by Net Profit to total assets. Due to the changes in norms relating to income recognition and provisioning towards non-performing assets, Indian banks had incurred net loses in early nineties. The public sector banks had booked net losses during 1992-93, 1993-94 and 1995-96. Foreign banks had also posted net losses during 1992-93. In cases of all the bank groups, it declined during 2000-01, as compared to earlier years. Non-performing assets as % to net advances, of state bank group, nationalized banks and foreign banks, declined during 2001-01 as compared to previous year. However, it increased in cases of old Pvt. sector Banks and New Generation Banks.

### Return on Assets (%)

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<tr>
<th>Bank Group</th>
<th>91-92</th>
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<th>96-97</th>
<th>97-98</th>
<th>98-99</th>
<th>99-00</th>
<th>00-01</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBI Group</td>
<td>0.21</td>
<td>0.22</td>
<td>0.25</td>
<td>0.54</td>
<td>0.42</td>
<td>0.84</td>
<td><strong>1.06</strong></td>
<td>0.51</td>
<td>0.80</td>
<td>0.55</td>
</tr>
<tr>
<td>Nationalized Banks</td>
<td>0.33</td>
<td>-1.71</td>
<td>-1.98</td>
<td>0.10</td>
<td>-0.36</td>
<td>0.41</td>
<td>0.62</td>
<td>0.37</td>
<td>0.44</td>
<td>0.033</td>
</tr>
<tr>
<td>Pub. Sector Banks</td>
<td>0.28</td>
<td>-0.99</td>
<td>-1.15</td>
<td>0.25</td>
<td>-0.07</td>
<td>0.57</td>
<td>0.77</td>
<td>0.42</td>
<td>0.57</td>
<td>0.42</td>
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<tr>
<td>Old Private Sector Banks</td>
<td>0.59</td>
<td>0.34</td>
<td>0.57</td>
<td>1.15</td>
<td>1.03</td>
<td>0.91</td>
<td>0.80</td>
<td>0.48</td>
<td>0.81</td>
<td>0.62</td>
</tr>
<tr>
<td>New Gen. Banks</td>
<td>0.95</td>
<td>1.82</td>
<td>1.73</td>
<td>1.55</td>
<td>1.03</td>
<td>0.97</td>
<td>0.81</td>
<td></td>
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</tr>
<tr>
<td>Foreign Banks</td>
<td>1.57</td>
<td>-2.88</td>
<td>1.51</td>
<td>1.67</td>
<td>1.44</td>
<td>1.19</td>
<td>0.96</td>
<td>0.69</td>
<td>1.17</td>
<td>0.93</td>
</tr>
</tbody>
</table>
Bank Group | 91-92 | 92-93 | 93-94 | 94-95 | 95-96 | 96-97 | 97-98 | 98-99 | 99-00 | 00-01
---|---|---|---|---|---|---|---|---|---|---
All Scheduled Commercial Banks | 0.39 | -1.08 | -0.85 | 0.42 | 0.14 | 0.67 | 0.82 | 0.47 | 0.66 | 0.50

*Profitability:* The banks are enormous pressure to reduce the interest rates both on advances and deposits and thus increasing the pressure on the Spread. Public Sector Banks have improved their performance in terms of spread as % to total assets as compared to private sector banks, but in terms of burden as % to total assets the performance of public sector banks were far below the private banks.

### a) Operating Profit to Total Assets (%)

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<tr>
<th>Bank Group</th>
<th>91-92</th>
<th>92-93</th>
<th>93-94</th>
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<th>96-97</th>
<th>97-98</th>
<th>98-99</th>
<th>99-00</th>
<th>00-01</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBI Group</td>
<td>2.75</td>
<td>1.81</td>
<td>1.44</td>
<td>1.95</td>
<td>2.10</td>
<td>2.18</td>
<td>2.03</td>
<td>1.63</td>
<td>1.74</td>
<td>1.42</td>
</tr>
<tr>
<td>Nationalized Banks</td>
<td>1.29</td>
<td>0.42</td>
<td>0.72</td>
<td>1.12</td>
<td>1.14</td>
<td>1.26</td>
<td>1.33</td>
<td>1.22</td>
<td>1.30</td>
<td>1.28</td>
</tr>
<tr>
<td>Pub. Sector Banks</td>
<td>1.85</td>
<td>0.94</td>
<td>0.99</td>
<td>1.41</td>
<td>1.50</td>
<td>1.60</td>
<td>1.58</td>
<td>1.37</td>
<td>1.16</td>
<td>1.34</td>
</tr>
<tr>
<td>Old Private Sector Banks</td>
<td>2.08</td>
<td>1.35</td>
<td>1.85</td>
<td>2.18</td>
<td>2.20</td>
<td>1.89</td>
<td>1.96</td>
<td>1.21</td>
<td>1.82</td>
<td>1.75</td>
</tr>
<tr>
<td>New Gen. Banks</td>
<td></td>
<td></td>
<td></td>
<td>0.95</td>
<td>2.69</td>
<td>2.98</td>
<td>2.84</td>
<td>1.78</td>
<td>2.11</td>
<td>1.74</td>
</tr>
<tr>
<td>Foreign Banks</td>
<td>5.08</td>
<td>1.86</td>
<td>3.79</td>
<td>3.93</td>
<td>3.31</td>
<td>3.62</td>
<td>3.90</td>
<td>2.32</td>
<td>3.24</td>
<td>3.05</td>
</tr>
<tr>
<td>All Scheduled Commercial Banks</td>
<td>2.09</td>
<td>1.03</td>
<td>1.25</td>
<td>1.64</td>
<td>1.70</td>
<td>1.82</td>
<td>1.84</td>
<td>1.45</td>
<td>1.66</td>
<td>1.52</td>
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### b) Spread as Proportion of Total Assets (%)

<table>
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<tr>
<th>Bank Group</th>
<th>91-92</th>
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<th>93-94</th>
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<th>97-98</th>
<th>98-99</th>
<th>99-00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Sector Banks</td>
<td>3.22</td>
<td>2.39</td>
<td>2.36</td>
<td>2.92</td>
<td>3.08</td>
<td>3.16</td>
<td>2.91</td>
<td>2.80</td>
<td>2.70</td>
</tr>
<tr>
<td>Old Pvt. Sector Banks</td>
<td>4.02</td>
<td>2.91</td>
<td>2.97</td>
<td>3.04</td>
<td>3.14</td>
<td>2.93</td>
<td>2.57</td>
<td>2.15</td>
<td>2.33</td>
</tr>
<tr>
<td>New Gen. Banks</td>
<td></td>
<td></td>
<td></td>
<td>1.17</td>
<td>2.84</td>
<td>2.88</td>
<td>2.23</td>
<td>1.98</td>
<td>1.87</td>
</tr>
</tbody>
</table>

(New private sector Banks have started operating from 1994-95)

*Productivity:* Staff Cost to Net Income was significantly high for Public Sector banks due to huge branch network in rural and semi-urban areas and resistance for computerization of
branches from trade unions. During 2000-01, the staff cost to net income of state bank group (47.28%) was less than that of nationalized banks (51.87 %). For new gen. banks it was low at 9.07% and foreign banks it was 15.93%. The total intermediation cost i.e., operating expenses to total assets of foreign banks was highest at 3.05%.

