CHAPTER - III

IT ENABLED TECHNOLOGY ADOPTION
BY THE SCHEDULED COMMERCIAL BANKS IN INDIA

The current chapter draws a detailed theoretical and empirical discussion on the role of technology in customer satisfaction in banking industry and competitive status of SBI in technology adoption. This chapter deals with the IT enabled technology adoption by the scheduled commercial banks in India.

3.1 History of Banking in India

Since the ancient times in India, an indigenous banking system has prevailed. The businessmen called Shroffs, Seths, Sahukars, Mahajans, Chettis etc. had been carrying on the business of banking since ancient days. These indigenous bankers included very small money lenders to shroffs with huge businesses, who carried on a large and specialized financial services, even greater than the business of banks.

The origin of western type commercial Banking in India dates back to the 18th century. The story of banking starts from Bank of Hindusthan established in 1770 and it was the first bank the Calcutta under European management. In 1786 General Bank of India was set up. Since Calcutta was the most active trading port in India, mainly for the British Empire, it became a banking center. Three Presidency banks were set up under charters from the British East India Company- Bank of Calcutta, Bank of Bombay and the Bank of Madras. These worked as quasi central banks in India for many years. The Bank of Calcutta established in 1806 immediately became Bank of Bengal. In 1921 these 3 banks merged with each other and Imperial Bank of India emerged which is new called. It is today's State Bank of India. The name was changed after India's Independence in 1955. State bank of India is the oldest Bank of India. In 1839, there was a fruitless effort by Indian merchants to establish a Bank called Union Bank. It failed within a decade. Next came Allahabad Bank which was established in 1865 and is functioning even today. The oldest Public Sector Bank in India having branches all over India and serving the customers for the last 145 years is Allahabad Bank. Allahabad bank is also known as one of India's Oldest Joint Stock Bank. The Oldest Joint Stock Bank of India was Bank of Upper India established in 1863 and
failed in 1913. The first Bank of India with Limited Liability to be managed by Indian Board was Oudh Commercial Bank. It was established in 1881 at Faizabad. This bank failed in 1958. The first bank purely managed by Indian was Punjab National Bank, established in Lahore in 1895. The Punjab National Bank has not only survived till date but also is one of the largest banks in India. However, the first Indian commercial bank which was wholly owned and managed by Indians was Central Bank of India which was established in 1911. So this bank is called India's First Truly Swadeshi bank.

3.2 Growth of Banking System in India

In order to understand present make up of banking sector in India and its past progress, it will be fitting to look at its development in a somewhat longer historical perspective. The past four decades and particularly the last two decades witnessed cataclysmic change in the face of commercial banking all over the world. Indian banking system has also followed the same trend. In over five decades since independence, banking system in India has passed through five distinct phase, viz. Evolutionary Phase (prior to 1950), Foundation phase (1950-1968), Expansion phase (1968-1984), Consolidation phase (1984-1990) and Reformatory phase (since 1990).

3.2.1 Evolution Phase: (Prior to 1950)

Enactment of the RBI Act 1935 gave birth to scheduled banks in India, and some of these banks had already been established around 1881. The prominent among the scheduled banks is the Allahabad Bank, which was set up in 1865 with European management. The first bank which was established with Indian ownership and management was the Oudh Commercial Bank; It formed in 1881, followed by the Ajodhya Bank in 1884, the Punjab National Bank in 1894 and Nedungadi Bank in 1899. Thus, there were five Banks in existence in the 19th century. During the period 1901-1914, twelve more banks were established, prominent among which were the Bank of Baroda (1906), the Canara Bank (1906), the Indian Bank (1907), the Bank of India (1908) and the Central Bank of India (1911).

Thus, the five big banks of today had come into being prior to the commencement of the First World War. In 1913, and also in 1929, the Indian Bank
faced serious crises. Several banks succumbed to these crises. Public confidence in banks received a jolt. There was a heavy rush on banks. An important point to be noted here is that no commercial bank was established during the First World War, while as many as twenty scheduled banks came into existence after independence-two in the public sector and one in the private sector.

The United Bank of India was formed in 1950 by the merger of four existing commercial banks. Certain non-scheduled banks were included in the second schedule of the Reserve Bank in view of these facts, the number of scheduled banks rose to 81. Out of 81 Indian scheduled banks, as many as 23 were either liquidated or merged into or amalgamated with other scheduled banks in 1968, leaving 58 Indian schedule banks.

It may be emphasized at this stage that banking system in India came to be recognized in the beginning of 20th century as powerful instrument to influence the pace and pattern of economic development of the county. In 1921 need was felt to have a State Bank endowed with all support and resources of the Government with a view to helping industries and banking facilities to grow in all parts of the country. It is towards the accomplishment of this objective that the three Presidency Banks were amalgamated to form the Imperial Bank of India. The role of the Imperial Bank was envisaged as to extend banking facilities, and to render the money resources of India more accessible to the trade and industry of this country, thereby promoting financial system which is an indisputable condition of the social and economic advancement of India.

Until 1935, when RBI came into existence to play the role of Central Bank of the country and regulatory authority for the banks, Imperial Bank of India played the role of a quasi-central bank. It was by making it the sole repository of all its funds and by changing the volume of its deposits with the Bank as and when desired by it, the Government tried to influence the base of deposits and hence credit creation by Imperial Bank and by rest of the banking system. Thus, the role of commercial banks in India remained confined to providing vehicle for the community’s savings and attending to the credit needs of only certain selected and limited segments of the public. Bank operations were influenced primarily by commercial principle and not
by developmental factor. Regulation was still only being introduced and unhealthy practices in the banks were then more rules than exceptions. Failure of banks was common as governance in privately owned joint stock banks left much to be desired.

3.2.2 Foundation Phase: 1948-1968

In those initial days, the need of the hour was to reorganize and to consolidate the prevailing banking network keeping in view the requirements of the economy. The first step taken to that end was the enactment of the Banking Companies Act, 1949 followed by rapid industrial finance. Role played by banks was instrumental behind industrialization with the impetus given to both heavy and Small Scale Industries. Subsequently after the adoption of social control, banks started taking steps in extending credit to agriculture and small borrowers. Finally, on July 1969, 14 banks were nationalized with a view to extending credit to all segments of the economy and also to mitigate regional imbalances. Thus, the period of regulated growth from 1950 till bank nationalization witnessed a number of far-reaching changes in the banking system.

The banking scenario prevalent in the country during the period 1948-1968 presented a strong focus on class banking on security rather than on purpose. The emphasis of the banking system during this period was on laying the foundation for a sound banking system in the country. Banking Regulating Act was passed in 1949 to conduct and control operations of the commercial banks in India. Another major step taken during this period was the transformation of Imperial Bank of India into State Bank of India and a redefinition of its role in the Indian economy, strengthening of the co-operative credit structure and setting up of institutional framework for providing long-term finance to agriculture and industry. Banking sector, which during the pre-independence India was catering to the needs of the government, rich individuals and traders, opened its door wider and set out for the first time to bring the entire productive sector of the economy-large as well as small, in its fold.

During this period number of commercial banks declined remarkably. There were 566 banks as on December, 1951; of this, number of scheduled banks was 92 and the remaining 474 were non-scheduled banks. This number went down considerably to the level of 281 at the close of the year 1968. The sharp decline in the
number of banks was due to heavy fall in the number of non-scheduled banks which touched an all-time low level of 210. The banking scenario prevalent in the country up to the year 1968 depicted a strong stress on class banking based on security rather than on purpose. Before 1968, only RBI and Associate Banks of SBI were mainly controlled by Government. Some associates were fully owned subsidiaries of SBI and in the rest, there was a very small shareholding by individuals and the rest by RBI.

