Chapter 2

EVOLVING TECHNOLOGY TRENDS IN THE INDIAN BANKING SECTOR

2.1 Brief History of Indian Banking

Three distinct phases can be identified in the history of Indian banking. They are:

1. Pre-Nationalisation period prior to 1969

2. Nationalisation of banks and the period prior to banking sector reforms up to 1991


2.1.1 Pre-Nationalisation period prior to 1969

The banking system of India was started with the establishment of the first joint stock bank, The General Bank of India, in the year 1786. After this, banks such as Hindustan Bank and Bengal Bank came into existence. East India Company established three banks- The Bank of Bengal in 1809, The Bank of Bombay in 1840, and the Bank of Madras in 1843. These three Presidency Banks were reconstituted under Presidency Banks Act, 1876. After the First World War the Presidency Banks were amalgamated as ‘The Imperial Bank of India’ in 1921. In 1935, the Reserve bank of India was constituted as the country’s central bank under the RBI Act of 1934.
When the country attained independence in 1947 Indian Banking was exclusively in the private sector, relatively small and extremely weak. It was mainly characterized by the following:

- The banks were largely confined to urban areas, extending loans mainly to trading sector dealing with agricultural produce. Virtually no banking services were available at rural and semi urban areas.
- These institutions did not play their due role in the planned development of the country.
- Deposit mobilization was slow as public lacked confidence in banks on account of frequent bank failures.

The Government of India, concerned by frequent failures and the resultant miseries faced by small depositors and others enacted the Banking Companies Act 1949 and the title was changed as ‘Banking Regulation Act, 1949’ as per amendment in 1965.

### 2.1.2 Nationalisation of banks

In the year 1955 Imperial Bank of India was nationalized to form State bank of India with the stated objective of ‘extension of banking facilities on a large scale, more particularly in the rural and semi urban areas and for diverse other public purposes’. The seven banks now forming subsidiaries of SBI were nationalised in the year 1960. This brought one-third of the banking segment under the direct control of the Government of India.

The first phase of financial reforms resulted in the nationalization of 14 major banks in 1969 and resulted in a shift from class banking to mass banking. This, in turn, resulted in a significant growth in the geographical coverage of banks. Every bank had to earmark a minimum percentage of its loan portfolio to sectors identified as ‘priority sectors’. The manufacturing sector also grew
during the 1970s in protected environs and the banking sector was a critical source. The next wave of reforms saw the nationalization of 6 more commercial banks in 1980 taking the number of nationalized banks to 27. Since then the number of scheduled commercial banks increased four-fold and the number of bank branches increased eight-fold.

### 2.1.3 Problems faced by the banks prior to 1991-92

Before 1991-92, the financial sector was characterised by segmented and under-developed financial markets as well as by the paucity of instruments. The structure of interest rates was complex and their levels were regulated by the administration. The sector lacked transparency, accountability and prudential norms, while information on debtors and the ability to recover doubtful assets was very weak, leading to an increasing number of non-performing assets (www.delind.cec.eu.int, 2008).

Before 1991 banking sector in India was facing several problems such as:

i. Eroding productivity and efficiency of public sector banks which led to continuous losses,

ii. Increasing NPAs and deteriorated portfolio quality,

iii. Poor customer service and obsolete work technology,

iv. Inability to face competition effectively.

In order to remove the above-mentioned deficiencies, Narasimham committee was appointed in 1991 and it submitted its report within three months in November 1991 with measures to improve productivity and efficiency of the banking sector (Uppal and Kaur, 2007). The aim was to improve efficiency, productivity and profitability of the Indian financial sector. The recommendations among other things laid emphasis on revitalizing overall
monetary policy framework, strengthening financial institutions and integrating
the financial system with the global economy to attract capital and modern
technology (Rajneesh De and Padmanabhan, 2002).

2.1.4 Narasimham Committee Report and Banking Sector Reforms

Several changes have taken place following the recommendations made
by the Narasimham committee, some of which are as follows:

- Free entry of new private sector/foreign banks
- Introduction of prudential accounting norms
- Prescription of capital adequacy requirements
- Increasing trend towards deregulation of interest rates
- Diversification of activities
- Emphasis on fee-based services
- Increasing competition
- Increasing customer expectations

These rapid developments have become new challenges for the banks.
And in the post liberalization era the banking sector has truly become one in
which the survival of the fittest has become the norm (Ramakrishnan, 1999).