**a) Business (Deposits + Advances) (Rs.) Per Staff Cost**

<table>
<thead>
<tr>
<th>Bank Group</th>
<th>91-92</th>
<th>92-93</th>
<th>93-94</th>
<th>94-95</th>
<th>95-96</th>
<th>96-97</th>
<th>97-98</th>
<th>98-99</th>
<th>99-00</th>
<th>00-01</th>
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</thead>
<tbody>
<tr>
<td>SBI Group</td>
<td>64.50</td>
<td>60.99</td>
<td>60.90</td>
<td>53.03</td>
<td>47.90</td>
<td>53.02</td>
<td>57.97</td>
<td>59.66</td>
<td>65.05</td>
<td>59.40</td>
</tr>
<tr>
<td>Nationalized Banks</td>
<td>72.84</td>
<td>71.28</td>
<td>69.42</td>
<td>63.90</td>
<td>57.41</td>
<td>60.29</td>
<td>65.43</td>
<td>64.84</td>
<td>67.42</td>
<td>61.74</td>
</tr>
<tr>
<td>Pub. Sector Banks</td>
<td>69.74</td>
<td>67.36</td>
<td>66.26</td>
<td>59.78</td>
<td>53.73</td>
<td>57.57</td>
<td>62.67</td>
<td>62.92</td>
<td>66.57</td>
<td>60.87</td>
</tr>
<tr>
<td>Old Private Sector Banks</td>
<td>62.32</td>
<td>69.05</td>
<td>78.92</td>
<td>83.84</td>
<td>78.92</td>
<td>83.48</td>
<td>93.41</td>
<td>91.08</td>
<td>93.65</td>
<td>107.68</td>
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<tr>
<td>New Gen. Banks</td>
<td>780.94</td>
<td>433.08</td>
<td>436.35</td>
<td>412.22</td>
<td>382.21</td>
<td>422.07</td>
<td>373.74</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign Banks</td>
<td>141.1</td>
<td>145.6</td>
<td>132.5</td>
<td>128.0</td>
<td>114.1</td>
<td>107.8</td>
<td>116.7</td>
<td>99.99</td>
<td>98.31</td>
<td>103.2</td>
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<tr>
<td>All Scheduled Comm. Banks</td>
<td>71.60</td>
<td>69.64</td>
<td>69.41</td>
<td>63.88</td>
<td>57.93</td>
<td>62.63</td>
<td>68.69</td>
<td>68.49</td>
<td>72.70</td>
<td>68.13</td>
</tr>
</tbody>
</table>

**b) Ratio of Establishment Expenses to Net Income (Spread +Other Income)%**

<table>
<thead>
<tr>
<th>Bank Group</th>
<th>91-92</th>
<th>92-93</th>
<th>93-94</th>
<th>94-95</th>
<th>95-96</th>
<th>96-97</th>
<th>97-98</th>
<th>98-99</th>
<th>99-00</th>
<th>00-01</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBI Group</td>
<td>33.33</td>
<td>42.61</td>
<td>43.51</td>
<td>43.57</td>
<td>44.43</td>
<td>41.63</td>
<td>42.63</td>
<td>44.42</td>
<td>41.98</td>
<td>47.28</td>
</tr>
<tr>
<td>Nationalized Banks</td>
<td>46.55</td>
<td>59.99</td>
<td>53.38</td>
<td>49.83</td>
<td>52.49</td>
<td>50.32</td>
<td>47.99</td>
<td>50.13</td>
<td>48.87</td>
<td>51.87</td>
</tr>
<tr>
<td>Pub. Sector Banks</td>
<td>40.56</td>
<td>51.92</td>
<td>49.4</td>
<td>47.26</td>
<td>49.05</td>
<td>46.67</td>
<td>45.86</td>
<td>47.85</td>
<td>46.13</td>
<td>50.06</td>
</tr>
<tr>
<td>Old Private Sector Banks</td>
<td>41.82</td>
<td>46.56</td>
<td>38.32</td>
<td>34.31</td>
<td>35.58</td>
<td>34.80</td>
<td>32.71</td>
<td>40.45</td>
<td>34.85</td>
<td>32.84</td>
</tr>
<tr>
<td>Foreign Banks</td>
<td>10.23</td>
<td>15.12</td>
<td>13.13</td>
<td>13.40</td>
<td>16.05</td>
<td>15.95</td>
<td>13.82</td>
<td>17.04</td>
<td>16.20</td>
<td>15.93</td>
</tr>
<tr>
<td>All Scheduled Comm. Banks</td>
<td>37.15</td>
<td>47.92</td>
<td>44.02</td>
<td>42.46</td>
<td>44.11</td>
<td>41.27</td>
<td>39.64</td>
<td>42.52</td>
<td>40.19</td>
<td>43.03</td>
</tr>
</tbody>
</table>
Thus, as we have seen the transformation of Indian Banking Sector, has been phenomenal due to a variety of factors such as regulatory, competition and most importantly, Information Technology. These changes call for total re-orientation and transformation of the banks. The fundamental pre-requisite for the process is the learning phenomenon, which operates both at the organisational level and employee level.

2.11 Banking Technology - Trends & Perspectives

The financial sector in general and banking sector in specific has been one of the foremost sectors to be affected by and to adopt the technology. On technology front, there is growing convergence of voice data and image technologies impacting the way the process of financial intermediation. Information and communication technologies play a very crucial role in the way a bank can operate. Globally the banking is technology driven. IT spending by the banking and financial services industry in USA is around 7%, as against an estimated 1% in India. (Nasscom Mckinsey Report). Net and WAP enabled banking are perceived to be at a nascent stage, but are envisaged to grow exponentially in the years ahead.

Though Computerization became an integral part of Banking System in Developed Economies, it is only in the mid-eighties that they were introduced in India. This was mainly due to the organized Trade Unions’ opposition to introduction of computers in Public Offices. Computerization was restricted to major Scientific Research Organizations and Technical Institutes and Defence Organizations.

However, in the year 1993, the Employees’ Unions of Banks signed an agreement with Bank Managements under the auspices of Indian Banks’ Association (IBA), which was a major break through in the introduction of computerized applications and development of communication networks in Banks.

The Reserve Bank of India had set up various Committees to improve the functioning of Indian Banking Scenario. Following is a brief description of the recommendations of the various committees set up by RBI:

This Committee was set up to study the feasibility of introducing Magnetic Ink Character Recognition (MICR) / Optical Character Recognition (OCR) MICR/OCR technology for cheques writing and to recommend a suitable system for the purpose of introducing national clearing of outstation cheques and also work out the details regarding standardization of cheques forms with reference to the size, quality of paper, printing specifications etc.

The recommendations of the committee were:

> Introduction of 'item processing' (sorting and listing of cheques with the help of computers) in three phases.

> First phase: Introduction at the four metropolitan cities viz. Mumbai, New Delhi, Chennai and Calcutta, with the help of MICR technology.

> Second phase: Introduction at all state capitals and important commercial centres.

> Final phase: Introduction of national clearing by dividing the country into four Regional Grids with headquarters at Mumbai, New Delhi, Chennai and Calcutta. Each Regional Centre is required to perform two functions:

(i) Act as a clearing house for intra-grid instruments, and

(ii) Participate in national clearing on behalf of the grid for extra-grid outstation cheques.

Committee on Mechanisation in the Banking Industry - Rangarajan Committee-I (1984)

In the early 80s, a high level committee was formed to draw up a phased plan for computerization and mechanization in the Banking Industry over a five-year time frame of 1985-89. The focus was on mainly on customer service. Two models of branch automation were developed and implemented through installation of the Advanced Ledger Posting Machines (ALPMs). They were

> Front office mechanization where front desk operations were computerized while back office work was done manually.

> Back office automation covering mechanization of General Ledger and back office operations while the front office work was done manually.

Both these models were intended to provide the customer with error-free accounting, regular statements of accounts etc.
This committee was set up to improve the communication network between banks. The main recommendations of the committee were as follows:

> Setting up of 'BANKNET' (X.25 based packet switching network) to be jointly owned by the Reserve Bank and the public sector banks.

> BANKNET was to be implemented in two phases.

**Phase 1:** Computer systems available in the Head Offices of the Public Sector Banks in the four metropolitan cities to be connected to the four IBM Mainframe servers.

**Phase 2:** Connectivity to be gradually extended to eight to ten banking intensive centres, and to a hundred centres over a three-year period.