3.2.3 Expansion Phase (1968-1984)

The motto of bank nationalization was to make banking services reach the masses that can be attributed as "first-banking revolution". Commercial banks acted as vital instruments for this purpose by way of rapid branch expansion, deposits mobilization and credit creation. Penetrating into rural areas and agenda for geographical expansion in the form of branch expansion continued. The second dose of nationalization of 6 more commercial banks on April 15, 1980 further widened the phase of the public sector banks and therefore banks were to implement all the government sponsored programmes and change their attitude in favour of social banking, which was given the highest priority.

This phase witnessed socialization of banking in 1968. Commercial banks were viewed as agents of change and social control on banks. However, inadequacy of social control soon became apparent because all banks except the SBI and its seven associate banks were in the private sector and could not be influenced to serve social interests. Therefore, banks were nationalized (14 banks in 1969 and 6 banks in 1980) in order to control the heights of the economy in conformity with national policy and objectives. This period saw the birth and the growth of what is now termed as directed lending' by banks. It also saw commercial banking spreading to far and wide areas in the country with great pace during which a number of poverty alleviation and employment generating schemes were sought to be implemented through commercial banks. Thus, this period was characterized by the death of private banking and the dominance of social banking over commercial banking. It was hardly realized that banks 'were organizations with social responsibilities but not social organizations. This period also witnessed the birth of Regional Rural Bank (RRBS) in 1975 and NABARD in 1982 which had priority sector as their focus of activity.
Although number of commercial banks declined from 281 in 1968 to 268 in 1984, number of scheduled banks shot up from 71 to 264 during the corresponding period, number of non-scheduled banks having registered perceptible decline from 210 to 4 during the period under reference. The rise in the number of scheduled banks was, as stated above, due to the emergence of RRBS. The fifteen years following the banks’ nationalization in 1969 were dominated by the Banks’ expansion at a path breaking pace. As many as 50,000 bank branches were set up; three-fourths of these branches were opened in rural and semi-urban areas. Thus, during this period a distinct transformation of far reaching significance occurred in the Indian banking system as it assumed a broad mass base and emerged as an important instrument of socio-economic changes. Thus, with growth came inefficiency and loss of control over widely spread offices. Moreover, retail lending to more risk-prone areas at concessional interest rates had raised costs, affected the quality of assets of banks and put their profitability under strain. The competitive efficiency of the banks was at low ebb. Customer service became least available commodity. Performance of a bank/banker began to be measured merely in terms of growth of deposits, advances and other such targets and quality became a casualty. The progress of branch expansion is presented in the Table 3.1

TABLE 3.1
BRANCH EXPANSION SINCE 1969 TO 1991

<table>
<thead>
<tr>
<th>Year</th>
<th>Total No. of Branches</th>
<th>Rural Branches</th>
<th>Semi-urban Branches</th>
</tr>
</thead>
<tbody>
<tr>
<td>1969</td>
<td>8262</td>
<td>1833</td>
<td>3342</td>
</tr>
<tr>
<td>1980</td>
<td>32419</td>
<td>15105</td>
<td>8122</td>
</tr>
<tr>
<td>1991</td>
<td>60,220</td>
<td>35206</td>
<td>11,344</td>
</tr>
</tbody>
</table>


It can be seen from the Table 3.1 that the total number of bank branches increased eight-fold between 1969 to 1991. The bulk of the increase was on account of rural branches which increased from less than 2000 to over 35000 during the period. The percentage share of the rural and semi-urban branches rose from 22 and 4 respectively in 1969 to 45 per cent and 25 per cent in 1980 and 58 per cent and 18 per cent in 1991. The impact of this phenomenal growth was to bring down the
population per branch from 60,000 in 1969 to about 14,000. The banking system thus assumed a broad mass-base and emerged as an important instrument of social-economic changes. However, this success was neither unqualified nor without costs. While the rapid branch expansion, wider geographical coverage has been achieved, lines of supervision and control had been stretched beyond the optimum level and had weakened. Moreover, retail lending to more risk-prone areas at concessional interest rates had raised costs, affected the quality of assets of banks and put their profitability under strain.

3.2.4 Consolidation Phase (1985-1990)

A realization of the above weaknesses thrust the banking sector into the phase of consolidation. This phase began in 1985 when a series of policy initiatives were taken with the objectives of consolidating the gains of branch expansion undertaken by the banks, and of relaxing albeit marginally, the very tight regulation under which the system was operating. Although number of schedule banks increased from 264 in 1984 to 276 in 1990, branch expansion of the banks slowed down. Hardly 7000 branches were set up during this period. For the first time, serious attention was paid to improving housekeeping, customer services, credit management, staff productivity and profitability of the banks and concrete steps were taken during this period to rationalize the rates of bank deposits and lending. Measures were initiated to reduce the structural constraints which were then inhibiting the development of money market.

By this time about 90 per cent of commercial banks were in the public sector and closely regulated in all its facets. Prices of assets liability were fixed by the RBI; prices of service were fixed uniformly by the Indian Banking Association (IBA); composition of assets was also somewhat fixed in as much as 63.5 per cent of bank funds were mopped up by CRR and SLR and the remained was directed towards priority sector lending and small loaning; salary structure was negotiated by the IBA and validated by the Government. Thus, there was no autonomy in vital decisions of Government. Commercial approach in operations and drive towards efficiency were almost non-existent. The result was that during this period, the banks ended up consolidating their losses rather than the gains.
A very interesting development that had taken place during 1960s was the liquidation of many smaller banks by amalgamation with bigger and stronger banks. During the two decades 1949 to 1969 the banking sector witnessed the process of consolidation for the first time. The number of banking companies came down drastically from 620 in 1949 to 89 in 1969. The Table 4.2 shows the progress of commercial banking in India since 1951.

### TABLE 3.2
PROGRESS OF COMMERCIAL BANKING IN INDIA: 1951-91

<table>
<thead>
<tr>
<th>Indicator/Year</th>
<th>1951</th>
<th>1969</th>
<th>1987</th>
<th>1991</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Commercial Banks (including AABs)</td>
<td>566</td>
<td>89</td>
<td>279</td>
<td>276</td>
</tr>
<tr>
<td>Scheduled banks</td>
<td>92</td>
<td>73</td>
<td>275</td>
<td>272</td>
</tr>
<tr>
<td>Non-scheduled banks</td>
<td>474</td>
<td>16</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Number of offices</td>
<td>4151</td>
<td>8262</td>
<td>53,840</td>
<td>60,220</td>
</tr>
<tr>
<td>Total deposits of Scheduled banks (₹ in Crores)</td>
<td>908</td>
<td>4646</td>
<td>107,345</td>
<td>201,199</td>
</tr>
<tr>
<td>Total Credit of Scheduled banks (₹ in Crores)</td>
<td>547</td>
<td>3599</td>
<td>64,213</td>
<td>121,865</td>
</tr>
</tbody>
</table>


While acting as financial intermediaries between the savers and investors, commercial banks render a yeomen service to the development of an economy. Deposit expansion, which is one of the parameters indicating the development of banking, contributed to the growth of the economy. Nationalization of major banks in 1969 accompanied by massive branch expansion gave fillip to deposit mobilization. The total deposits which stood at ₹ 908 crore in 1951 increased to ₹4646 crore by 1969-an increase of a little more than 5 times. In the subsequent eight years till 1987, the deposits increased by ₹1,02,699 crore They stood at ₹2,01,199 crore in 1991. Correspondingly, bank credit had also increased from ₹547 crore in 1951 to ₹3599 crore in 1969 and to ₹1,21,865 crore in 1991.
3.2.5 First Phase of Banking Sector Reforms/Narasimhan Committee Report (1991)

To promote healthy development of financial sector, the Narasimhan committee made recommendations.