V. Leeladhar (2006), the Deputy Governor of Reserve Bank of India
(RBI) had identified a few broad challenges faced by the Indian banks. They
are enhancement of customer service; application of technology;
implementation of Basel II; improvement of risk management systems;
implementation of new accounting standards; enhancement of transparency and
disclosures; and compliance with Know Your Customer (KYC) aspects.
The Narasimham Committee felt that computerization and mechanization is a means to improve customer service efficiency in a competitive environment of highly computerized financial companies. Some of the major technology-based networks under government include NICNET, ERNET, SIRNET, INDONET and I NET. BANKNET, a telecommunication network of Indian banks went in for membership of the international network of SWIFT (Society for Worldwide Inter bank Financial Telecommunication) a few years ago.

2.2 Technology in Indian Banking Sector

Information and communication technology incorporation by the banks have changed the way in which banking is being done, worldwide. These changes have been pioneered in India by new private sector and foreign banks to enable them to reach a wider customer base as they had limited number of branches. However the public sector and the old private sector banks which were following the traditional method of banking till a few years ago have also realized the benefits that could be reaped through the introduction of technology in their day-to-day operations. So they are also of late increasingly pursuing a technology-centric strategy in banking operations and services delivery as manifested by their adoption of core banking solutions and the introduction of technology-enabled banking solutions (Sambrani and Suryanarayana, 2007).

Banks in India have therefore realized that technology strategy has become the corner stone of their business strategy and it provides totally new ways of effecting customer transactions and interactions (Godse, 2005).

Thrust on the usage of IT in the financial sector in India was heralded by the report of Rangarajan Committee on Mechanisation in Banks, 1984. This report, which is a land mark one, was prepared by the committee constituted
under the chairmanship of Dr. Rangarajan in September 1988 to draw up a prospective plan of computerization for a five year period commencing from 1990 to 1994 for the banking industry. This committee identified the purposes of computerization as improvement in customer service, housekeeping, decision-making, profitability and productivity.

V. Leeladhar (2006), Deputy Governor, RBI has described technology as a key driver in the banking industry, the infusion of which has led to new business models and processes. This has revolutionized the provisioning of banking services through introduction of new distribution channels. Banks which have not made enough investments in technology are at peril as they will soon find their customer base eroding. Those banks which have invested in technology have gained great mileage through improved competitive advantage and are potentially poised to attract increased market share. Technology adoption has also improved the quality of risk management systems in banks.

In India at present considerable divergence exists in the adoption and usage of technology by banks for internal operations as well as for customer interface, as shown below (Financial Sector Technology Vision Document, 2005, RBI):

- The public sector banks are the ones that are facing the greatest challenge since they have to get over their traditional way of functioning and have to change over to latest technology which will have to encompass all their vast branch networks including those at rural centres.

- The foreign banks have systems which are generally of international standards.
• With regard to old private banks, core banking solutions are being implemented in their metro and urban branches.

• As far as co-operative banks are concerned the bank customers are mostly yet to feel the benefits of IT, as the IT usage is restricted with computerization comprising essentially of accounts related activities.

• In case of Regional Rural Banks IT usage is confined to usage of computers as standalone machines.

2.2.1 Evolution of delivery channels

Traditionally, banks in India relied extensively on their reach afforded by their vast branch network to effectively put emerging banks out of competition. This was a high cost strategy considering the high real estate and bank operating expenses. This forced new banks to develop strategies that could help them reach out to end-customers in cost-effective ways. The solution came in the form of delivery channels such as Automated Teller Machines or ATMs, and internet banking. They turned out to be the growth drivers for private banks in India (Srikanth and Padmanabhan, 2002).

With the infusion of technology into the banking systems it is now possible for the banks to provide multiple delivery channels for provisioning of banking products and services. In India the traditional ‘brick and mortar’ banks are complimenting their operations with ‘brick and click’ strategy. The changed strategy on delivery channels is faced with attendant problems little known before.

2.3 Electronic Banking or Technology-Enabled Banking Self-Services (TEBSS)

In the present study the terms ‘Technology-Enabled Banking Self-services’ and ‘Electronic Banking’ have been used interchangeably. Several definitions of electronic banking exists in the literature. According Daniel (1999), it means the
provisioning of information and services by a bank to its customers via computer, telephone or television. According to her, it can also mean the access to the banking services via kiosks or ATMs located in work places or at public locations such as an airport or a railway station. This definition holds good for the retail electronic banking purposes, as it is the scope of the present study.