> The applications identified for the use of BANKNET are:
  - Inter-bank fund transfers on banks' own account and on customers' account;
  - Inter-branch funds transfers on banks' own account and on customers' account;
  - Currency chest transactions;
  - Government transactions;
  - Improvements in payment systems by facilitating automated clearing services (similar to BACS);
  - Any branch banking, etc.

India should join the SWIFT (Society for Worldwide Interbank Financial Telecommunication) Network for the transmission and reception of international financial messages.

> The committee also recommended that the BANKNET should strive to emulate SWIFT in matters of data security, encryption, and authentication and SWIFT message standards, which are internationally accepted, should be adopted by BANKNET.
His committee gave a detailed perspective plan for computerisation in Banks and for extension of automation to other areas like funds transfer, electronic mail, BANKNET, SWIFT, ATMs etc. The recommendations of the committee are

- Around 2000 to 2500 large branches located at high activity (urban and metropolitan) centres to be fully computerized
- Inter- and intra bank transactions using the BANKNET to be set up by the RBI
- Installation of a network of cash dispensers / ATMs at strategic locations such as airports/railway stations etc., on a shared basis by banks.
- Further, the committee also made recommendations on the 'Single Window Concept', 'all bank credit cards', credit clearing system, office automation, etc.

Dr. C. Rangarajan, Ex-Governor of RBI, once commented that "The issue in India Banking is no longer whether technology is needed or not. The real issue is how much, what type and how quickly."

If we study the phases of use of IT in Indian Banking, we can observe that during the initial phase of computer applications, computer was treated as data processing device, that too for back office support. The data collected over a period of time, say weekly, manually were collected and processed in centralized computer in batches and process was known as batch processing.

With the popularization of mainframe computer, large centralized systems were built which had the ability of capturing data at source and providing output on various terminals distributed across the organization. Time-sharing operating systems like UNIX that supported multi-tier and multi-tasking database management systems like paradox and Foxpro etc., remote terminals and data analyzing software changed the design of data processing methods substantially. These online data processing systems permitted the organizations to exercise operational control on key activities.

Though most of the banks have computerized management information system (MIS), they are not able to derive suitable benefits, due to non-customization of information systems for the needs of particular bank. Most Indian banks are at a disadvantage due to late adoption of IT vis-à-vis their global competitors. Though, initially computers and telecommunication products were used by Indian banks for improving operational efficiency, they have realized the need for acquiring managing information strategically in various aspects of modern banking as well as internal resources like;
Non-Performing Assets Management

Assets and Liabilities Management (ALM)

Product Development

Credit and Investment Decision

Identification of Strategic Business Unit (SBU) and Critical Success Factors (CSF) etc.,

Human Resource Management and Organizational Development

In order to address the ever increasing volume of transactions as well as responding to customers in a time-bound manner, banks world over and inter alia, are adopting the following to reap benefits of computerization:

- Introduction of computer scoring models for credit appraisal
- Centralizing Credit appraisal at regional centre
- Maintaining centralized database to serve customer of all branches from any branch. The centralized solution is where the entire customer database as also the day-to-day transactions are stored in a central computer (server), which is accessed from various locations.
- Allowing transaction to customer of a branch from other branches using Internet, Intranet or E-mail
- Providing reconciliation and consolidation of receipts and payments dividend payments etc., of corporate customers; and
- Moving back office accounting to regional processing centres etc.

The Rangarajan Committee on computerization recommended various steps to enhance mainly four areas of concern namely,

- The quality of customer service
- The level of housekeeping
- Improving the Decision Making Process by strengthening MIS.
- The Productivity and Profitability

Y+ Committee on Technology Issues relating to Payments System, Cheque Clearing and Securities Settlement in the Banking Industry - Sara f Committee (1994)

This committee was constituted to make some recommendations on the payment systems in India and how technology can be implemented in the payments and clearing process. The following were the recommendations of the committee.
Establishment of an Electronic Funds Transfer (EFT) system, through the BANKNET communications network. The scheme would be started in the 4 metropolitan cities and to be extended in a phased manner to all-important centres.

MICR clearing to be introduced at all centres with more than 100 bank branches. Priority should be given to centres such as Ahmedabad, Bangalore, Hyderabad, Pune and Surat, which have relatively large volumes.

Introduction of Electronic Clearing Service (ECS) Credit for low value repetitive transactions such as interest, dividend, salary, pension payments and an Electronic Debit Clearing for payments to utility companies.

A uniform size for MICR instruments.

Switch over to on-line inter-bank clearing on a gross basis.

Introduction of 'Clearing Bank' concept for decentralised cheque processing.

Large scale induction of computers and communication technology in service branches.

Optimal usage of SWIFT.

NICNET, to be used for the reporting of currency chest transactions by the chest branches to their Link Offices and Issue Departments of the RBI.

Promotion of a card culture, as well as enhanced training facilities.

VI. Committee on Technology Upgradation in the Banking Sector - Vasudevan Committee (1999)

This committee was set up to suggest steps that facilitate the recommendations of the Narasimhan Committee-II. The following were the main recommendations:

- Measures to be taken for improving the effectiveness of VSAT network by enhancing the transponder capacity to the extent feasible. Multiple branches of a bank may be connected to the branch with VSAT through leased lines within a city.

- Outsourcing software technology would be a better option for banks.

- Banks should select the appropriate vendor taking into account factors such as their standing in the Indian IT industry, their image in respect of services offered within the country, their successful track record etc.

- All new applications should be subject to pre-installation and post-installation audit in addition to periodical audit.
A robust MIS founded on data warehousing and data mining, at individual bank level is essential for implementing various regulatory guidelines including the latest one on ALM.

The Reserve Bank of India could establish a Data Warehouse on Banking and Finance for the data collected under the regulator’s provisions.

The process of IT adaptation in the banking/financial sector can primarily be attributed to the foresight and vision of leading personalities in the banking/financial sector, who have headed various committees, set up by the Reserve Bank of India. The current status of technology adoption can be gauged from the following:

### 2.11.1 Current Status of Computerization

The advent of new generation banks also ushered along with the importance of technology, more than ever before. Realizing that they will not be able to beat the market leaders through branch network, which was carefully built over the years, they have deployed technology, for providing accessibility and reach to the customer through Anytime, Anywhere and Anybranch banking. The Public Sector banks, which have been late entrants in respect of technology, with the result, their technology absorption has been low. The public sector banks, realizing the need, have gone for large-scale computerization of branches and their operations. Some of the indicate statistics are:

- More than 65,000 PCS and their nodes have been installed in 3800 branches by public sector banks.
- Another 14,000 PCs have been installed in controlling offices and HOs along with 5475 LANs (Local Area Networks) systems.
- 636 branches have been connected with SWIFT (Society for Worldwide Interbank Financial Telecommunications).

*70%* of the business of the PSB’s has been covered through computerization.

In contrast, the new generation private sector banks have achieved high levels of automation and also offering electronic banking products including, mobile banking, to their high-end customers. Although the public sector entities are moving towards electronic banking which include, ATMs, Shared ATM networks, Issue and distribution of plastic cards, tele-banking, on-line submission of loan applications, considering their vast customer base, they serve, such strategies have been inadequate. The recent establishment of INdian Financial NETwork (INFINET), by RBI (IDRBT), using VSAT technology has solved the long-standing need for standardization and requirement of a safe communication backbone, for inter-bank and intra-bank transactions.
The three segments of the banking industry, namely., Public Sector Banks (PSBs), the Private Sector Banks (PVSBS) including eight new PVSBS and foreign banks are at different stages of IT adoption and integration, due to the their different legacies as much as the differences in their strategic approaches to computerization and technology absorption. The increasing competition as well as the changes would narrow the gaps between the players in three segments. However, the agenda, for different constituents would vary due to organizational differences, the spread and the nature of operations. A look at the performance of the players in the three segments would highlight the fact that growth rates of PVSBS has been one of the highest in terms of most of the performance parameters, vindicating the success of their customer centric strategies and adoption of technology driven solutions.

