1.1 Indian Banking: An Overview

Indian banking is the lifeline of a nation and its people. Banking has helped in developing vital sectors of the economy and to usher in a new dawn of progress on the Indian horizon. The sector has translated the hopes and aspirations of millions of people into reality. Today, Indian banks can confidently compete with modern banks of the world. [1]

- Evolution of Indian Banking Industry

Banking in India originated in the first decade of 18th century with the General Bank of India coming into existence in 1786. This was followed by Bank of Hindustan. Both these banks are now defunct. After this, the Indian government established three presidency banks in India. The first of the three was the Bank of Bengal in 1809, the other two presidency bank, viz., the Bank of Bombay and the Bank of Madras, were established in 1840 and 1843, respectively. The three presidency banks were subsequently amalgamated into the Imperial Bank of India (IBI) under the Imperial Bank of India Act, 1920 which is now the State Bank of India (SBI).

A couple of decades later, foreign banks like Credit Lyonnais started their Calcutta operations in the 1850s. That time, Calcutta was the most active trading port, mainly due to the trade of the British Empire and due to which banking activity took roots there and prospered. The first fully Indian owned bank is the Allahabad Bank, which was established in 1865.

By the 1900s, the market expanded with the establishment of banks such as Punjab National Bank (PNB), in 1895 in Lahore and Bank of India (BOI), in 1906 in Mumbai, both of which were founded under private ownership. The Reserve Bank of India (RBI) formally took on the responsibility of regulating the Indian banking sector from 1935. After India’s independence in 1947, RBI was nationalized and given broader powers.

As the banking institutions expand and become increasingly complex under the impact of deregulation, innovation and technological upgradation, it is crucial to maintain a balance between efficiency and stability. During the last 40 years since nationalization
tremendous changes have taken place in the financial markets, as well as in the
banking industry due to the financial sector reforms. The banks have shed their
traditional functions and have been innovating, improving and coming out with new
types of services to cater emerging needs of their existing and new customers. Banks
have been given greater freedom to frame their own product policies. Rapid
advancement of technology has contributed to significant reduction in transactional
costs, facilitated greater diversification of portfolio and improvements in credit
delivery of banks. Prudential norms, in line with international standards, have been put
in place for promoting and enhancing the efficiency of banks.

Despite this commendable progress, serious problem have emerged reflecting in a
decline in productivity and efficiency and erosion of the profitability of the banking
sector. There has been decline in the quality of loan portfolio which, in turn, has come
in the way of bank’s income generation and enhancement of their capital funds.
Inadequacy of capital has been accompanied by inadequacy of loan loss provisions
resulting into the adverse impact on the depositors’ and investors’ loyalty. The
Government, therefore, set up Narasimham Committee to look into the problems and
recommend measures to improve our financial system, this has resulted into the
transformation of our banking industry.

The banking industry is entering a new phase, where there is increasing competition
from non-banks, not only in the domestic market but also in the international markets.
The operational structure of banking in India is expected to undergo a deep change
during the next decade. With the upcoming new private sector banks, the private
banking sector has become enriched and diversified with focus on wholesale as well as
retail banking. The existing banks have wide branch network and geographic spread,
whereas the new private sector banks have massive capital, lean personnel component,
the perfection in developing good financial products.

The banking system in India is prospering also due to the combined efforts of
cooperative banks and regional rural banks (RRBs), which are expected to provide an
adequate number of effective retail outlets to meet the socio-economic challenges in
next two decades.
The electronic age has also affected the banking system, leading to an increase in the number of electronic transactions. However, the development of electronic banking has also led to new areas of risk such as data security and reliability, requiring new techniques of risk management. \[^2\]

**1.2 Structure of Indian Banking Industry**

The banking system plays very important role to develop an economy by enabling it to be competitive and strong enough to face the financial crises and hence forms the core of money market. The banking structure of every economy is going to change with the changing environment. In Indian context, there were two phases of nationalization, introduction of RRBs, entry of private sector banks and foreign banks and now e-banking are some major changes that affect the structure as well as functioning of the banks from time to time. Indian banking too has proved many changes in response to the world economy where liberalization, privatization, technology introduction, that is, computerization are the major effects of globalization. Computerization in banking industry has become very important in recent years. Indian banking industry today is in the midst of an IT revolution. A combination of regulatory and competitive forces has led to increasing importance of total banking automation in the Indian banking industry. Hence, there is a paradigm shift in banking in India as they started to realize the need to be ‘Customer focused’ which is imperative for the survival and growth. Many aspects of information technology, that is, ATMs, tele-banking, mobile banking, internet banking along with consumer durable loans, home loans, personal loan, business loan, insurance, demat services, etc. have started taking place, especially after the entry of private and foreign banks which had advantage of the latest technology. That is why banking has become more competitive in today’s world market. \[^3\]