3.2.5.1 Recommendations of Narasimhan Committee

- Establishment of 4 tier hierarchy for banking structure with 3 to 4 large banks (including SBI) at top and at bottom rural banks engaged in agricultural financial services.
- The supervisory functions over banks and financial institutions can be assigned to a quasi-autonomous body sponsored by RBI.
- Phased reduction in statutory liquidity ratio.
- Phased achievement of 8 per cent capital adequacy ratio.
- Abolition of branch licensing policy.
- Proper classification of assets and full disclosure of accounts of banks and financial institutions.
- Deregulation of Interest rates.
- Delegation of direct lending activity of IDBI to a separate corporate body.
- Competition among financial institutions on participating approach.
- Setting up asset Reconstruction fund to take over a portion of loan portfolio of banks whose recovery has become difficult.

3.2.5.2 Banking Reform Measures of Government

On the recommendations of Narasimhan Committee, following measures were undertaken by government since 1991:

I. **Lowering SLR and CRR:** The high SLR and CRR reduced the profits of the banks. The SLR has been reduced from 38.5 per cent in 1991 to 25 per cent in 1997. This has left more funds with banks for allocation to agriculture, industry, trade etc. The Cash Reserve Ratio (CRR) is the cash ratio of a bank’s total deposits to be maintained with RBI. The CRR has been brought down from 15 per cent in 1991 to 4.1 per cent in June 2003. The purpose is to release the funds locked up with RBI.
II. **Prudential Norms:** Prudential norms have been started by RBI in order to impart professionalism in commercial banks. The purpose of prudential norms include proper disclosure of income, classification of assets and provision for Bad debts so as to ensure that the books of commercial banks reflect the accurate and correct picture of financial position. Prudential norms required banks to make 100 per cent provision for all Non-performing Assets (NPAs). Funding for this purpose was placed at ₹10,000 crores phased over 2 years.

III. **Capital Adequacy Norms (CAN):** Capital Adequacy ratio is the ratio of minimum capital to risk asset ratio. In April 1992 RBI fixed CAN at 8 per cent. By March 1996, all public sector banks had attained the ratio of 8 per cent. It was also attained by foreign banks.

IV. **Deregulation of Interest Rates:** The Narasimhan Committee advocated that interest rates should be allowed to be determined by market forces. Since 1992, interest rates have become much simpler and freer.

   a) Scheduled Commercial banks have now the freedom to set interest rates on their deposits subject to minimum floor rates and maximum ceiling rates.

   b) Interest rate on domestic term deposits has been decontrolled.

   c) The prime lending rate of SBI and other banks on general advances of over ₹2 lakhs has been reduced.

   d) Rate of Interest on bank loans above ₹2 lakhs has been fully decontrolled.

   e) The interest rates on deposits and advances of all Co-operative banks have been deregulated subject to a minimum lending rate of 13 per cent.

i. **Recovery of Debts** :-The Government of India passed the “Recovery of debts due to Banks and Financial Institutions Act 1993” in order to facilitate and speed up the recovery of debts due to banks and financial institutions. Six Special Recovery Tribunals have been set up. An Appellate Tribunal has also been set up in Mumbai.

ii. **Competition from New Private Sector Banks:** Now banking is open to private sector. New private sector banks have already started functioning. These new private sector banks are allowed to raise capital contribution from...
foreign institutional investors up to 20 per cent and from NRIs up to 40 per cent. This has led to increased competition.

iii. Phasing Out Of Directed Credit: The committee suggested phasing out of the directed credit programme. It suggested that credit target for priority sector should be reduced to 10 per cent from 40 per cent. It would not be easy for government as farmers, small industrialists and transporters have powerful lobbies.

iv. Access to Capital Market: The Banking Companies (Acquisition and Transfer of Undertakings) Act was amended to enable the banks to raise capital through public issues. This is subject to provision that the holding of Central Government would not fall below 51 per cent of paid-up-capital. SBI has already raised substantial amount of funds through equity and bonds.

v. Freedom of Operation: Scheduled Commercial Banks are given freedom to open new branches and upgrade extension counters, after attaining capital adequacy ratio and prudential accounting norms. The banks are also permitted to close non-viable branches other than in rural areas.

vi. Local Area banks (LABs): In 1996, RBI issued guidelines for setting up of Local Area Banks and it gave its approval for setting up of 7 LABs in private sector. LABs will help in mobilizing rural savings and in channeling them in to investment in local areas.

vii. Supervision of Commercial Banks: The RBI has set up a Board of financial Supervision with an advisory Council to strengthen the supervision of banks and financial institutions. In 1993, RBI established a new department known as Department of Supervision as an independent unit for supervision of commercial banks.


To make banking sector stronger the government appointed Committee on banking sector Reforms under the Chairmanship of M. Narasimhan. It submitted its report in April 1998. The Committee placed greater importance on structural
measures and improvement in standards of disclosure and levels of transparency. Following are the recommendations of Narasimhan Committee:

i. Committee suggested a strong banking system especially in the context of Capital Account Convertibility (CAC). The committee cautioned the merger of strong banks with weak ones as this may have negative effect on stronger banks.

ii. It suggested that 2 or 3 large banks should be given international orientation and global character.

iii. There should be 8 to 10 national banks and large number of local banks.

iv. It suggested new and higher norms for capital adequacy.

v. To take over the baddebts of banks committee suggested setting up of Asset Reconstruction Fund.

vi. A Board for Financial Regulation and Supervision (BFRS) can be set up to supervise the activities of banks and financial institutions.

vii. There is urgent need to review and amend the provisions of RBI Act, Banking Regulation Act, etc. to bring them in line with current needs of industry.

viii. Net Non-performing Assets for all banks was to be brought down to 3 per cent by 2002.

ix. Rationalization of bank branches and staff was emphasized. Licensing policy for new private banks can be continued.

x. Foreign banks may be allowed to set up subsidiaries and joint ventures.

On the recommendations of committee following reforms have been taken:

i. **New Areas:** New areas for bank financing have been opened up, such as: - Insurance, credit cards, asset management, leasing, gold banks, investment banking etc.

ii. **New Instruments:** For greater flexibility and better risk management new instruments have been introduced such as: Interest rate swaps, cross currency forward contracts, forward rate agreements, liquidity adjustment facility for meeting day-to-day liquidity mismatch.
iii. **Risk Management**: Banks have started specialized committees to measure and monitor various risks. They are regularly upgrading their skills and systems.

iv. **Strengthening Technology**: For payment and settlement system technology infrastructure has been strengthened with electronic funds transfer, centralized fund management system, etc.

v. **Increase Inflow of Credit**: Measures are taken to increase the flow of credit to priority sector through focus on Micro Credit and Self Help Groups.

vi. **Increase in FDI Limit**: In private banks the limit for FDI has been increased from 49 per cent to 74 per cent.

vii. **Universal banking**: Universal banking refers to combination of commercial banking and investment banking. For evolution of universal banking guidelines have been given.

viii. **Adoption of Global Standards**: RBI has introduced Risk Based Supervision of banks. Best international practices in accounting systems, corporate governance, payment and settlement systems etc. are being adopted.