2.11.2 Delivery Channels - Leveraging of Technology

The IT solutions may be categorized in three groups, namely substitutive, complementary and innovative. IT helps in substituting machine power for human efforts, improving employee productivity and providing of new services like CMP (Cash Management Product) etc., which help the clients in their treasury management. The utility of IT is varying and dependent on the levels of the management. In case of Top management it helps in strategic planning, middle management in business planning and control and operational management in improving productivity and cost reduction. The business of banking is information and communication driven. The various reasons for developing an IT strategy in banks are:

- Increasing span of control
- Flattening of Organization's structure.
- Integration with economy and meet the challenges of market developments
- Enhancing the efficiency of organization
- Most importantly gaining competitive edge

There is growing demand for convenience banking, in the form of net enabled banking services, both from the retail as well as corporate customers. The guidelines of CVC (Central Vigilance Commission) for 70% business coverage through computerization, is the first step towards computerization of PSBs. The PSBs are moving towards the next step of networking of branches and centralized processing/technology solutions. The PSBs are trying to rationalize and leverage the branch network, while the new players, are adopting the routes of off-site ATMs, Netbanking solutions to supplement their branch network. The banks while addressing strategic concerns of
enhancing capital adequacy, dis-investment, rationalization of staff, re-organization of systems and procedures. The customer centric approach, can adopted through various technology models for reaching customers through various delivery models. It enables management of data that is critical for business design as well as the reporting requirements, both internal as well as external. It has impact on efficiency of operations, impacting the cost of doing business. It is evident from various estimates that new technology enabled delivery channels are viable and attractive from the point of reducing the cost of operations. As against rupee one for branch transaction the costs for Internet transaction is estimated to be Re.0.1, followed by Re.0.35 for telephone banking, and 0.45 for ATM channel. The technology path adopted by various players is depicted in Chart A depicted below:

The Trodden Technology Path: Technology Driven Banking

DELLIVERY CHANNELS

Most of the PSBs predominantly cover up to the third signpost. The PVSBs especially the new generation ones have covered most of the initiatives. The futuristic aspects i.e., kiosks, payment gateways, Eftpos are underway. The challenge in future would be channel integration and ensuring uniformity of service across all the channels. The PVSBs are looking e-com strategies in their net banking channels. The PSBS have initiated steps for planning and executing IT strategies with commitment to embrace technology and allocated IT budgets.
The above technology continuum indicates that the banks in their path of transformation will have to decide upon the appropriate mix of delivery channels based on their individual status. There are various parameters the banks will have to take into cognizant the mix of delivery channels. Some of the parameters are

- Extent of networking and IT preparedness for the bank
- Availability of competent and trained IT personnel to manage the network
- Outsourcing/In-house network management solution
- Cost implications vis-à-vis the profitability of the bank
- Return on Investment
- Brand identity and positioning of the bank
- Target and segment of customers
- Targeted market reach and penetration etc.

However the banks should be cautious of not to adopt a delivery channel for the purpose of copying/matching the competitor but the bank will have to weigh the option based on the intrinsic strength vis-à-vis the IT/Business strategy of the bank.

2.11.4 Strategic Technology Responses by Reserve Bank of India

The regulator and the lever of the Indian Banking System i.e., Reserve Bank of India, has been constantly focusing on critical areas that need priority for efficient functioning of the banking system. In order to address the technology trends and also to prepare the system the RBI has implemented several technology solutions by taking appropriate initiatives from time to time. Extensive spread of the branches and diversification of banking functions over the last decade, coupled with the present challenges of customer service, housekeeping speedy disposal of credit proposals, re-conciliation of inter-office transactions, productivity/profitability, better control as well audit requirements have made it imperative for the RBI to focus upon hastening technology adoption and absorption process through several initiatives:

- **National Clearing System**: The first significant step by RBI during mid-eighties when it initiated measures to address the mounting problems faced by the banking system as result of lack of automated processing of clearing instruments, it had introduced the mechanized processing of cheques based on Magnetic Ink Coded Character Recognition (MICR) technology through National Clearing Centres (NCC) located in four metros (Mumbai, Delhi, Kolkata and Chennai) initially and has since been extended to 16 other major cities in the country.
Development of Inter-bank network (Indian Financial NETwork- INFINET): The importance of inter-bank and intra-bank network assumed greater significance in the light of banking sector reforms. The banks needed to have in place Asset Liability Management (ALM) and other associated risk management tools, enhance the quality and speed of credit disbursal, through a reliable and efficient technology communication channel. Taking into consideration all these aspects, RBI had set-up a Committee on Technology Issues, during 1994, to undertake a critical review of the existing procedures and practices relating to transfer of funds, payment systems and settlement procedures. The committee suggested adoption of VSAT technology based networking of major centers in the country.

Thus, the satellite based VSAT network called INFINET, has been set up by Institute for Development and Research in Banking Technology (IDRBT) with a view to provide reliable communication backbone to the banking sector. The network has now about 1600 VSATs covering most of the critical centers in the country. The network is also being integrated with high bandwidth Leased Line Network (LLN) connecting 21 major cities in the country, where RBI has its offices. The VSAT and LLN would be complimentary each other.

Other Initiatives: with a view to address the need for Inter-Bank Electronic Funds Transfer (EFT), and facilities similar to automated clearing houses, RBI has introduced Electronic Funds Transfer (EFT) and Electronic Clearing System (both credit and debit) using the existing infrastructure. The EFT enables funds transfer across different banks among the four metros, Ahmedabad and Bangalore. The ECS service has been made available to corporate bodies/Government departments for making bulk or repetitive low value payments like interest, dividend, refund, salary, pension etc., at all the 17 regional offices of RBI which have banking department and also at branches of State Bank of India (SBI), which manage clearing houses. Further, RBI has also introduced Delivery versus Payment (DvP) for speedy settlement of government transactions. The recent initiatives of RBI to address the needs of the banking system include:

- **Structured Financial Messaging System (SFMS):** IDRBT, at the instance of RBI, has initiated development of secure messaging facility to facilitate exchanging of financial messages across branches of a bank and interface with member banks of INFINET. SFMS enables Straight Through Processing (STP) and generation of necessary reports in a highly secure environment, based on message formats which are akin to SWIFT messages (Society for Worldwide Inter-Bank Financial Telecommunications).
- **Centralized Funds Management System**: It provides a real time funds position in a banks' current account across all the RBI offices. This would not only enable the banks to know its funds position at any point of time, but would help in efficient management of funds. It also envisages facility for banks to send instructions from treasury office to a RBI office requesting for transfer of surplus funds.

- **Public Debt Office (PDO) and Negotiated Settlement System**: The initiatives also include a comprehensive Government Securities handling system called Public Debt Office (PDO) and Negotiated Settlement System (NDS). It would facilitate trading in government securities and funds settlement by banks and financial Institutions. It also provides for accepting bids for auction of Government Securities, Payment of Interest, redemption of securities etc., electronically. The NDS would provide facilities for striking a deal in Commercial Papers, Certificates of Deposits and Call money transactions. The SSS (Securities Settlement System) would interact with RTGS to enable DvP for settlement of Government Securities.

- **Real Time Gross Settlement System (RTGS)**: This system would enable gross settlement of high value payment instructions from banks. The RTGS would interact with the current accounts of banks maintained with the RBI and setdes die payment instructions across these RBI accounts on real time basis. The settlement instructions from Deferred Net Settlement Systems like Clearing Houses would also be accepted by the RTGS for settlement. The RTGS system removes many risks associated with the traditional net settlement systems. To enable gross settlement, RBI is also offering intra-day liquidity support to participants of RTGS in the form of Repos. Ultimately, it is envisaged that inter-bank transactions currently being settled in inter-bank clearing would flow to RTGS and also, the transactions being settled in the high value clearing would be settled as RTGS transactions.