In India though the money market is still characterized by the existence of both the organized and the unorganized segments, institutions in the organized money market have grown significantly and are playing an increasingly important role. Amongst the institutions in the organized sector of the money market, commercial banks and commercial co-operative banks have been in existence for the past several decades. The Regional Rural Banks (RRBs) came in to existence since the middle of seventies. Thus with the phenomenal geographical expansion of the commercial banks and the
setting up of the RRBs during the recent past, the organized sector of money market has penetrated into the rural areas as well. Besides the aforesaid institutions which mainly served sources of short term credit to industry, trade, commerce and agriculture, a variety of specialized financial institutions have been set up in the country to accommodate the specific needs of industry, agriculture and foreign trade. On the basis of Reserve Bank of India Act, 1934, banks are of two types:

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

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

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

2. **Non-Scheduled Commercial Banks:** Non-scheduled commercial banks are the banks having total capital less than Rs.5 lakhs. These banks are not included in the second schedule of the RBI Act, 1934, as RBI has no specific control upon these banks. But they have to send details of their business to RBI every month. These banks are falling gradually in numbers, at present only 3 such banks are working in India.
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Figure 1.1: Indian Banking Structure (as on March 2011)

1.2.1 Commercial Banks

Among the banking institutions in the organized sector, the commercial banks are the oldest institutions having a wide network of branches, commanding utmost public confidence and having a big share in the total banking operations. The commercial banks operating in India fall under a number of sub-categories on the basis of ownership and management control.

1.2.1.1 Public Sector Banks

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

1.2.1.2 Private Sector Banks

Private Sector Banks are those Banks which are owned by the private players. The private sector played a strategic role in the development of joint sector bank’s reforms in India. In 1951, there were in all 556 private sector banks, of which 474 were non-scheduled and 92 were scheduled. Since then, the number of public sector banks is increasing while those of private sector banks are decreasing. Private sector banks include Indian and foreign banks:

- **Indian Private Sector Banks**

  There are two categories of Indian private sector banks as old and new private sector banks.

  Old private sector banks are 15 at present but from performance point of view they are not sound as showing downfall in their profitability year after year.

  In accordance with the financial sector reforms adopted in 1991, new private sector banks have been allowed to set up. According to Narasimham Committee, New private sector banks should be allowed to be established in India, for financially feasible and customer friendly products. New private sector banks are those entered in Indian banking industry after liberalization policy of 1991 and now they are seven in number.

- **Foreign Banks**

  These banks are those incorporated in a foreign country and set up their branches in India. Their principal function is to make credit available for the exports and imports of the country and dealing in foreign exchange, having their head office in their home
country. In India, 32 foreign banks have been established and providing healthy competition to our banks with the use of most up-to-date technology. Hence, the liberalization as well as globalization has distorted the ways of banking business and the Indian banks are facing fierce competition to stay in foreign markets. They are facing number of challenges to get better performance on one hand and on the other hand, with efficiency and effectiveness they are serving customers in new ways.

1.3 E-Banking

Bank branches alone are no longer enough to offer services to meet the need of today’s high demanding customers. Electronic or online banking is the latest delivery channel to be presented by the retail banks and there is large customer acceptance rate which means delivery of banking services to customers using electronic technology either at their office or home. The e-banking offers huge opportunities in every sphere of business as the competitive advantage, member/client retention, increased revenues and reduced costs. Understanding clients, organizational elasticity, availability of resources, system security, reputable brand name, having multiple integrated channels, e-channel specific marketing, support from top management and good client services are the vital factors for the success of e-banking.

In E-banking system, banks are increasing their customer base with the help of multiple e-delivery channels like ATMs, Credit/Debit/Smart Cards, Internet banking, Mobile banking, Tele banking, EFTs etc. E-banking is offered by many banking institutions due to pressures from global competitions hence, in case of delay in offering transactions based services on the internet; they might lose their market share. To be successful, banks have to offer e-banking facility instead of being pushed into it by others.

The customers can do their banking not only when they want to do but also from the convenience, comfort, confidentiality and security of their homes by using internet or other networks, television, telephone/modems. [4]
1.3.1 The Internet - A Distribution Channel

Distribution channels are physical capacities to build up customer contacts in a systematic way in order to inform, counsel and sell products and services. The Internet is a so called electronic distribution channel, with self-service terminals and telecommunication equipment.

Today, media distribution channels are an important way of distributing information and managing usual transactions. Together, personal and media distribution channels are called internal distribution channels. On the other side there are external distribution channels like salesman or franchising partners. The following figure visualizes this classification. [5]

Figure 1.2: Distribution Channels of Financial Institutions

Source: FFIEC – IT Examination Hand Book
Areas of Use of the Internet in Financial Institutions

Generally, we may distinguish four classes of Internet used by a bank:

- Information presentation
- Communication (example, email to request for more information)
- Interaction with user (example, execution of programs with individual customer data)
- Transaction banking (example, electronic fund transfer)

Figure 1.3: Growth in Internet Subscribers in India

![Growth in Internet Subscribers](image)

Source: NASSCOM, 2011

1.3.2 Internet Usage in India

It is necessary to discuss the Internet usage pattern in India to see the growth, to make a case for e-banking in India. According to e-marketer, India has roughly 7.8 million active internet users (in the year 2011). This number, however, is set to grow as Internet connections become more common throughout the country. One thing we must address is the fact that the country's income distribution is highly uneven, thus the target segment comprises of a small fraction of the population for potential Internet use. This part of the population, however, is very educated, knowledgeable,
cosmopolitan, media-savvy and is an early adopter of new electronic devices and new technology.