ix. **Information Technology**: Banks have introduced online banking, E-banking, internet banking, telephone banking etc. Measures have been taken facilitate delivery of banking services through electronic channels.

x. **Management of NPAs**: RBI and central government have taken measures for management of non-performing assets (NPAs), such as Corporate Debt Restructuring (CDR), Debt Recovery Tribunals (DRTs) and LokAdalats.

xi. **Mergers and Amalgamation**: In May 2005, RBI has issued guidelines for merger and Amalgamation of private sector banks.

xii. **Guidelines For Anti-Money Laundering**: In recent times, prevention of money laundering has been given importance in international financial relationships. In 2004, RBI revised the guidelines on know your customer (KYC) principles.

xiii. **Managerial Autonomy**: In February, 2005, the Government of India has issued a managerial autonomy package for public sector banks to provide them a level playing field with private sector banks in India.
xiv. **Customer Service:** In recent years, to improve customer service, RBI has taken many steps such as: Credit Card Facilities, banking ombudsman, settlement of claims of deceased depositors etc.

xv. **Base Rate System of Interest Rates:** In 2003 the system of Benchmark Prime Lending Rate (BPLR) was introduced to serve as a benchmark rate for banks pricing of their loan products so as to ensure that it truly reflected the actual cost. However the BPLR system falls short of its objective. RBI introduced the system of Base Rate since 1st July, 2010. The base rate is the minimum rate for all loans. For banking system as a whole, the base rates were in the range of 5.50 per cent - 9.00 per cent as on 13th October, 2010.

### 3.3 Concept of ‘Alternative Banking’ and Types of Channels

Modern service provision to customers, such as banking or retailing, is now supported by a myriad of interactive technologies, such as the internet, mobile applications, or interactive kiosks, leading to the emergence of multichannel or multi-interface service systems. Technological innovations in banking provide many efficient alternative delivery channels to customers. The advance of communication and computer technology have made it possible that one can do most banking transactions from any location even without stepping into a physical financial structure through alternative banking channels. Alternative banking, as the name suggests, is the newer method of carrying on banking operations, is the newer method of carrying on banking operations. It includes all non-traditional means of banking such as ATM, internet banking, bank automation, core banking, credit cards, debit cards, mobile banking, EFT etc.

According to IBM Global Services alternative banking is set of alternative delivery channels. Alternative distribution channels are not only important to reducing costs and improving competitiveness, but also ability to retain the existing customer case as well as to attract new customers. There are six different alternative delivery channels of banking i.e. PC banking, internet banking, managed network, TV banking, Telephone banking and Mobile phone banking. Association of Banks in Palestine (2009) defined as; it is conducting financial transactions electronically, without physically interacting with the bank (i.e. using visa card, visa electron,
internet banking, other). However TV banking facilities are not available in India till date. Alternative banking is alternative options for process banking transactions other than traditional means. It is also known as e-banking, electronic banking, online banking, virtual banking, direct banking and high tech-banking. According to Howcroft (1993) alternative distribution channels provides convenient alternatives to branch banking. In the traditional banking system customers need to visit branch to make transaction and getting information about banking services, account information etc. But in the alternative banking there is no need to visit physical branch most of banking transactions are possible through alternative channels.

It is also known as quasi-banking, alternative remittance systems, and parallel banking. According to Devlin, et al (2003) direct banking is the generic term that has been adopted to encompass telephone and Internet banking, as well as interactive television and most recently m-banking (banking using a mobile platform such as a hand phone or personal digital assistant). There is substantial evidence to suggest that e-banking is being embraced by financial institutions in developed and emerging markets. There are two different strategies has been adopted by banks for e-banking: First, an existing bank with physical offices can establish a web site and offer alternative banking to its customer as an additional delivery channel. A second alternative is to establish an Internet-only bank or additional e-channels or virtual bank, almost without physical offices.

Recently in Indian followings alternative banking channels are available and IT-based service channel may significantly lower costs of serving customers. The analysts forecast that 40 per cent of adult UK (United Kingdom) consumers will be lured in by the conveniences of online banking bringing the number to 22 million users by 2012. Internet banking allows customers to perform many banking functions anytime and anywhere, while ATMs provide some services not possible by internet banking, such as withdrawing money around the clock. Advent of internet, electronic commerce and communication technology has changed users 'response to this technology has opened opportunity for many businesses including the financial institution.
3.3.1 Features of Alternative Banking

According to Kaleem Ahmad (2008) Electronic banking minimizes the cost of transactions, saves time, minimizes inconvenience, provides up-to-date information, increases operational efficiency, reduces HR requirements, facilitates quick responses, improves service quality and minimizes the risk of carrying cash. As per Report of European Central Bank (1999) technology has reduced the cost of operation and ways of the banking truncation. After reviewing the literature related to alternative banking, e-commerce, mobile commerce and ICT based financial services we have identified following characteristics of alternative banking services (Exhibit 3.1)

EXHIBIT: 3.1 ALTERNATIVE BANKING CHANNELS

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Traditional Service</th>
<th>Alternative Means</th>
<th>Medium</th>
<th>Services Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Brick –Mortar services</td>
<td>Automated Branches</td>
<td>PC and LAN</td>
<td>Instant deposit and withdraw money, getting statement, DD, calculation of interest etc.</td>
</tr>
<tr>
<td>2.</td>
<td>Branch Banking</td>
<td>Core Banking</td>
<td>PC and Internet</td>
<td>Instant deposit and withdraw money, getting statement, cheque clearance and depositing, stop payment etc.</td>
</tr>
<tr>
<td>4.</td>
<td>Formal Cheque</td>
<td>MICR cheque</td>
<td>MICR technology</td>
<td>Instant notes and bundle of note counting</td>
</tr>
<tr>
<td>5.</td>
<td>DD/MT/TT</td>
<td>EFT</td>
<td>Internet and Core Banking Solution (CBS)</td>
<td>Instant Fund Transfer from to any branch under CBS</td>
</tr>
<tr>
<td>6.</td>
<td>On counter Cash Withdraw</td>
<td>ATM or Debit Card</td>
<td>ATM</td>
<td>Withdraw money, Balance Inquiry, Account statement, Mobile recharge, Make donation, Card to card transfer, Utility bill payments</td>
</tr>
<tr>
<td>7.</td>
<td>On counter Cash Withdraw</td>
<td>ATM or Debit Card</td>
<td>Point of Sale Terminals (POS)</td>
<td>Mobile recharge, Purchasing, Utility bill payments and Withdraw money etc.</td>
</tr>
<tr>
<td>8.</td>
<td>Letter of Credit</td>
<td>E-Money</td>
<td>Credit Card</td>
<td>Purchasing and Payments of utility bill payments</td>
</tr>
<tr>
<td>9.</td>
<td>Branch Banking</td>
<td>Internet Banking (PC Banking )</td>
<td>PC and Internet</td>
<td>Balance inquiry, account statement, stop payment order, EFT, Purchasing, utility bill payment etc.)</td>
</tr>
<tr>
<td>10.</td>
<td>Branch Banking</td>
<td>Mobile Banking</td>
<td>Mobile phone, SMS, WAP, 3G</td>
<td>Balance inquiry, account statement, stop payment order, EFT, Purchasing, utility bill payment etc.</td>
</tr>
</tbody>
</table>

Source: Miranda et.al, 2006 (edited by author)
• **Technology Dependency** – Alternative banking services highly depend on technology and high-tech communication system. For the pursuing the e-banking services banks are using Information and communication technology (Internet, mobile phone, telephone, other electronic devise) But e-banking services are totally technology based services.