- **Internet Banking**: The RBI has set up its website to disseminate information to the banks. Some of the banks have started extending non-fund services and even operations of their accounts, issue of cheque books, and bill collection on internet after building up necessary security levels. This would pave way for introduction of base transaction level services after taking into consideration the legal, technical and regulatory aspects of banking.

Thus, RBI, at the macro-level has been setting the tempo & direction, for the banks by planning in advance and executing several projects, which are expected to support the mission critical applications of the banking sector.
2.11.5 IT Applications

The advent of IT has influenced the Financial and Banking sectors in a profound way. Banks were among the earliest users of computers. Bank of America installed automatic cheque processing equipment in the early sixties. MICR technology helped banks in the cheque clearing system. Now IT can be described as all pervasive in banking operations. Some of the IT applications in banking are cited below: -

• On-line Branch Banking and Accounting
• Payment Systems (ie., Credit Cards, Debit cards, Smart Cards, ATM cards and electronic fund transfers)
• Tele-banking/Home Banking
• Niche & customised Marketing
• Datawarehousing mining and Business
• Electronic Cash (E-Cash).
• Electronic Clearing and Settlement

2.11.6 Internet Banking

The Chart B depicted below the phases of Internet Banking in India. It was initially targeting at NRI customers of the bank was extended to the high-end customers and now they have begun to extend it to upper-middle class customer to widen the base and increase the turnover. The immense possibilities of B2B and B2C have given thrust to net-banking initiatives. The facilities are being extended to the retail as well as corporate clientele bases. Use of WAP enabled technology in banking is also becoming a global trend, and the same is being explored by a few PVSBS and foreign banks in India, due to its impact on retail as well as corporate business of banks. Some of the PVSBS have covered up to third module and in collaboration with service providers such as utilities, stock brokers etc., for content and service provision. The net initiatives of these banks have also been branded, for instance, Infinity of ICICI bank, iconnect of UTI bank and netbanking of HDFC banking, with a view to emphasize the exclusivity of service. The pervasiveness of net banking is bound to grow in coming years with the estimated figures by 2003 envisage 44 million telephone lines, 11 million PC users, 7 million internet users and 15 million mobile users.
Future Scenario: At a broad level the fundamental change in technology absorption would occur when it becomes a decision support tool part from its use in delivering different products and services to discerning customers, data management for internal as well as external reporting purposes. It is a moot question whether, technology influences business or business influences technology because banking and financial services have become highly technology driven in contemporary context. Globally the business model in equilibrium is a click and mortar one. But the brick model is used more for changing, focusing on high net worth clients and increasing number of customers-volume business being directed to the lower number of customers-volume business being directed to the lower cost channels based on web and WAP. The offering of these services has become business imperative from the perspective of meeting customer expectations of providing "anytime anywhere service". The global trends in financial industry are leading to 24x7 and straight through processing systems. The increasing focus is Customer Relationship Management (CRM), Datawarehousing and mining are also being used both for decision support purposes and also offer tailored solutions to meet the requirements of customers. The current research in the area of interactive television etc., are likely to have significant impact on the banking sector. Datawarehousing and mining will become important to banks from decision-making perspective. Banks are trying to build homogenous databases, to enable leveraging on technology driven systems. The Vasudevan Committee sector (an RBI initiative for identifying road map) has broadly set the agenda for technology absorption in Indian Banking Sector. The pilot project on Smart Cards (SMARS), by IDRBT, IITB (Mumbai) and SBI has been successfully completed, and some banks are taking steps for their introduction.
The concept of business driven is yet to take off fully within banks in India. It implies that line units sponsor the customer-focused IT solutions that they need rather than the IT department promoting IT solutions that either are needed by the business units or represent a lower priority of customer need. For instance, what is the extent of utility or WAP or Internet banking facility for retail customer, currently, which have come to symbolize for the banks that they have "in-thing", in the services, but where the actual usage is negligible. Before investing in IT, management is required to analyze the risk-return trade-off in holistic way.

In future, when technological divide in technology adoption narrows between banks from all segments, there would be greater need for branding of services and products by banks apart from innovation to stay ahead in the race. The competitive differentiator would be the ability of banks to leverage upon contemporary and futuristic technologies.

2.11.7 Virtual Banking - The Emerging Phenomenon
The trend world over for banks is to be accessible anytime and anywhere and the Indian banks too are moving in this direction. It is now increasingly been realized that branch expansion is cost prohibitive and serves limited purposes, beyond a certain limit. On the contrary, virtual presence provides immense opportunities of in terms of reach, marketing possibilities as detailed below:

- Increase Customer Base for all Profit Centers
- Increase the Overall Breadth and Quality of Services
- Decrease the Proportion of Routine Transaction in the Branch
- Improve General Customer Satisfaction
- Reduce the Overall Risk Possibility for Banks
- Increase Quality of Bank's Marketing Initiatives
- Increase the Retention Rate of Employees and Perceived Staff Morale

2.11.8 IT and Competitive Strategy
As discussed earlier, an information system that begins to exploit potential of information processing will become a strategic resource impacting the organization's competitive ability. Michael porter identified the following characteristics that govern the organizations' competitive position:

- Efficiency and effectiveness of firms internal operations
- Relationship of the firm to its suppliers (in term of bargaining power, degree of coordination etc.,)
• Relationship of the firm to its customers (e.g. bargaining power, degree of coordination, cost of switching to a competitor)
• Exposure of the firm to entrance of new competitors (Banks entering into insurance and vice versa)
• Exposure of firm to substitute products (banks facing competition from Stock Market, Mutual Funds etc.,)

Thus the firm's competitive position can be built taking into cognizance the above factors. The strategy can rest on sophisticated and evolving technology that competitors cannot match. A framework for drawing up business strategies and relevant IT strategies as proposed by Regie Thomas in "implementing a MIS strategy" is given below:

![Diagram](image)

It is advisable to incorporate information system and sophisticated information technology into the overall business strategy of the organization, for obtaining competitive advantage over the competitors.

However, there are certain difficulties in the process of organization upgrading its technological capability such as Conceptual Difficulty in planners IT strategy pinning down the organizational
values and procedures which have to aligned with IT strategy, Technological Gaps i.e., IT planners not being able to visualize the development of IT, making it redundant, even before it is unimplemented.

5.11.5.1 Building an Enabling Technological Base

The process of developing an appropriate technological base is one of the most demanding parts of building a successful MIS strategy and the following actions to be taken:

- Develop long term aggregate estimates (3 to 5 years) of capacity requirements, along with manpower planning and their learning requirements.
- Develop detailed short-term (2 year) for MIS activities with in the over the entire planning horizon.
- Develop the Learning Climate and process for developers and users of MIS
  - Plan for implementation of the communication network
  - Plan for managing and implementation/operation for data-sharing mechanism
  - Plan and manage support services
  - Developing mechanisms for identifying and introducing promising new technology

2.11.8.2 Planning of Organizational Information system

The key prerequisites of planning organizational information systems are to capture the complete information, which can meet the organization requirements. It requires careful planning and significant cooperative efforts among all the persons involved in the process. The determination of information requirements is vital part of their cooperative activity. It is difficult for the users to define the requirements. A complete database system will consist of the database schema and applications software that uses the schema. The schema implements data requirements of the organization for which the system is being developed. The applications software meets the functional requirements of the organization.