Figure 1.4: Internet Usage Statistics in India

Source: World Bank (2011)

1.3.3 Phases of Transformation of Banking Industry

Banking industry transformed from traditional way of banking, brick and mortar system to E-Banking, with information technology. This transformation has been described below in 5 major phases, that is, Pre-nationalization of banks (before 1969), Nationalization of banks (1969-1990), Banking sector reforms (1991-2000), Computerization of banks and last is the current stage of Electronic Banking (post 2000) \[6\]:

1.3.3.1 Pre-Nationalization of Banks (Before 1969)

The earliest Indian Bank was the Bank of Hindustan, established in 1770. Then in the 19th century the Presidency Banks (Bank of Calcutta in 1806, Bank of Bombay in 1840 and Bank of Madras in 1843) were established under a charter. Private Banks were allowed in 1900. In 1921 these banks were merged to form the Imperial Bank of India. In 1935 the Reserve Bank of India (RBI) was constituted as the Apex Bank. Up to 1949, it was a private ownership bank and then with the course of time the Banking Regulations Act 1949, came under the government ownership. State bank of India came into existence and became the Bank for the Indian government in 1955 with RBI taking control of the Imperial Bank of India.
1.3.3.2 Nationalization of Banks (1969-1990)

The first phase of nationalization of the banking sector took place in 1949 and reached a level where there is the nationalization of fourteen banks in the year 1969. Before nationalization of banks, they all were leaning towards profit maximization and the social aspect was ignored as they served the rich people while the purposes of poor people were not served properly. And due to this our banks nationalized so that all the people can be served without any unfairness with the main objective of social banking.

1.3.3.3 Banking Sector Reforms (1991-2000)

In 1991, the liberalization wave changed the banking sector completely. Unprofitable branch expansion, non-performing priority sector lending (PSL) and loan melas had left large gaps in the banks’ balance sheets. To handle the situation of crisis of late in 1980s, a programme of liberalization, privatization and globalization (LPG) was initiated in July 1991, with the main aim of improvement in productivity, efficiency and competitiveness. In this context, the government decided to review the banking policy and the first Narsimham Committee was planned in 1991 which worked out like a road map for the banking sector reforms. The successful execution of its various recommendations has given a new dynamism to the banking sector since 1991.

Again with the gradual upgradation of skills, technologies with the high level of globalization, government appointed the second Narsimham Committee to further provide banking reforms in the light of dynamic environment. Then this committee worked out some new reforms in 1998 for the growth of Indian banking industry. The current structure of the banking system which has succeeded is a product of this external and internal change. For over two decades, after the nationalization of 14 large banks in 1969, no new banks had been permitted to establish in private sector even though there has been and is still no legal barrier on the entry of new private sector banks. Progressively over this period, the public sector banks have expanded their branch network considerably and catered to the socioeconomic needs of large masses of the population, especially the weaker sections and those in the rural areas. While recognizing the significance and the role of public sector banks, there was
increasing recognition of the need to introduce greater competition which can result into higher productivity and efficiency of the banking system. Therefore, a stage has now come where new private sector banks are permitted to set up, with a view to induce competition and market oriented system.

### Table 1.1: Phases of Transformation in Indian Banking

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

Banking sector reforms, in 1991, foreign and private banks were permitted to enter without restraint in Indian banking industry with the main objectives of profit maximization and severe competition. Deregulation permitted banks to prosper their business and enter into new markets with new technologies involving both individual and institutional customer contact and computerization was the first step to technology advancements. Banking which forms a core industry of any economy should be growth oriented. Computerization is a positive step to bank growth. With the help of computers, the bank work can be done speedier. Not only the present work load can be brought down to a great extent but also the bank can expand its working area with the same manpower.

Computerization in banking sector/financial sector dates back to 1963, when Life Insurance Corporation introduced computers for maintenance and processing of insurance policies. Later on RBI and SBI installed computer systems for processing reconciliation of inter branch transactions, handing out statistical data and for research purposes, while the rest of the work was left to be handled easily with the help of calculators, accounting machines and cash registers.

Another landmark in the history of computerization was the establishment of Rangarajan Committee on computerization and mechanization of banking service of 1983. The committee headed by Dr. C. Rangarajan, deputy governor of Reserve Bank of India, was to look into the modalities of framing a phased plan of mechanization in banks in view of further expansion. It recommended a three level mechanization structure- branch, regional and head office level.

Further in 1988, RBI appointed the second Rangarajan Committee to review the progress made in computerization in view of increasing volumes of computer technology and problems linked with the execution of the recommendations of the first committee. The committee submitted its report in 1989 and recommended a drive of computerization in banks in coming five years by fully computerizing the branches and use of bank’s net for several inter and intra bank applications.
In October 1993, arrangement on mechanization and computerization was signed between 58 banks under IBA and workmen represented by all India bank employees association. According to the agreement, banks were liberated to computerize some or all operations branches, administrative offices, communication and networking, Automated Teller Machines (ATMs), notes and cash counting machines, signature verification equipment, pass book printers, demand draft printers and terminals at customer location and equinity terminals. Since then the process of computerization and mechanization has picked up the thrust. By the end of 1996, it was estimated that around 5,000 branches would be computerized. Out of these, 750 are fully computerized with rest being semi-computerized. And at the end of March 2009, our public sector banks have 98 percent of their branches as fully computerized.