• **Round the clock service**- Alternative banking portal provides 24 hours banking services. Customers can enjoy round the clock banking service through the self-service banking modes. They have freedom from tense about official time of bank.

• **Multi-channel banking** – Modern technology based banking provides many alternatives to transact banking business through the different channels e.g. ATM, core banking, Mobile banking, Internet banking, Phone banking, POS terminals, Credit and Debit cards etc.

• **Lack of Face to Face contact**- in the e-banking transaction there lacking face to face contact of customer and services provider. Customers can use the banking services via virtual means of e-banking i.e. internet banking, mobile banking, ATM, credit card etc. While Lack of face-to-face contact is biggest obstacle to modern banking because right customer has been identified by ID (Identification Number) and password than face to face identification.

• **Risk factors**: Despite certain benefits of alternative banking channels there are some certain risks e.g. Performance risk, Strategic risk, financial risk, Compliance and legal risk, Reputational Risk\(^8\), Operational (Operational) Risk there has been fear of inadequate security is one of the electronic banking channels. There may be. So, it is clear that alternative banking channels is lacking actually the assurance provided in traditional banking. The Electronic Data storage and interchange system also consist Data Risk. Unauthorized access to the bank client’s private information causes first of all operational risk, but indirectly also legal as well as reputational risk. Customer education on security risks and precautions can play an important role for consumer protection and for limiting reputational risk.

• **Inseparability**: e-banking services cannot be separate from e-service channels and even there is also inseparability in production and consumption
of the e-banking services. These services are being produced at the same time that the customer is receiving it.

- **Homogeneity**: Formal services had heterogeneity with variability in the performance of services and their special characteristics of the services it made it difficult to establish any uniform standard. However alternative banking services are homogenous of one specific bank due to the same types of channel and service specifications, while their actual performance may differ by place and speed of internet connectivity.

- **Cost Effectiveness** - Technology based banking services provide cost effectiveness to both the customers and the bank. Banks can deliver banking services through alternative channels at transaction costs far lower than traditional ways. It has been proved that online banking channels are cheaper than traditional banking.

- **Geographical Reach**: Alternative banking allows expanded customer contact through increased geographical reach and lower cost of delivery channels. Yibin (2003) argued that it provides borderless banking services throughout the world where the internet connectivity is available.

- **Virtual banking** – Alternative banking channels have reduced branch networks and downsized the number of service staff. E-banking offers freedom from place constraint, and reduced stress of queuing in banking hall, which has paved the way to self-service channels as quite many customers felt that branch banking took too much time and effort. Virtual banking offers banking facilities.

According to Singhal and Padhmanabhan (2008), User of ICT based banking expects Convenience, Flexibility, Easy to use and user friendliness, Reliability, Fulfillment, Real time access, Cost effectiveness, Alternative Options, Security & Privacy, Speed & Continuity, Anytime and anywhere banking facilities. There are some risk factors which are e banking, data loss, fraud ,lack of adequate information, password theft etc. Hence customers expect security and trust in e-banking services.
3.4 History of Alternative Banking in India

Information Technology (IT) has helped in increasing the speed and efficiency of banking operations by facilitating the emergence of innovative products and new delivery channels. The role of the Reserve Bank as the driver of technology initiatives in the banking sector assumes greater importance given the challenges posed by rapid advancements in technology. The Reserve Bank of India has played important role in implementation of information. In order to fulfill this intention the RBI constituted several committees from time to time with different objectives, headed by experts in different fields or academicians, some of them during eighties and nineties. The Reserve Bank of India has appointed various committees to implement ICT in Indian banking.

EXHIBIT:3.2

<table>
<thead>
<tr>
<th>Year</th>
<th>Name of the Committee</th>
<th>Chairman</th>
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<tbody>
<tr>
<td>1979</td>
<td>Committee on Consumer Services in Banks’</td>
<td>R.K. Talwar</td>
</tr>
<tr>
<td>1982</td>
<td>Working Group to consider feasibility of introducing MICR/OCR Technology for Cheque Processing</td>
<td>Dr. Y. B. Damle</td>
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<tr>
<td>1984</td>
<td>Committee on Mechanisation in the Banking Industry</td>
<td>Dr. C. Rangarajan</td>
</tr>
<tr>
<td>1987</td>
<td>Committees on Communication Network for Banks and SWIFT implementation</td>
<td>Shri T. N. A. Iyer</td>
</tr>
<tr>
<td>1988</td>
<td>Committee on Computerisation in Bank</td>
<td>Dr. C. Rangarajan</td>
</tr>
<tr>
<td>1990</td>
<td>Committee on Customer Service in the Banks.</td>
<td>M. N. Goiporia</td>
</tr>
<tr>
<td>1993</td>
<td>Ghosh Committee on Frauds and malpractices in Banks</td>
<td>Shri A. Ghosh</td>
</tr>
<tr>
<td>1994</td>
<td>Committee on Technology Issues relating to Payments System, Cheque Clearing and Securities Settlement in the Banking Industry</td>
<td>Shri W. S. Saraf</td>
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<tr>
<td>1995</td>
<td>Committee for proposing Legislation on Electronic Funds Transfer and other Electronic Payments</td>
<td>Smt. K. S. Shere</td>
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<td>1996</td>
<td>Committee on Technology Up gradation In The Banking Sector</td>
<td>A. Vasudevan</td>
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<td>2000</td>
<td>Committee for Suggesting a Framework for Electronic Benefit Transfer</td>
<td>R.B. Barman</td>
</tr>
<tr>
<td>Year</td>
<td>Name of the Committee</td>
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<tr>
<td>2001</td>
<td>Working Group on Internet Banking</td>
<td>S. R. Mittal</td>
</tr>
<tr>
<td>2001</td>
<td>Advisory Group on Payment and Settlement System</td>
<td>M.G. Bhide</td>
</tr>
<tr>
<td>2001</td>
<td>Expert Committee on Legal Aspects of Bank Frauds</td>
<td>N. L. Mitra</td>
</tr>
<tr>
<td>2002</td>
<td>Working Group on Electronic Money</td>
<td>Mr. Zarir J. Cama</td>
</tr>
<tr>
<td>2002</td>
<td>Committee on Payment Systems</td>
<td>Dr R H Patil</td>
</tr>
<tr>
<td>2003</td>
<td>Working Group on Cheque Truncation and E-cheques</td>
<td>Dr R B Barman,</td>
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<td>2004</td>
<td>Expert Group on Internet Deployment of Central Database Management System</td>
<td>A. Vaidyanathan</td>
</tr>
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<td>2005</td>
<td>Working Group On Regulatory Mechanism For Cards</td>
<td>R. Gandhi</td>
</tr>
<tr>
<td>2008</td>
<td>The Working Group On Technology Upgradation Of Regional Rural Banks</td>
<td>Shri G. Srinivasan</td>
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<tr>
<td>2008</td>
<td>Working Group on IT support for Urban Cooperative Banks</td>
<td>R. Gandhi</td>
</tr>
<tr>
<td>2009</td>
<td>The Working Group To Review The Business Correspondent Model</td>
<td>P. Vijaya Bhaskar</td>
</tr>
<tr>
<td>2011</td>
<td>Survey on Impact of Trade Related Measures on Transaction Costs of Exports:</td>
<td>Balwant Singh</td>
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<tr>
<td>2011</td>
<td>Group to study the Pension Liabilities of the State Governments</td>
<td>B.K. Bhattacharya</td>
</tr>
<tr>
<td>2011</td>
<td>Task Force to Study the Cooperative Credit System and Suggest Measures for its Strengthening</td>
<td>Shri. Jagdish Kapoor</td>
</tr>
<tr>
<td>2012</td>
<td>Working Group on Defraying Cost of ICT Solutions for RRBs</td>
<td>Shri G. Padmanabhan</td>
</tr>
<tr>
<td>2012</td>
<td>Expert Group on Internet Development of Central Database Management System (CDBMS)</td>
<td>Prof. A. Vaidyananthan</td>
</tr>
<tr>
<td>2012</td>
<td>Information systems audit policy for the banking and financial sector</td>
<td>Dr. R.B. Burman</td>
</tr>
<tr>
<td>2012</td>
<td>Committee on Technology Upgradation in the Banking Sector</td>
<td>Dr. A. Vasudevan</td>
</tr>
<tr>
<td>2013</td>
<td>Technology Issues in Banking Industry</td>
<td>WS. Saraf Committee</td>
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</table>