The analysis of information requirements for database construction involving planning the process, assembling a team of people to carry out the work and deciding upon the configuration of the hardware required for DBMS. The database and database management should fulfill the requirements of Availability, Sbarability, Evolvability, Data Independence and Data Integrity.
The development of requirements for database consists of an overall planning strategy and process to define an overall architecture, existing as well as anticipated requirements. Based on these processes there are three alternate requirements development strategies:

- Development Strategy based on overall architecture
- Evolutionary development strategy based on existing files
- Anticipatory development design strategy.

The overall architecture for database is based on two types of requirements i.e., Transaction Process Requirements and Management Requirements.

### 2.11.8.3 INTRANET as Corporate Communication Strategy

The basic purpose of any Management Information system is to help an organization coordinate its activities and thereby achieve its goals more efficiently and more predictable manner. The core aspect availability of needed information to the employees. The technologies for managing and distributing information have changed over time, but the functions required for human organizations have remained fairly constant.

Intranet uses the technology, which is more or less similar to Internet, but the access is restricted to the corporate members of the employees. The basis for evolution of Intranet is initially LAN, followed by WAN. The term Internet is of recent origin and was coined in 1995. It basically provides communication infrastructure, based on communication standards of Internet and content standards of World Wide Web. It can be set up in a very short time and can ultimately serve as an "Information Hub" for the entire organization. Intranet offers the following application feature set i.e., Rapid Prototyping, Scalability and Easy Navigation.

### 2.11.8.4 Information Center & Organizational Intelligence

Information center evolved from the need to help the end-users and end-user departments learn about and take advantage of decision support resources. Most information centers are created primarily to assist end users and develop their own computing systems. The information centers offer a lot of benefits to the users and the organization and some of the benefits are:

- The services of information centers can contribute to supporting the competitive position of the organization.

/* The information center can be a focal point for the implementation of corporate information plans relative to end-user computing.
• User-developed systems can help alleviate MIS development backlogs.
• End user productivity can be enhanced.
• It can provide first-line support to end-users.
• It can be a clearinghouse to share solutions and applications among the users.
• Compatibility among systems can be encouraged or enforced.
• Individualized, flexible training can be provided on an as needed basis.

2.0.8.5 Decision Support System (DSS) - Relevance and Pertinence
Decision Support System is specialized type of computer-based business information system. Some of the definitions are:
• An interactive computer-based system, which facilitates solution of unstructured problems.
• A system that provides tools to managers to assist them in solving semi-structured and their own and somewhat personalized, way.

DSS is set of tools, data, models, and other resources. It is not intended to make decisions for managers, but rather to provide managers with a set of capabilities that enables them to generate the information they need to make decisions. The five components involved are Hardware, Dialogue Management, Model Management, Data Management and Systems Programs.

2.11.8.6 Business process Re-engineering/System Reengineering
Reengineering is an integration and extension of well-established theories with a new twist. System reengineering is a process by which an organization may redesign the "way it does business to maximize its core competencies. In other words, system reengineering is defined as the fundamental rethinking and redesign of operating processes and organizational structure. In turn, this redesign results in dramatically or significantly higher profits, greater satisfaction, lower expenses, consolidated activities and increased productivity. Since such reengineering changes the whole business process radically, it is also known as Business Process Reengineering.

System Re-engineering involves reorganizing workflows, cutting waste, combining various steps of processing and eliminating repetitive tasks. System/Business Process Reengineering changes processes completely, so that they are logical and efficient and driven organization’s core competencies. The progression from the stages of evolution to the stages of revolution is captured below: -
Business Process Reengineering (BPR) is for achieving improvement in critical contemporary measures of performance. It is basically a creative process. BPR lacks a formal, precise methodology but it provides some guidelines, which make up a set of principles.

The objectives of system reengineering /BPR include Cost Reduction, Time and Space Shrinkage, Quality Enhancement, Work life Enrichment, Profit Improvement, profit Improvement and Survival in Future. The implementation of BPR should precede a carefully drawn out strategy and the steps to be taken in the process are:

- Development of Business Vision and Process Objectives
- Identification of Process to be re-engineered
- Understanding and evaluating existing processes
- Identification of Information Technology (IT) Levels.
- Designing and preparing a prototype of the new processes

Reengineering projects generally fall into three categories. At the very basic level, reengineering efforts simply streamline operations. Moderately ambitious projects take an approach to integrate work and unify jobs. The most aggressive projects truly transform the entire organization. The various methods adopted in the BPR include Preparing for change, Planning for change, Designing change and Evaluating Change. The basic technologies necessary for applying BPR are Networking.

- It is absolutely critical that an organization pursues a network vision to connect all the computers
to create an electronic path to provide for collaboration across functional lines, geographic boundaries and time zones. Databases - Database technology enables us to store information in an organized fashion. It allows multiple people to access information at different times from different places. Desktop Tools - The seven components are spreadsheet, word processor, and presentation graphics, filing system, calendar, electronic message and access to external data. The tools must be consistent and be able to share data with other programmes.

System Reengineering has positive implications on the functioning of the organization. It will streamline the functioning of the organization, enhance the quality of products and service, enrich the work-life of the people concerned, help in better time and space management, more importantly improve the business and profitability which will ultimately help the organization to survive in future.

2.11.8.8 System Reengineering and Product Development

The adoption of Information Technology in the banking has helped in providing of more and more services to the customers such as ATMs, Plastic Cards, Telebanking, making it imperative for organizations to reengineer the process. System Reengineering for product development in an organization for new product development is done of the models: Technology Push - It is characterized by high level of investment in information technology, systems & procedures and operations. Product development is pursued with inputs from IT. Market Pull Model - The ideas, suggestions and request of customers have strong influence on product innovation. The market needs influence the innovation of new facilities/service. Balanced Model - It is a combination of Technology Push and Market Pull Models and takes into account positive features of both the models. The other models are Proactive Model and Reactive Models, which are self-explanatory. For instance, any tie banking operates on the following perceptions: -

- The customers need products and service anytime (in their time frame and not the time frame of the bank).
- The bank, which delivers customers, products and services in more real time, relative to their competitors will have a decided advantage.
- Operating in real time means no lag-time between identification and gratification of the needs of the customers.

In the process of adopting system reengineering for anywhere and anytime banking, banks have to focus on the four dimensional model mentioned below:
• **First Dimension** - Banks' domain is fixed and the customers are to move into the bank's domain for doing banking transactions.

• **Second Dimension** - Bank's domain is expanding and thus becoming nearer to the customers. But still the customers are required come into bank's domain for transactions.

• **Third Dimension** - Bank's domain has expanded to such an extent that it has moved into the domain of the customers and the customers need not move for transacting banking business.

• **Fourth Dimension** — Bank's database has been made real time and available to the customers round the clock so that customers can do anytime banking.

### 2.U.8.9 Online Transaction Processing (OLTP)

Online Transaction Processing (OLTP) is a process by which a transaction, which has been put into a system, will be available to all the users who are working in the same system. It implies that information regarding the system will be available online, due to on-line processing of the transaction and its availability to everyone in the system. The transactions are basically of two types i.e., Financial Transactions (FT) which have a direct impact on cash accounts or funds management. The Non-Financial Transactions (NFT) is the ones, which deal with actual movement of funds. However, NFT can subsequently lead to FT later on. OLTP can be classified into two categories i.e., inter-office and intra-office OLTP. The on-line transaction in a computerized but which is not connected with other branches is an example of intra-office OLTP.

OLTP provides enormous opportunities for radically redefining the work processes and goals of the process include Good Customer Service, More Business, More Profitability, Less pilferage of funds due to frauds or otherwise etc. The technology prerequisites for OLTP are Networking, Common Database, E-Mail, Group Ware, Magnetic Strip Readers etc.