1.3.3.5 Current Stage of Electronic Banking (Post 2000)

Current stage is of IT advancement because technology continues to make an intense impact in the service. The world has become a global village where it has brought a revolution in the banking industry. The banks appear to be on a fast track for IT based products and services.

1.3.3.6 Transformation in Indian Banks

An economy of a country cannot be successful till it adapts to the dynamic environment, every country makes its own economic policy, India also. A successful organization or individual is characterized by its general ability to effectively manage and exploit the changing situations. Since 1960, many changes have happened in the financial sector of India; banking sector is also a part of Indian financial sector. Before that, banking sector was facing many crises, to meet the changes and become more competitive, banking sector was transformed in many phases, starting from nationalization of banks and to current phase of computerization of services.

Before nationalization, that is, before 1969, banks were under the control by private players and for profit maximization. In 1969, 14 banks were nationalization, under the
control of government with main objective to serve poor people with preference. After this another 6 banks were nationalized in 1980 but computerization was yet to take place in the banking business. After 1985, their performance started to be failing and much regulatory environment has led them to be ignorant towards social interest. There were number of crises like:

- Low profitability
- Some branches were into losses continuously for years
- Increasing Non-Performing Assets (NPA)
- Poor customer services, etc.

Government appointed the first Narsimham Committee in 1991, to understand the performance of banks and to recommend some measures to improve their performance, like:

- Reduction in Statutory Liquidity Ratio (SLR) and Cash Reserve Ratio (CRR)
- Entry of new private sector banks and foreign banks
- Deregulation of interest rates, etc.

With the execution of these recommendations, banking sector has improved its efficiency but within the time span of 8 years, again government of India felt the need of some dozes of further reforms because the banking sector had again down from the directed path and not shown their expected performance. Then, the second Narsimham Committee was established by the government in 1998, to further improve the performance of the banks. The committee recommended some measures with special reference to:

- Merger and acquisition of banks,
- Reduction in NPAs and
- Full computerization of maximum branches of all Indian banks.
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After the implementation of IT Act in October 17th, 2000 with the objective to make e-commerce, legal. From 1998 till date, globalization has gained momentum share particularly on account of the expected opening up of financial services under World Trade Organization.

During this period, banking has gone under transformation phase in many aspects. It is offering innovative products and services, entry in the insurance sector and stock market, maximum usage of IT, remote e-delivery channels has set into the next phase of e-banking. The current transformation process has many aspects including:

- Capital Restructuring
- Financial Re-engineering
- Information Technology
- Human Resource Development (HRD), etc.

There is certainly a paradigm shift, but the process is slow due to high start up cost, people resistance to change etc. It is clear with the help of Table 1.2 that highlights the phases of change in each parameter that has occurred due to transformation in the banks.