Sources: The Reserve Bank of India
History of the bank automation traced the use of computer technology in India. The government of India has established the Electronics Corporation of India Ltd. in 1967 with the objective of Research & Development in the fields of Electronic Communication, Control, instrumentation, automation and Information Technology. The Computer Maintenance Corporation of India Ltd. was established in 1976 to look after maintenance operations of Main Frame Computers installed in several organizations in India. Entry of technology in the Indian banking industry can be traced back to the Raganarajan Committee report, way back in the second half of the 1970s. In 1979, the RBI has appointed the Talwar Committee on Consumer Services in Banks’ and it recommended that, computerisation of some functions is required to avoid delays in customer service in Indian banks. While automation process has not taken stage till 1993, because bank employees unions are not agree with bank automation process they have fever about job losses. However, in 1993, the Employees’ Unions of Banks signed an agreement with Bank Managements under the auspices of Indian Banks' Association (IBA) after job assurance given by management. This agreement was a major breakthrough in the introduction of computerized applications and development of communication networks in Banks. In the first phase the Indian banks started computerizing the front-end operations through Advanced Ledger Posting Machines (ALPMs). Some banks concentrated on the back office automation and some are front-end operations. In the second phase banks started total branch automation with front-end and back-end operation within same branch. In the third phase, during the nineties the banking sector witnessed various foreign and new private sector banks are entre in the Indian banking industry with the latest technology.

3.5 Expansion of Banking Infrastructure

As per the census of 2011, 58.7 per cent of households are availing banking services in the country. There are 102,343 branches of Scheduled Commercial Banks (SCBs) in the country, out of which 37,953 (37 per cent) bank branches are in the rural areas and 27,219 (26 per cent) in semi-urban areas, constituting 63 per cent of the total numbers of branches in semi-urban and rural areas of the country. However, a significant proportion of the households, especially in rural areas, are still outside
the formal fold of the banking system. To extend the reach of banking to those outside the formal banking system, Government and Reserve Bank of India (RBI) are taking various initiatives from time to time some of which are enumerated below:

- **Opening of branches**: Government had issued detailed strategy and guidelines on Financial Inclusion in October 2011, advising banks to open branches in all habitations of 5,000 or more population in under-banked districts and 10,000 or more population in other districts. Out of 3,925 such identified villages/habitations, branches have been opened in 3,402 villages/habitations (including 2,121 Ultra Small Branches) by end of April, 2013.

- **Each household was advised to open at least one bank account**: Banks have been advised to ensure service area bank in rural areas and banks were assigned the responsibility in specific wards in urban areas to ensure that every household has at least one bank account.

- **Business Correspondent model**: With the objective of ensuring greater financial inclusion and increasing the outreach of the banking sector, banks were permitted by RBI in 2006 to use the services of intermediaries in providing financial and banking services through the use of Business Facilitators (BFs) and Business Correspondents (BCs). Business correspondents are retail agents engaged by banks for providing banking services at locations other than a bank branch/ATM. BCs and the BC agents (BCAs) represent the bank concerned and enable a bank to expand its outreach and offer limited range of banking services at low cost, particularly where setting up “a brick and mortar” branch is not viable. BCs as agents of the banks, thus, are an integral part of the business strategy for achieving greater financial inclusion. Banks had been permitted to engage individuals/entities as BC like retired bank employees, retired teachers, retired government employees, ex-servicemen, individual owners of kirana/medical/fair price shops, individual Public Call Office (PCO) operators, agents of Small Savings Schemes of Government of India, insurance companies, etc. Further, since September 2010, RBI from
permitted banks to engage "for profit" companies registered under the Indian Companies Act, 1956, excluding Non-Banking Financial Companies (NBFCs), as BCs in addition to individuals/entities permitted earlier. According to the data maintained by RBI, as in December, 2012, there were over 152,000 BCs deployed by Banks. During 2012-13, over 183.8 million transactions valued at ₹165 billion (US$2.7 billion) had been undertaken by BCs till December 2012.

- **Swabhimaan Campaign**: Under "Swabhimaan" - the Financial Inclusion Campaign launched in February 2011, banks had provided banking facilities by March, 2012 to over 74,000 habitations having population in excess of 2000 using various models and technologies including branchless banking through Business Correspondents Agents (BCAs). Further, in terms of Finance Minister’s Budget Speech 2012-13, the "Swabhimaan" campaign has been extended to habitations with population of more than 1,000 in North Eastern and Hilly States and to habitations which have crossed population of 1,600 as per census 2001. About 40,000 such habitations have been identified to be covered under the extended "Swabhimaan" campaign.

- **Setting up of ultra-small branches (USBs)**: Considering the need for close supervision and mentoring of the Business Correspondent Agents (BCAs) by the respective banks and to ensure that a range of banking services are available to the residents of such villages, Ultra Small Branches (USBs) are being set up in all villages covered through BCAs under Financial Inclusion. A USB would comprise a small area of 100 sq ft (9.3 m²) - 200 sq ft (19 m²) where the officer designated by the bank would be available with a laptop on pre-determined days. While the cash services would be offered by the BCAs, the bank officer would offer other services, undertake field verification and follow up on the banking transactions. The periodicity and duration of visits can be progressively enhanced depending upon business potential in the area. A total of over 50,000 USBs have been set up in the country by March 2013.

- **Banking facilities in Unbanked Blocks**: All the 129 unbanked blocks (91 in North East States and 38 in other States) identified in the country in July
2009, had been provided with banking facilities by March 2012, either through Brick Mortar Branch or Business Correspondents or Mobile van. As a next step it has been advised to cover all those blocks with BCA and Ultra Small Branch which have so far been covered by mobile van only.

- **USSD Based Mobile Banking**
  National Payment Corporation of India (NPCI) worked upon a "Common USSD Platform" for all banks and telecommunications who wish to offer the facility of Mobile Banking using Unstructured Supplementary Service Data (USSD) based Mobile Banking. The Department helped NPCI to get a common USSD Code for all telecommunications. More than 20 banks have joined the National Uniform USSD Platform (NUUP) of NPCI and the product has been launched by NPCI with BSNL and MTNL. Other telecommunications are likely to join in the near future. USSD based Mobile Banking offers basic Banking facilities like Money Transfer, Bill Payments, Balance Enquiries, Merchant Payments etc. on a simple GSM based Mobile phone, without the need to download application on a phone as required at present in the IMPS based Mobile Banking.