### 2.11.8.10 Technology Banking and Security

There are certain disadvantages along with advantages and this is the natural phenomenon. There are security threats to technology banking basically are from, Physical, Hardware, software, networking aspects. The physical threats are being countered through Intrusion Detection system, while the hardware security is ensured through comprehensive testing, electrical protection through protective diodes, capacitors, shielding, card identifiers, Biometric/individual characteristic measurement devices. The software security is provided through logical security, Intrusion Detection System (IDS), Network Security Standards, Firewalls, Authentication & Digital signatures,
key management procedures, Automated LAN administration, Network & IT Audit and more recently ethical hacking to examine the robustness of the system. The threat perception to banks has necessitated for banks to evolve an "IT Security Strateg", since security is no longer a peripheral issue, but a strategic issue affecting the core functions of the entire bank.

2.11.9 Technology Adoption - Concerns and Issues
The adaptation of technology in Banks in India is guided by the fact that "the key to success in the changed environment of business will be the ability to reach the client at his doorstep with visibility, transparency and service." The trends in banking can be categories into three namely, Traditional Banking, Technological Banking and Tactical Banking. The technology adaptation is undertaken with three strategic objectives:

- Satisfy the needs of the customer,
- Improve organizational capabilities
- Provide Strategic Decision Support & information system.

A bird's view of the reasons behind technology adaptation by banks would bring out that the padi adopted by banks is affected due to the following pitfalls:

- Absence of awareness and acceptance of reforms by the labour unions
- RBI report as "bible" for implementation
- Inadequate political will for total IT implementation
- Labour agreement restricting the size, capacity and areas of computerization

A study of the IT strategies/plans of the banks organizational plans would highlight and bring to the fore, the following drawbacks: -

- Absence of integrated IS plan
- Absence of top management commitment for introduction of IT as a decision support and decision management strategy
- Inadequate Human Resource Development & Training Policy and program for implementation of IT
- Absence of board level representation of IT services division.

The parameters for measurement of technology are Productivity, Efficiency, Effective Controls etc. Each of these factors has their own importance in justifying and also sustaining the investment levels in technology upgradation. An investment per se, can be justifies b the management only if
there is a correlative returns. The strategies being adopted by banks towards the purpose are three pronged i.e., Branch Computerization, Bank Computerization and Inter-bank Integration. The entire focus of IT adoption in Banking aimed at making the organization flexible and responsive. Building a suitable Decision Support Systems and also evolving suitable business strategies for the purpose can only achieve this.

2.11.9.1 Information Technology (IT) Enabled Management Information System (MIS)

MIS can be understood as an integrated, user-machine system for providing information to support operation, management and decision making in an organization. The information needs are correlatory to the levels of the organization. The pictorial representation depicting the informative needs at different levels is indicated below:

```
Strategic Planning & policy
Decision making for management Control
Operational Planning & Control
Transaction Processing Enquiry Response
```

The banking sector deals with more information than money. A significant part of bank employee's working and personal time is spent in recording, searching for and absorbing information. Most of the banks have been attempting to understand their MIS as well statutory information needs. With increasing globalization banks should put in place systems that allow their management's to have both the information and procedures to be aware of their own risk exposures and be able to modify such exposures.

"Good governance requires comprehensive internal control procedures and policies that are implemented by skilled personnel and monitored by management." [Report on Trend and Progress of Banking in India 1996-97- RBI].
The information system that begins to exploit the potential of information processing will no longer be confined to the back office role of routine data processing, but would assume strategic importance with major influence on organization’s competitive ability. For information-intensive business such as financial services, competence in managing information has already become critical success factor. Some of the benefits of information systems are: -

- Operational Efficiency — through improved transaction processing
- Functional Effectiveness — Through Decision Support system
- Spotting and advantage of emerging opportunities
- Better Customer Service
- Product creation and improvement - through analysis of data of customer transactions for identifying customer preferences
- Altering competitive advantages - for instance, obviating the need for geographical presence through net banking initiatives

2.11.9.2 Status of Computerization In PSBs

As per the details published by the Reserve Bank of India during September, 2002, the status of computerization in public sector banks is as under:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Number of Branches in India</td>
<td>46528</td>
</tr>
<tr>
<td>Partial computerization at Branch Level</td>
<td>16,256</td>
</tr>
<tr>
<td>Number of Fully Computerized Branches</td>
<td>13,078</td>
</tr>
<tr>
<td>Number of existing service branches</td>
<td>385</td>
</tr>
<tr>
<td>Number of partially computerized service branches</td>
<td>63</td>
</tr>
<tr>
<td>Number of fully computerized service branches</td>
<td>318</td>
</tr>
<tr>
<td>Total ATMs installed</td>
<td>2490</td>
</tr>
<tr>
<td>Online terminals at corporate sites installed</td>
<td>5980</td>
</tr>
<tr>
<td>Debit cards (as ATM cards) issued</td>
<td>30,62,628</td>
</tr>
</tbody>
</table>
2.11.9.3 Factors Influencing Technology Initiatives

- Heightened competition, a persistent bearish market, and a general erosion of consumer confidence continue to influence banks' IT decisions in 2003.
- Increasing number of banks are looking at IT deployment as part of a comprehensive IT strategy, rather than as fragmented investments.
- Offering of allied products such as insurance and investment products will drive the growth for total automation.
- In wholesale banking, banks will further harness Internet-enabled technologies to improve customer offerings and service.

» New initiatives by the RBI, such as data warehousing will open a lot of new avenues.

2.11.9.4 Areas of Emphasis in IT Plans/Strategies of Banks

As per views expressed by the Chief Technology Officers (CTOs), during Banknet India 2003, the following issues were highlighted by the IT Chiefs/CTOs as issues of emphasis/priority for banks in near future.

"I* Establishing a Wide Area Network (WAN) for networking of branches for implementation of core banking solutions.

» Connectivity of branches is a mandatory prerequisite for implementing RBI initiatives on Payment and Settlement Systems such as PDO-NDS, CFMS, SFMS and RTGS.

» Standards for inter-operability of Smart Cards will enable multiple applications on a small chip.

» Secure messaging for launching fund transfer projects.

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» Secure messaging for launching fund transfer projects.

2.11.9.5 Roadmap of Banks to strengthen the existing financial Infrastructure

Further, the Chief Technology Officers (CTOs), during Banknet India 2003, have laid down the following roadmap for strengthening existing financial infrastructure:-

» Introduction of Core Banking System within the next 12 — 24 months.

» As an interim solution, networking of branches and identified commercially important centers immediately and start Funds Transfer products.

» Immediate establishment of Registration Authority (RA) office for issue of Digital Certificates for use in Funds Transfer products.

» Establishment of integrated treasury branch or in the interim proper reporting arrangements from major centers for effective management and maintenance of Intra-day liquidity.
- Integration of existing applications to facilitate end-to-end straight through processing (STP).
- Have an aggressive HRD policy for retraining in IT Skills.
- Take up restructuring/reorganization for the entire bank.

2.11.10 Learning Infrastructure in Indian Banks

The evolution of learning culture in the banks in the country can be traced of late 60's & 70's, when majority of the public sector banks have emphasked upon the training & development of their employees. For the purpose, they have established the Staff Training Colleges (STC) across the length & breadth of the country.

All the public sector banks have minimum of one STC and the major banks have around 3 - 4 STCs in different regions of the country, based on which the number of STCs for the public sector banks could be stdmated to be around 60.

In case of the private sector banks, including some of the new generation banks have their own STCs and also colleges established by consortium of banks such as South Indian Banks Staff Training College (SIBSTC), Bangalore. The number of training colleges in the private sector are around 15.

In addition, the Reserve Bank of India has established the following apex level training centers to cater to the needs of the banks:-

- National Institute of Bank Management (NIBM), Pune
- National Institute of Banking Studies & Corporate Management (NIBSCOM), Noida
- Indian Institute of Bank Management (IIBM), Guwahati
- Bankers' Training College (BTC), Mumbai
- Reserve Bank Staff College (RBSC), Chennai
- College of Agriculture Banking (CAB), Pune

Further, the Institute for Development and Research in Banking Technology (IDRBT), established and fully funded by the Reserve Bank of India, as an apex level Institute for Banking Technology in the country, also conducts apex level training programmes, which are aimed at training the trainers, with a view to facilitate technology adaptation and also competence building in the banking industry.
Further, during mid 90's, the banks especially the public sector banks have felt the need for training of their employees in IT adaptation and IT skills and for the purpose, the major public sector banks have established the exclusive IT training centres and currently there are around 6 dedicated IT training centers.