**Table 1.2: Contents of Transformation**

<table>
<thead>
<tr>
<th>Contents of Transformation</th>
<th>Pre-Transformation</th>
<th>Post-Transformation</th>
</tr>
</thead>
</table>
| Structure Organizational Structure | (i) Branches as only channel of Services  
(ii) Concentration of power  
(iii) Large space and staff at branches  
(iv) Non-dynamic  
(v) High organizational set up cost  
(vi) No international best practices | (i) Multiple Channels integrated with IT  
(ii) Decentralization and empowerment induced by IT supported MIS/DSS  
(iii) Limited space and staff requirement due to IT  
(iv) More dynamic  
(v) Low set up cost  
(vi) Adopting international best practices as suggested by Basel-II |
<p>| (i) More investment by the | (i) Disinvestments in PSBs |</p>
<table>
<thead>
<tr>
<th>Capital Structure</th>
<th>Business Reengineering</th>
<th>Human Resource Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>govt. in capital (app. 67 pc)</td>
<td>(i) No marketing of financial services</td>
<td>i) Procedural knowledge of banking rules and practices with old skills</td>
</tr>
<tr>
<td>(ii) Limited capital</td>
<td>(ii) Specific banking</td>
<td>(ii) Rule of the thumb</td>
</tr>
<tr>
<td>(iii) Less share of foreign capital</td>
<td>(iii) Focusing on volume of assets and liabilities</td>
<td>(iii) Conservative behaviour of bank employees regarding the customers</td>
</tr>
<tr>
<td>(iv) More investment of funds by the banks in govt. securities</td>
<td>(iv) Inadequate MIS/DSS</td>
<td>(iv) Over-staffed</td>
</tr>
<tr>
<td>(v) No investment in insurance sector</td>
<td>(v) Selling of products/services without considering the likings of customers</td>
<td>(v) Technically Unskilled staff</td>
</tr>
<tr>
<td>(vi) Less merger and acquisition</td>
<td>(vii) Limited channels of marketing</td>
<td>(i) Knowledge of banking rules and practices with new skills and technology</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(ii) Accept changes and always ready to adopt new skills</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(iii) Customer-centric behaviour</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(iv) Downsizing through VRS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(v) More skilled staff</td>
</tr>
<tr>
<td>(from 67 pc to 33 pc)</td>
<td>(i) More stress on marketing of financial services</td>
<td></td>
</tr>
<tr>
<td>Chapter: 1 Introduction</td>
<td>Work Culture</td>
<td>Information Technology</td>
</tr>
<tr>
<td>-------------------------</td>
<td>--------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>(vi) Poor work culture</td>
<td>(i) No research and innovations</td>
<td>(i) Limited technology</td>
</tr>
<tr>
<td>(vii) More job security</td>
<td>(ii) More importance to the procedural work</td>
<td>(ii) Limited security procedure and protocols</td>
</tr>
<tr>
<td>(viii) Dominance of male-staff</td>
<td>(iii) Authoritative work culture</td>
<td>(iii) No e-payments and e-shopping</td>
</tr>
<tr>
<td>(ix) Rigid mindset</td>
<td>(iv) No-incentives to the employees</td>
<td>(iv) Expensive technology</td>
</tr>
<tr>
<td>(x) Resist to accept cultural changes</td>
<td>(v) Limited interaction with other Banks</td>
<td>(v) Strong opposition by the bank employee union</td>
</tr>
<tr>
<td>(xi) No knowledge management</td>
<td></td>
<td>(vi) Restrictions by the RBI</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(vii) Lack of awareness about IT among the users, staff, management and union</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(viii) No IT Act</td>
</tr>
</tbody>
</table>
For a bank to survive in this cut throat competition it is necessary for it to restructure each and every aspect of the banking business, it needs keep it flexible and capable for responding quickly. IT is playing a crucial role in transforming Indian banking system as it is the base for transformation and it also makes the bank competitive. In Table 1.3, it is depicted that IT is a mechanism of transformation through all its parameters.

**Table 1.3: Process of Transformation**

<table>
<thead>
<tr>
<th>Parameters of Transformation</th>
<th>Process</th>
<th>Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Structure</td>
<td>IT was the catalyst of Transformation</td>
<td>(i) Improved and efficient structure</td>
</tr>
<tr>
<td>• Business Re-engineering</td>
<td></td>
<td>(ii) Improved vision for business</td>
</tr>
<tr>
<td>• Human Resource development</td>
<td></td>
<td>(iii) Increased productivity, profitability and efficiency</td>
</tr>
<tr>
<td>• Work Culture</td>
<td></td>
<td>(iv) Innovations are taking place</td>
</tr>
<tr>
<td>• Information Technology</td>
<td></td>
<td>(v) International outlook</td>
</tr>
<tr>
<td>• System, Process &amp; Procedures</td>
<td></td>
<td>(vi) Inspire employees</td>
</tr>
<tr>
<td>• Ethos/Philosophy</td>
<td></td>
<td>(vii) More ethical work culture</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(viii) Vision for global economy</td>
</tr>
</tbody>
</table>

There are some challenges too for managing transformation through IT listed in Table 1.4. Banking industry is shifting towards core banking system (CBS), where again a
problem of poor server facilities, more dependence on the electronic system reduces our personnel efficiency. Public and old private sector banks are slow in imbibing technology in their operations, whereas new private and foreign banks are early adopters of the technology and increasing the competition.

**Table 1.4: Effects of Transformation**

<table>
<thead>
<tr>
<th>Contents of Transformation</th>
<th>Effective Parameters</th>
<th>Challenges to Manage Transformation with IT</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Structure</td>
<td>(i) Productivity</td>
<td>(i) Heavy initial cost</td>
</tr>
<tr>
<td>• Business Re-engineering</td>
<td>(ii) Profitability</td>
<td>(ii) Resistance to change by senior staff/unions</td>
</tr>
<tr>
<td>• Work Culture</td>
<td>(iv) Expectations</td>
<td>(iv) Inadequate infrastructure.</td>
</tr>
<tr>
<td>• Information Technology</td>
<td>(v) Cost Differences</td>
<td>(v) Less innovative activities and new products and services.</td>
</tr>
<tr>
<td>• System, Process &amp; Procedures</td>
<td>(vi) Investment Management</td>
<td>(vi) Increasing NPAs due to more priority sector lending with political interference.</td>
</tr>
<tr>
<td>• Ethos/Philosophy</td>
<td></td>
<td>(vii) Less knowledge of competition i.e., no competitive strategy.</td>
</tr>
</tbody>
</table>

Facts reveal that although public sector banks have major contribution in Indian financial system but still remained straggler in the race of adopting new latest
technology, a main reason identified for it is that private sector banks spend almost 4-5 percent of its income on IT, foreign banks spend 9 percent whereas public sector banks spend only 0.5 percent only and very few public sector banks like SBI, Bank of Baroda, Punjab National Bank etc. are here that are re-framing their strategies to become more competitive.