3.5.1 **Impact of E-Banking on Operational Performance of Banks**

The major challenge faced by the banks is to protect the falling margins due to the impact of competition. Falling in profit requires increase in the volume of transaction which could be increased only by exploiting the advantages of technology and by providing sound customer based services. So, technology upgradation is required not for improving the functionalities of the bank but to have sound customer base. It has changed the method of marketing, advertising, distribution, pricing, financing and cost saving through electronic channels and products. These changes call for a dynamic, aggressive, adaptable and changing work-force to meet the demands of customers’ relationship, product differentiation, values, reputation and regulatory prescriptions. Further, the changes staring at the face of bankers are undergoing a rapid transformation in response to the forces of competition, efficiency in operations, reduced operating margins, better asset/ liability management, risk management, anytime and anywhere banking, etc.
But the profitability of the banks and the qualitative services to the customers could be provided only if the employees working in the banks are familiar with the usage of technology. Because they are the people behind the scene who make possible the required benefits to the customers and the banks. This research is an effort to see whether e-banking has any impact on the employment needs and operational performance of banks. The computerization of banking system has created the need for more trained technical workers to attend both the hardware and software problems. Now the banks require more computer analysts, software engineers, system operators, designers, data base administrators, website designers and computer programmers. But the banks cannot replace their whole staff to meet this requirement and they are giving the required training to their employees so as to meet the challenges of the market. To some extent, e-banking has dampened the employment needs also. Automated services through websites and e-mail permit marketing of e-banking services can be provided without the need of employees. For example, e-banking dramatically streamlines the sales process by providing unlimited amount of information on products to customers on the websites.

With all these strategies banks should revitalize their recruitment, selection and placement policies and developing the human resources to meet the challenges of paradigm shift. The system of e-banking has its own pros and cons from employees’ point of view. But for the banking as a whole it has enhanced customer services, effective distribution, improved operations, faster access to information, and improved internal processes which have been helpful in developing a global delivery platform. The following aspects need to be taken into account while introducing any change in the e-banking system:

- Rightsizing the work-force.
- Adjusting to the changing profile and needs of today’s employees.
- Ensuring customer focus with emphasis on customer-service attitude and behaviour throughout the organization.
- Establishing employee-involvement programmes to generate a sense of empowerment and commitment.
• Improving competitiveness through implementation of total quality management processes.

• Incorporating information systems as an integral part of business and production strategies.

3.5.2 Beneficial Impact of Technology Adoption

The introduction of these various technology products has had a beneficial impact on both banks and customers. For the customers, the important benefits are: Any-where banking, Internet banking, ATM banking and Mobile banking.

It has also facilitated the use of secured debit and credit cards. For the banks, the major benefits are: centralization of customer information, centralized transaction process, centralized accounting process, basic MIS reporting and real time information availability.

i. Intermediation Cost Reduction

The intermediation cost of the scheduled commercial banks has come down significantly from 2.59 per cent in 1991-92 to 1.71 per cent in 2010-11. The cost-income ratio has declined from 55.3 per cent in 1999-2000 to 45.21 per cent in 2010-11. The businesses per employee as well as the business per branch have increased several folds. Among the several factors which have contributed to these changes, technology ranks high.

ii. Impact on the Banks Payment and Settlement Systems across the Country

IT has had a positive impact on the payment and settlement systems of the country. With some path-breaking initiatives having been implemented in this area, the “electronification” of payment system has become the hallmark of the decade that has gone by. Electronics based payments are superior to paper system in terms of traceability, efficiency, speed and safety. The introduction of the Real Time Gross Settlement (RTGS) system has resulted in not only compliance with international standards but also paved the way for risk-free fund transfers settled on a real-time basis. The facility for inter-bank funds settlement through RTGS is today available across more than 88,000 branches of banks spanning more than 5,000 centers of the country, a coverage that has been perhaps not witnessed anywhere else in the world.
In this context, it must be noted that the significant contributions made by IDRBT to promoting the electronic payment system in our country. As already noted, at the heart of IT enabled banking is the existence of a safe, reliable and effective communication network and messaging system. In India, such a backbone is being provided by IDRBT through Indian Financial Network- INFINIT- “a one-of-its kind” initiative for the banking sector. This network, as mentioned earlier, was set up in 1999. It has now incorporated low cost yet reliable technologies in the form of Multi-Pocket-Label Switch” (MPLS) technology in an effort to offer state-of-the-art network. Safety and security are still challenging problems in this context and that the faculty members of IDRBT will continue to focus on these issues. Another importance action is the setting up of the National Financial Switch (NFS) for interconnecting ATMs by IDRBT. The system which is based on indigenous effort was well received and the Reserve Bank has decided to spin it off from IDRBT and hand it over to the National Payments Corporation of India (NPCI) which is continuing to maintain it on the basis of the benchmarks set up by IDRBT. Despite the progress in electronic payment system, the paper based instruments are still in vogue, although the total value of the paper based clearing has been steadily declining, 59 per cent in volume of transactions and 10 per cent in value terms.

3.5.3 Major Areas of Concern in the Application of Technology in Banking

Areas of concern where banking technology are applicable are:

i. Financial Inclusion: Technology adoption has enabled the authorities to further the cause of financial inclusion. Several studies have shown that only a small percentage of the total rural households have access to institutional banking facilities. One of the biggest challenges therefore relates to the extension of the coverage of banking services to the remotest parts of our country and to the most vulnerable sections. Technology provides the scope for affordable financial inclusion. Harnessing technology holds the key for faster reach even more than the brick and mortar model. The best way offered for inclusive banking would be through twin-routes - mobile banking through a bank-led model and banking correspondent model. While BC could drastically cut the cost by obviating the need to open bank premises, it is technology which is going to give the proverbial last mile connectivity to the untouched segment.
Today there are 700 million mobile connections in operation. For achieving financial inclusion it may be worthwhile to piggy-back on the mobile telephony platform. Just as ATM/SMART card technology permits a bank customer to authenticate oneself and then conduct banking transactions in a secured fashion, it is perhaps worthwhile to consider whether the ubiquitous mobile phone that is already in the hands of most Indians can be used for authentication and banking transactions in a secured fashion.

**ii. Enhancing the Secured Network:** The security is the root of technology centric banking. In this connection, some of the important developments in this area were noted. The advent of low cost and all pervasive communication channels such as internet has made communication more efficient, but not necessarily safe and secure. Today the world is grappling with issues such as computer virus, hacking, etc. It is important that these issues are addressed effectively. Needless to say that IDRBT has an important role to play here. With the Government planning to implement an E-Payment Gateway for a single point distribution of all the payments, the need for a secured network for transmission of such information becomes essential. IDRBT may explore the possibility of connecting the secured INFINIT with the Government NICNET so that the entire sensitive massive financial transfers take place under a secured environment.

**iii. Capability of Handling Large Volumes:** Financial transactions have increased phenomenally. Bank payment systems have the ability to run millions of payments daily. The banks need to think in terms of next generation products which could handle any amount of volume with due scalability facilities.

**iv. Fraud Monitoring and Prevention:** The Reserve Bank has recently come out with the recommendations of a Working Group on Information Security, Electronic Banking, Technology Risk Management and Cyber Frauds. Implementation of the recommendations calls for an assessment of the nature and scope of activities supported by technologies engaged by banks. In this electronic age speed in detecting frauds has become extremely important. The remedy has to be with the same blinding speed as the fraud committed or else, the fund could vanish in no time.
v. Business Continuity Plan (BCP): Technical experts are familiar with the processes to be kept ready for activation in response to any disaster that may strike. With the complexities of modern banking, the BCP is a must for every bank. I must recall at this juncture an incident of a major bank in the country not being able to extend the banking services during the greater part of the day on account of BCP not working fully well. That this problem did not result in a systemic issue is hardly any solace. To put in place an adequate Business Continuity Plan (BCP) by every bank has become imperative.