Uppal (2007) takes a broader definition to include all the services provided by banks through all types of electronic delivery channels such as telephone, internet, cell phone and so on. Hence as per this definition banking services such as internet banking, telephone banking, mobile banking and services provided through ATMs are all brought under its purview.

Sharma (2007) gave a rather interesting definition of electronic banking when he equated it as ‘providing banking service to customer at his/her office/home or at any other place or time wherever the person is- be it traveling, shopping or even in a stadium through the usage of electronic technology’.

The new delivery channels such as ATMs, Telephone Banking and Internet Banking along with better access to customer information have reformed the relationship between banks and customers. Banks are now able to process the customer information for a number of purposes. They have the opportunity to market their products and services online and additional financial services like bancassurance can be targeted at the existing customers and prospects, thus facilitating customization to suit the needs of individual customers (Godse, 2005).

2.3.1 Automated Teller Machines (ATMs)

Automated Teller Machine or ATM as it is popularly known, is a device that allows customers who have an ATM card to perform routine transactions without interacting with a human teller. In addition to cash withdrawals, ATMs can handle deposits and enquiries, arrange loans and insurance, arrange buying and selling of
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stocks and advise customers on different savings and investment schemes (Manoharan, 2007).

HSBC was the first bank to introduce the ATM concept in India way back in 1987. New private sector banks have taken the lead in introducing ATMs initially in a big way to supplement their branch network and to compete with large public sector banks with many branches. ICICI, UTI, HDFC and IDBI together used to account for more than 50% of the total ATMs in India about two years ago. ICICI Bank was the first bank to cross the 1000 mark in India (Thamaraiselvan and Raja, 2007).

But the current scenario has entirely changed with the banks in the public sector like SBI and its associates, Corporation Bank and Syndicate Bank aggressively pursuing the installation of ATMs across the country.

It can be seen from table 2.1 that the total number of ATMs installed by the banks was 27088 as on 31st March 2007 whereas by the same period in 2006 it was 21,147 registering a growth rate of 28 percent over the previous year. Nationalised banks constituted the largest share of installed ATMs, followed by the new private sector banks, SBI group, old private sector banks and foreign banks. While new private sector banks and foreign banks had more off-site ATMs, nationalized banks, SBI group banks and old private sector banks had more on-site ATMs. Understandably foreign banks and new private sector banks depend on off-site ATMs to overcome the limitation of having less number of branches. It is also worth noting that the number of ATM installations as compared to the number of their branches is 3.28 times more for the new private banks and 3.5 times more for the foreign banks.
Table 2.1: Branches and ATMs of Scheduled Commercial Banks
(As on 31st March 2007)

<table>
<thead>
<tr>
<th>Bank Group</th>
<th>Number of Bank Branches</th>
<th>No of ATMs</th>
<th>Off-site ATM as percentage of total ATMs</th>
<th>ATM as percentage of branches</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rural</td>
<td>Semi-Urban</td>
<td>Urban</td>
<td>Metro</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Nationalised Banks</td>
<td>12,986</td>
<td>7573</td>
<td>7612</td>
<td>7465</td>
</tr>
<tr>
<td>State bank group</td>
<td>5126</td>
<td>4155</td>
<td>2556</td>
<td>2193</td>
</tr>
<tr>
<td>Old Private Sector banks</td>
<td>855</td>
<td>1510</td>
<td>1294</td>
<td>947</td>
</tr>
<tr>
<td>New Private sector banks</td>
<td>130</td>
<td>554</td>
<td>824</td>
<td>989</td>
</tr>
<tr>
<td>Foreign Banks</td>
<td>-</td>
<td>2</td>
<td>44</td>
<td>227</td>
</tr>
<tr>
<td>Total</td>
<td>19097</td>
<td>13794</td>
<td>12330</td>
<td>11821</td>
</tr>
</tbody>
</table>

Source: Reserve Bank of India, Report on Trends and Progress of banking in India, 2006-07, p 97
Ref Appendix 3 section A3.2 for RBI classification of Banks
When compared to the previous year 2005-06, the maximum progress in the installation of the new ATMs in 2006-07 was achieved by nationalised banks (38 percent). This growth rate was slightly lower when compared to growth rate of 50 percent in the earlier year. It is also interesting to observe that during May 2005 it was the new private sector banks that had the largest share of ATMs. Now it is seen that the nationalised banks have bridged the gap and even overtaken the new private ones.