1.4 Evolution of E-Banking

History of online banking actually dates back to 1981, at this time, four of the major banks in New York—Citibank, Chase Manhattan, Chemical and Manufacturers Hanover, offered home banking services through a videotext system.

The online banking service as it is known today began on October 6, 1995. On this day, Presidential Savings Bank became the first financial provider to offer e-banking for its customers; followed by famous banks such as Chase Manhattan and Wells Fargo. In 1990s, the e-banking services included viewing the statement of accounts, bill payments and bank transfers only. These services remain the most popular services in the current online banking industry. However, now a variety of other e-services can be accessed, these include transferring of funds, loan applications, loan transactions, mutual funds, insurance, credit cards, etc.

1.5 The E-Banking Scenario in Indian Perspective

In the past two decades IT has been the most rapidly changing industry in the world; one industry that has really felt its impact has been the banking sector.

1.5.1 Traditional Approach

Traditionally, customers were supposed to visit the physical branch for his/her banking transactions. Then, the bank used to put the customer’s request into operation with clearing and decision-making responsibilities, which was done at individual branch level only. The head office was responsible for the overall clearing network, branch network and for imparting regular training to staffs. Senior management monitored the
organization’s performance and framing the policies, programmes and procedures accordingly, but the information available to both the branch staff and their customers was limited to one geographical location. \[7\]

### 1.5.2 Modern Approach

Electronic Banking in simple terms, does not involve any physical exchange of money, it’s all done electronically, by using internet. Banks offer Internet banking mainly in two ways: by establishing a “website” and offer Internet banking to its customers along with its traditional delivery channels. A second alternative is to establish a “virtual bank”, which may offer its customers with the ATM facility also. \[8\]

### 1.5.3 Impact of E-Banking on Traditional Banking

One of the issues presently being addressed is the impact of e-banking on the traditional banking players. If there are risks inherent in going for e-banking there are other risks in not doing so also.

Arguments in favour are as follows:

- E-Banking cost effective.
- E-Banks are easy to establish.

Traditional banks faced difficulty in evolving; they were unable to make acquisitions for cash as they were unable to raise additional capital from the stock market. This is in contrast to the situation for internet firms for whom it seems relatively easy to raise money for investment.

In another view, traditional banks are struggling in adopting the latest technologies. The start-up cost for an e-bank is high, establishing a trusted brand is also very expensive then as it requires a good amount of promotion in addition to the purchase of expensive technology (as security and privacy are key to gaining customer approval). E-Banks have already found that retail banking only becomes profitable
once a large critical mass is achieved. As a result many e-banks are limiting themselves to providing a customized service to the better off. \[9\]

1.5.4 E-Banking Scenario in India

Internet has helped customers in doing their banking transactions in a cost effective manner, which is convenient and time saving also. The e-banking service is available 24*7 and it also allows customers to access the same from remote areas.

But there is some risk involved in it as well, that is of data security and privacy. This is the biggest challenge for e-banks.

The lead in internet banking in India has been taken up by the new private sector banks and foreign banks and the four banks which offer Internet banking facilities in a significant way are SBI, Bank of Baroda, HDFC Bank and ICICI Bank.

Chart 1.1: Online Gender Divide in India - 2011

Source: NASSCOM, 2011

Internet cafes are famous in gathering places among young, beginner Indian internet users. The fame of these cafes is playing a major part in fuelling the internet development in India. The cafes provide easy entry points for the starters. In a new study, internet research firm NetSense found that almost 40% of the users accessing the internet via cybercafés have less than one year of surfing experience.
1.6 Products and Services of E-Banks

E-Banks offer a variety of products and services to attract maximum customers. This will help in building a good market share, creating customer loyalty, with features that are user friendly, more useful and cost effective. E-Banking is attracting customers by developing their area of ‘convenience’.

Features of Internet Banking:

- **Online applications**

Consumers interested in doing banking through electronic mode, can get the same facility online only, by registering on the bank’s website.

- **Bank Account Access**

E-Banking customers also have the ability to view their accounts online.

- **Transfer of Funds**

Customers can also transfer funds from one bank account to another through internet banking registration.

- **Bill Payment**
Online bill payment is one of the most helpful features of internet banking, it helps in making payment of bills electronically in a second time. The biller is first added by the customer in his/her e-banking account and post which, monthly or accordingly, bill can be paid by just one click of mouse.

- **Benefits at Participating Online Merchants**

The banks partner with online merchants, like matrimony sites, travel agencies, etc. to offer discounts to the customers when a purchase is made with the card.

- **24*7 Customer Service**

Internet banking facility can be availed any time by the user and anywhere, as per customer’s convenience and comfort.

- **Access to Old Transactions**

Internet interface is designed in such a manner that history of bank account statement or e-transactions can be viewed. Some banks provide the data for last 30-45 days only, while others offer a history of six months to 5 years also.

- **Loan Status and Credit Card Account Information**

Many banks are also providing the feature to check the loan status and to see the credit card information as well. Banks ultimate objective is to let customer access his/her all the possible accounts, under one id only, for their delight. This will further also help the banks in increasing their customer base.