3.5.4 Role of Technology in Banking Services

i. **E-banking**: This enables the bank to deliver its services easily to its high end customers. To make the system user friendly to all clients, banks have used a Graphical User Interface (GUI), with this software, customers can access their bank details on their own computers, make money transfers from one account to another, print bank statements and inquire about their financial transactions. Another technology used by banks to exchange data between the bank and clients is called Electronic Data Interchange (EDI); this software can be used to transmit business transaction in a computer-readable form. So the client on the other end will be in position to read the information clearly.

ii. **NRI Banking Services**: This technology has been embraced in countries like India, USA, UAE, just to mention but a few. Since many people go abroad to work, they have a need of supporting their families. So technology has made it simple for them to send money to their loved ones easily.

iii. **Rural Banking**: Unlike in the past when banking was centralized in urban areas, now day’s technology has made it simple to set up banking facilities in rural areas. For example, In Africa, they have introduced Mobile money banking facilities. In this case a user in a rural area will have an account with a mobile company which is opened for free. They can then deposit money on that account via a nearby mobile money operating center. This money can be withdrawn at any time any were in that area and they can also receive or send money using the same system.
iv. **Plastic Money**: Credit cards or smart cards like “Visa Electron” have made the banking industry more flexible than before. With a credit card, a customer can borrow a specific amount of money from the bank to purchase any thing and the bank bills them later. In this case, they don’t have to go through the hassle of borrowing small money. Then with “Smart Cards” like visa electron , a customer can pay for anything using that card and that money is deducted from their bank accounts automatically, they can also use the same card to deposit or withdraw money from their accounts using an ATM machine.

v. **Self-inquiry Facility**: Instead of customers lining up or going to the help desk, banks have provided simple self-inquiry systems on all branches. A customer can use their ATM card to know their account balance, or to get their bank statement. This saves time on both sides.

vi. **Remote Banking**: Banks have installed ATM machines in various areas; this means a customer does not have to go to the main branch to make transactions. This facility has also enabled anytime banking, because customers can use ATM machines to deposit money on their accounts. Remote banking has helped people in rural areas improve on their culture of saving money.

vii. **Centralized Information Results to Quick Services**: This enables banks to transfer information from one branch to another at ease. For example, if a customer registered their account with a rural branch, they can still get details of their account while at the main branch in an urban area.

viii. **Signature Retrieval Facilities**: Technology has played a big role in reducing fraud in banks which protects its clients. For example, banks use a technology which verifies signatures before a customer’s withdraws large sums of money on a specific account and this reduces on the errors or risks which might arise due to forgery.

### 3.6 Future Scope and Challenges

Developing or acquiring the right technology, deploying it optimally and then leveraging into the maximum extent is essential to achieve and maintain high service and efficiency standards while remaining cost effective and delivering sustainable
return to shareholders. Early adopters of technology acquire significant competitive advances. Managing technology is therefore, a key challenge for the Indian banking sector. The nationalize banks and commercial banks have the competition from foreign and new private sector banks. Competition in banking sector brings various challenges before the banks such as product positioning, innovative ideas and channels, new market trends, cross selling at managerial and organizational part. Banks are restricting their administrative folio by converting manpower into machine power i.e. banks are decreasing manual powers and getting maximum work done through machine power. Skilled and specialized man power is to be utilized and result oriented targeted staff will be appointed.

In India, currently, there are two types of customers – one who is a multi-channel user and the other who still relies on a branch as the anchor channel. The primary challenge is to give consistent service to customers irrespective of the kind of channel they choose to use. Retention of customers is going to be a major challenge. Banks need to emphasis on retaining customers and increasing market share. Information technology poses both opportunities and challenges. Even with ATM machines and Internet Banking, many consumers still prefer the personal touch of their neighborhood branch bank. Technology has made it possible to deliver services throughout the branch bank network, providing instant updates to checking accounts and rapid movement of money for stock transfers.

However, this dependency on the network has brought IT department’s additional responsibilities and challenges in managing, maintaining and optimizing the performance of retail banking networks. Illustratively, ensuring that all bank products and services are available, at all times, and across the entire organization is essential for today’s retails banks to generate revenues and remain competitive. Besides, there are network management challenges, whereby keeping these complex, distributed networks and applications operating properly in support of business objectives becomes essential. Specific challenges include ensuring that account transaction applications run efficiently between the branch offices and data centers. Banks in India will now have to work towards a vision to have an enhanced retail delivery system. Such a system would include transformed branches, enhanced
telephone services, and leading-edge internet banking functions that provide a consistently positive multi-channel experience for the customer. Some of the challenges that the banks are facing today are:

- Changing needs of customers.
- Coping with regulatory reforms
- Restructuring and reorganizing banks' setup towards thinner and leaner administrative offices;
- Closing down and/or merging of unviable branches particularly in urban and metropolitan branches;
- Thinning spread.
- Maintaining high quality assets.
- Management of impaired assets.
- Keeping pace with technology up-gradations.
- Sustaining healthy bottom lines and increasing shareholder value

The Indian banking sector is faced with multiple and concurrent challenges such as increased competition, rising customer expectations, and diminishing customer loyalty. The banking industry is also changing at a phenomenal speed. While at the one end, we have millions of savers and investors who still do not use a bank, another segment continues to bank with a physical branch and at the other end of the spectrum, the customers are becoming familiar with ATMs, e-banking, and cashless economy. This shows the immense potential for market. Banks are setting up alternative delivery channels to contain operating costs like off-site ATMs, internet banking, telebanking, outsourcing, centralized transaction processing, etc. No doubt, the benefits of technology have brought a sea-change in the outlook of modern banking. Maintaining transparency and market disclosure of critical information such as risk profile, capital adequacy, and liquidity management have made banking institutions more accountable and responsive to the well-informed customers, investors, and public at large.

In this complex and fast changing environment, the only sustainable competitive advantage is to give the customer an optimum blend of technology and traditional service. With technology occupying a pivotal role in delivery of banking
services, the expectations of the consumer have also been growing. Broadly, these expectations are swift service with minimal response time, efficient service delivery, tailor-made and value-added products to suit specific needs, hassle-free procedures and minimum transaction costs, and pleasant and personalized service. As different classes of customers have different expectations from the banks, we need to adopt a segmented approach to study the expectations of the consumers. For this purpose, consumers may be broadly categorized into corporate, institutional clients, high net worth individuals, and retail consumers. As already noted, banks have to profile their customers and segment them based on age/life cycle stage, income and occupation, needs and preferences based on customer feedback and market research. They have to analyse the different financial needs occurring across various life cycle stages and, accordingly, bundle out banking products to cater to their needs so as to sustain relationships over time. Banks need a focused marketing approach as warranted by the segment to which it caters to. Basically, the marketing plan of banks should focus on brand building and individual product marketing. This must be achieved through appropriate media planning.  

3.7 Conclusion

Today Indian banking industry is in the midst of an IT revolution. Nowadays nearly all nationalized banks have implemented IT based solutions for their day to day transactions. The applications of IT in banks have reduced the scope of traditional or conventional banking with manual operations. The banks are using new tools and techniques to find out the needs of the customer and accordingly offering tailor made products and services. IT has enabled the banking industry to not only come out with new products and services but also enhanced the turnaround time by bringing efficacies in the backend processes.
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