The consolidated statistics of learning infrastructure in the banking sector is as under:-

<table>
<thead>
<tr>
<th>SL. No.</th>
<th>Segment</th>
<th>No. of STCs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Apex Level Training Centres</td>
<td>7</td>
</tr>
<tr>
<td>2.</td>
<td>Public Sector Banks</td>
<td>60</td>
</tr>
<tr>
<td>3.</td>
<td>Private Sector Banks</td>
<td>15</td>
</tr>
<tr>
<td>4.</td>
<td>Focussed IT STCs</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>88</td>
</tr>
</tbody>
</table>

In addition, the banks have also been depending upon the external sources (reputed academic/training institutions) such as Administrative Staff College of India (ASCI), IIMs (8), Management Development Institute (MDI), Jamnalal Bajaj Institute of Management etc., for training and development of their skilled manpower. Some of the banks depute to overseas institutions for training in specialized areas such as foreign exchange etc. The banks have also tied up with IT training institutions such as NUT, APTECH for training of their manpower.

The new generation banks such as ICICI etc., have also tied up to with reputed training institutions for web-based/virtual learning facility to their employees.

The above particulars clearly prove that there is strong culture of learning in the Banking/Financial Sector of the country. However, there is strong need for transformation of training to learning apart from integrating IT with the learning strategies that could facilitate continuous learning and competence development of the employees, through their careers.

2.11.11 Analysis of Training Programmes
For the purpose of finalizing the training infrastructure and also the trends in training system, both at national and bank level, the data has been collected from the following apex level training Institutions.
2.11.11.1 Institute for Development and Research In Banking Technology (IDRBT), Hyderabad

It is an apex level R&D Institute in the areas of Banking Technology and related areas. The Institute believes in niche and focused training programmes, not addressed by other training Institutes in the country. The programmes are aimed at training the Trainers and also providing the hands on experience to the operational functional in IT field. Further, to promote the awareness and also hasten up the face of technology adoption, it conducts workshops, seminars, symposia etc. The Institute also hosts the learning contents of the programmes through the WebCT software in its website for making it accessible to the learners. The details of the training programs conducted by it during the last four years are as under:-

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>CMDs/IT Chiefs/Principal's/</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RD's Conference</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>INFINET and Application</td>
<td>14</td>
<td>11</td>
<td>8</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>related areas</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Payment Systems</td>
<td>8</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>4.</td>
<td>Network Management &amp; Security</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>5.</td>
<td>Information System Audit</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Others</td>
<td>14</td>
<td>16</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>49</td>
<td>37</td>
<td>29</td>
<td>16</td>
</tr>
</tbody>
</table>

2.11.11.2 Bankers Training College (BTC), Mumbai

BTC is a premier Institution set-up and fully funded by the Reserve Bank of India (RBI) to cater to the training requirements of the RBI, commercial banks. BTC conducts a wide range of programmes in the areas of foreign exchange management, treasury management, integrated risk management etc. Of late, it has been focusing on training the trainers and also programmes aimed at senior bank executives in the areas detailed below:-

- Management of balance sheets at banks
- Operational risk management
- Latest development in payment system
- Corporate debt restructuring
• New regulatory initiatives like Prompt Corrective Action (PCA)
  ➢ New capital account
  ➢ Risk based supervision

The College conducts a wide range of collaborative training programmes in collaboration with other premier Institutes such as Administrative Staff College of India (ASCI), Jawaharlal Nehru Institute of Development Banking (JNIDB) etc.

2.11.11.3 Reserve Bank Staff College (RBSC), Chennal
The RBSC caters to the training and developmental requirements of the officers of the RBI and constantly upgrades the content of training programmes. It develops case studies for training purposes and forwards them to the regional offices. It also conducts off-site training programmes to the officers of Department of Non-Banking Supervision (DNBS), Department of Banking Operations and Development (DBOD). In accordance with the priorities of the Central Bank, of late it has also started focusing upon "Integrated Risk Management".

2.11.11.4 College of Agriculture Banking (CAB), Pane
The RBI with a view to promote agriculture banking aimed at improving the plight of rural India has set-up an exclusive college dedicated to the area of agriculture banking. The CAB regularly conducts the on-site and off-site programmes to the officers of scheduled commercial banks, urban cooperative banks, central cooperative banks state cooperative banks etc.

2.11.11.5 Zonal Training Centres (ZTCs)
The RBI has established the four ZTCs at four metropolitan centers i.e. Delhi, Mumbai, Kolkata and Chennai to cater to the training needs of the Class III & IV employees of the bank. The facets of training include HRD areas such as motivation, inter-personal skills, communication, team building etc. The other areas of training include Indian economy and monetary policy, regulatory and supervisory challenges of the RBI etc.
2.U.11.6 Statistics of Training Programmes - RBI Colleges

The details of various training programmes conducted at RBI Colleges are as under:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of Progs.</td>
<td>No. of Ppts.</td>
<td>No. of Progs.</td>
<td>No. of Ppts.</td>
</tr>
<tr>
<td>RBSC</td>
<td>139</td>
<td>3013</td>
<td>125</td>
<td>2795</td>
</tr>
<tr>
<td>BTC</td>
<td>146</td>
<td>3422</td>
<td>115</td>
<td>2532</td>
</tr>
<tr>
<td>CAB</td>
<td>173</td>
<td>3461</td>
<td>179</td>
<td>3777</td>
</tr>
<tr>
<td>ZTCs (Class III)</td>
<td>153</td>
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<td>2576</td>
</tr>
<tr>
<td>ZTCs (Class IV)</td>
<td>31</td>
<td>535</td>
<td>26</td>
<td>470</td>
</tr>
</tbody>
</table>

2.11.11.7 State Bank of India Institute for Communication and Management (SBIICMJ, Hyderabad)

The SBI with a view to train its officers in the area of Information Technology and also to develop internal competencies for evaluation of various applications related software for SBI and its Associates. The Institute caters to the training and developmental requirements from SBI and its Associates and other scheduled commercial banks. The details of training programmes conducted by the Institute are as under:-

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Faculty</th>
<th>No. of Progs. Conducted</th>
<th>IT</th>
<th>Other Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000 - 01</td>
<td>14</td>
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<td>148</td>
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<tr>
<td>2001 - 02</td>
<td>12</td>
<td>136</td>
<td>136</td>
<td>---</td>
</tr>
<tr>
<td>2002 - 03</td>
<td>11</td>
<td>155</td>
<td>155</td>
<td>---</td>
</tr>
</tbody>
</table>

2.11.11.8 State Bank Staff College (SBSC), Hyderabad

The SBI with a view to address the training and developmental needs of officers of SBI and its Associates in South India, has established SBSC. The areas of training programme include credit, marketing, cash management product, risk management, balance sheet analysis, asset liability management etc. The details of programmes conducted by the Institute during the last two years are as under:-
The above statistics of training programmes at various apex level institutions indicates that there is increased emphasis on training, which is vindicated by the number of participants trained, number of programmes conducted and also the number of Faculty Personnel. Further, it also indicates that there is increased focus on information technology. In the banking related areas, there is emphasis on profitability management, balance sheet analysis and also the risk management.

Thus as perceived from the perspectives the managements of the banks and also from the statistics of Reserve Bank of India, Banks have to address the various issues and concerns raised above while addressing the security needs in order to sustain techno-driven competitive advantage for overall efficiency and profitability.