These features and many others like ordering a cheque book, making a demand draft (DD), stop payment instructions, etc. help customers in saving their time and simplify their lives. [10]

1.7 **E-banking Support Services**

There are a variety of e-banking products and services, offered by both public and private sector banks, along with the risks they cause to the institutions. The most common e-banking support services are web-linking, account aggregation, electronic
authentication, website hosting, payments for e-commerce and wireless banking activities, same has been discussed below:

- **Web-linking**

All the banks have their sites maintained with World Wide Web (WWW). Some websites are completely informational, while others are transactional, features of a Website are:

  - **Communicative Websites**
    - Offers account-related information and updates to static data (such as addresses).

  - **Informational Website**
    - Informational websites gives customers access to general information about the bank, its products and services.

  - **Transactional Website**
    - The ability to conduct transactions through the bank’s website by initiating banking transactions or buying products and services. Banking transactions can be a retail account balance inquiry and would also include large business to business funds transfer. [11]

- **Managing Service Providers**

A bank may choose to sub-contract with a service provider to create, arrange and manage their websites, including web-links. When a bank sub-contracts web-linking arrangements to a service provider, the institution must ensure that the service provider is absolutely able to manage the risk exposure. [12]

- **Account Aggregation**

Account aggregation is a service that collects information from many websites, presents that information to the customer in a consolidated format. The information aggregated could be public as well as personal. This is for customer convenience, as it helps in avoiding multiple logins and managing their various account portfolios. [13]
• **Electronic Authentication**

Verification of customer’s identity and authorizing him/her to avail e-banking facilities are integral parts of e-banking. Banks have adopted alternative authentication methods, including:

- Passwords and personal identification numbers (PINs),
- Digital certificates using a public key infrastructure (PKI),
- Microchip-based devices such as smart cards or other types of tokens,
- Database comparisons (e.g., fraud-screening applications), and
- Biometric identifiers.

The authentication methods listed above vary in the level of security and privacy they provide. As such, the choice of which technique(s) to use should be proportionate with the risks in the products and services.\[13\]

• **Wireless E-banking**

Wireless banking is a delivery channel that can extend the reach for internet banking products and services. Wireless banking happens when customers access a financial institution's network(s) by using mobile phones, pagers or personal digital assistants (PDA) through telecommunication companies’ wireless networks.\[13\]

### 1.8 Risks Associated with E-Banking

E-Banking is cost effective and time saving, very convenient for the customers, but it also has a new inclination towards risks and that is of different forms. An important and unique fact about technology is that it lays a significant part both as source and tool to control risks. As IT is dynamic and keeps on changing, therefore the types of risks or their control measures is not determined, that is why, both are continuous in nature. Broadly, the drive of severe action to control the risk has been, to identify the
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risks and to ensure that banks have defined systems in place to address the same. Accordingly then such systems are reviewed on a regular basis. [14]

•  **Operational Risk**

Operational risk or transactional risk, that is the risk associated while doing any transaction. It is also the most common form of risk associated with internet banking. It may result into inexact processing of transactions; non-enforceability of contracts, compromises in data reliability, data confidentiality and illegal access to bank’s systems and transactions, etc.

•  **Security Risk**

Banks using internet as a medium for financial transactions must have proper technology and systems in place to build a secured environment. Security risk arises on account of illegal access to a bank’s critical information

•  **Reputational Risk**

Reputational risk cause major loss of the public confidence in or customer loyalty on the bank's ability to perform critical function. For this either the bank or any third party can be responsible. The main reason can be system or product, which is below customers’ expectations, system loopholes, security breach, inadequate information provided to the customers about product usage and problem resolution procedures.

•  **Legal Risk**

Legal risk arises from violation of guidelines, policy, procedures, laws, rules, regulations or prescribed practices. Given relatively new nature of Internet banking, in some cases the rights and obligations is uncertain and applicability of laws and rules is unclear, thus causing legal risk.

•  **Money Laundering Risk**

As Internet banking transactions are conducted at remote areas, banks may face difficulty to apply traditional method for the detection of undesirable criminal activities. Application of money laundering rules may also be inapt for some forms of
electronic payments. Banks must follow proper know your customer (KYC) policy designed by RBI and ensure updation of the PAN card no. in the account on cash deposition above Rs. 50,000/-.

1.9 Risk Management of E-banking Activities

E-Banking has distinctive characteristics that may increase an institution’s overall profile of risk and its level; associated with traditional systems, particularly operational, legal and reputation risks. These distinctive e-banking characteristics include:

- Speed of technological change,
- Changing customer expectations,
- Increased visibility of internet,
- Less face-to-face interaction with bank’s customers,

Risk management of wireless-based technology solutions, even though similar to other electronic modes, but may involve unique challenges created by the current state of wireless services and wireless devices. [15]

1.10 Banking Regulatory Framework at a Glance

E-Banking gives benefits to the customer in terms of convenience and cost reduction and greater reach. It is associated with security risk of concern to regulators and supervisors of banks and financial institutions. Globally, regulators and supervisors are still developing their approach towards the regulation and supervision of Internet banking. Regulations and guidelines issued by some countries include the following:

- Notification of website content
- Authorization for risk assessment
- Third party service providers examination
• Ban on hyper links to non-banking business websites
• Requirement of proper and sufficient architecture

It would be essential to extend the existing regulatory framework over banks to internet banking also. This approach would need to take into account the provisions of both the Banking Regulation Act 1949 and the Foreign Exchange Management Act (FEMA), 1999. [16]

1.10.1 Laws Formed

There are many laws formed relating to the Banking Industry, some of them have been discussed in brief below:

• **The Consumer Protection Act, 1987**

The Act is for the protection of the interests of consumers’, different authorities were set up for the settlement of consumers’ disputes. The Act is for the social welfare of the customer and provides speedy and simple redressal to consumer disputes.

• **Information Technology Act, 2000**

The Information Technology Act, 2000 has given legal acknowledgment to creation, transmission and maintenance of an electronic (or magnetic) data to be treated as valid in a court of law, except in those areas, which comes under the provisions of the Negotiable Instruments Act, 1881.

• **The Right to Information Act, 2005**

This Act was framed to set up a practical system of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority.
• **The Banking Ombudsman Scheme, 2006**

The Banking Ombudsman Scheme, 2006, of Reserve Bank of India was introduced with mainly two objectives; first, to resolve complaints relating to banking services and facilitating satisfaction accordingly. Secondly, to resolve disputes between a bank and its constituents as well as amongst banks, through the process of conciliation, mediation and arbitration.\[17\]

1.11 **Information Security Program and Control Issues**

The legal framework for banking in India is by the Banking Regulations Act, 1949, the Reserve Bank of India Act, 1934 and the Foreign Exchange Management Act, 1999. Broadly, no entity can function as a bank in India until it obtains a license from Reserve Bank of India under the Banking Regulations Act, 1949. This act gives the guidelines and prudential requirements for different types of activities which a bank may undertake. Under the Foreign Exchange Management Act 1999, no Indian resident can borrow on a bank account of foreign currency or from a NRI (Non-Resident Indian) account, including non-resident banks, except under certain circumstances provided in law. Besides these, banking activity is also influenced by various enactments governing trade and commerce, such as, Indian Contract Act, 1872, the Negotiable Instruments Act, 1881 and Indian Evidence Act, 1872.

Various provisions of law applicable to traditional banking activities are also applicable to Internet banking. The validity of an electronic document or file, its authentication, validity of contract entered into electronically, non-repudiation etc., are some important legal questions having a bearing on e-commerce and Internet banking. It has also raised the issue of bank’s ability to comply with legal necessities / practices like secrecy, privacy and confidentiality of data, consumer protection etc. given the vulnerability of data / information passing through Internet. There is also the question of competence of law to deal with situations which are technology driven.
Government of India has enacted The Information Technology Act, 2000, in order to provide legal recognition for electronic transactions or other means of electronic communication, commonly referred to as ‘electronic commerce’.

Internet banking services in India are facing new challenges relating to opening an account online, authentication of the data and user, secrecy of customer’s account information, non-repudiation and consumer protection, etc., each of which has been studied in the context of existing legal framework. E-banking is associated with the security risk and managing it is very necessary, appropriate action must be taken on priority accordingly.

- **Authenticating E-banking Customers**

A bank or any financial institute must control customer’s access and educate them about their security responsibilities.

- **Authenticating New Customers**

Verifying a customer’s identity, especially for the first time user, is an integral part for all the banks or financial institutions. Each bank or financial institution must develop and implement Customer Identification Program (CIP), which is according to the institution’s size and location.

- **Authenticating Existing Customers**

In addition to the initial verification of customer identities, the bank or the financial institution must also authenticate its customers’ identities every time they attempt to access their confidential online information.

- **Password Administration**

Despite the concerns regarding single-factor authentication, many e-banking services still rely on a customer ID and password for user authentication, for example, HDFC Bank. Security professionals say that the password must have a good strength, not to be written down anywhere, etc. Password-cracking software can easily find out the password regardless of the use of encryption. Popular acceptance of this form of authentication rests on its ease of use and its flexibility within existing infrastructures.

- **Administrative Controls**
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Management must evaluate its administrative controls to maximize the availability and integrity of e-banking systems. E-banking information can support identity theft for either fraud at the subject institution or for creating fraudulent accounts at other institutions. [18]

1.12 E-banking Strategy

Financial institution management must choose the level of e-banking services based on customer needs and the institution’s risk assessment. Institutions need to reach this decision and the factors considered are customer demand, competition, expertise, implementation expense, maintenance costs and capital support.

An institution may choose not to provide e-banking services or to limit e-banking services to an informational website only. Banks or financial institutions must do periodic review to ensure that everything is appropriate for the institution’s overall business strategy. Institution’s growth depends on the growth in market share, relationship with the customers, cost reduction or new revenue generation. If the bank or a financial institution thinks that a transactional website is appropriate, the next decision is the range the electronic products and services.

A bank or a financial institution to have a good market share and to grow must ensure that the e-banking facility to be offered to the customers and for which it is essential to do cost-benefit analysis, risk assessment, monitoring activities, establish clear accountability for the development of policies, regular internal and external audit and managing outsourcing relationships. [19]
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