With the installation base of more than 27,000 ATMs (as on 31st March 2007) all over the country, ATMs are going to play greater role in day-to-day banking transactions. Future ATMs will be more than just cash dispensing machines; they will be providing additional value added services including several non-banking and non-cash ones (Mohanty, 2007). The common non-banking services provided by most banks via ATMs are payment of electricity, telephone, cellular and credit card bills, payment of insurance premiums, and refilling/recharging pre-paid mobile phone connections.

In addition, Citibank and ICICI Bank permit mutual fund transactions through ATMs. Citibank ATMs also let their customers place orders for demand drafts and fixed deposits. ICICI Bank, IDBI Bank and SBI allow their customers to make donations to specific temples or charitable trusts. Customers can also purchase a new internet connection or buy renewal packs via ICICI Bank ATMs, apart from buying calling cards for domestic/overseas calls. SBI ATMs allow their customers to pay fees for select colleges at specified ATM centres, while IDBI ATMs even let you pay your gas bills and subscription payments for select magazines. Apart from payment services, IDBI ATMs let their customers view news headlines, stock quotes, horoscopes and movies running at theatres (Israni, 2006).
With the aggressive deployment of ATMs, enormous enhancement in productivity could be achieved as the banks in India were able to shift 50 to 80 percent of their respective cash transactions to this channel. This has resulted in a substantial cost savings for the banks as the cost of transactions using ATM is only about 25 to 30 percent of the cost of branch transactions. The experience of The Federal Bank, a prominent old private bank testifies this fact as the new ATMs installed managed to breakeven within six months of their installation. The same bank could shift more than 60 percent of its cash transactions over this channel, even in rural areas within two years of the introduction of ATM networks by it (Nair, 2005).

2.3.2 Internet banking

Internet banking involves the use of Internet for delivering banking products and services which include transfer of funds, ordering demand drafts, payment of utility bills, stop payments on cheque, obtain account balance, view one’s statement of account online and applying for loan.

Some of the advantages of using internet banking as far as customers are concerned are:

- The customers can have access to internet banking 24 hours a day and seven days a week.
- It is cheaper than physically going to the bank branch and they don’t have to wait in a queue to receive services.
- Customisation of banking needs to suit the user is possible
- Customer can avail the banking services without any geographical constraints.
- A multitude of different banking products and services are provided to the customers.
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Internet banking provides certain benefits to the bankers as well such as reduced cost of provision of service, savings on manpower, increased productivity and opportunity to target new customer segments.

Dinz (1998) developed a model to classify the services delivered through internet banking into three roles having different levels like basic, intermediate and advanced levels of services under each role. The different roles mentioned for internet banking are:

1) Informational : for providing information
2) Transactional : for conducting transactions
3) Relationship : for improving customer relationship

As per the RBI’s classification in their Report of Internet banking (2001) the levels of banking services offered through internet can be categorized into three types:

i. The basic level service is the banks’ websites which disseminate information on different products and services offered to customers and members of public in general. It may receive and reply to customers’ queries through e-mail.

ii. In the next level are simple transactional websites which allow customers to submit their instructions, applications for different services, queries on their account balances etc; but do not permit any fund-based transactions on their accounts.

iii. The third level of internet banking services are offered by fully transactional websites which allow the customers to operate on their accounts for transfer of funds, payment of different bills, subscribing to other products of the bank and to transact purchase and sale of securities etc.
The above forms of internet banking services are offered by traditional banks, as an additional method of serving the customer or by new banks, who deliver banking services primarily through internet or other electronic delivery channels as value added services.

ICICI bank was the first one to offer online banking way back in 1996 with the launch of ‘infinity’ and other banks especially those belonging to new private sector and foreign banks followed suit. ICICI Bank kicked off online banking way back in 1996 and a host of other banks soon followed suit. The period from 1996 to 1998 marked the adoption phase even for the internet as a whole. The usage increased only by 1999 as a result of lower online charges and increased PC penetration combined with a tech-friendly atmosphere. After ICICI Bank, Citibank, IndusInd Bank, HDFC Bank and Timesbank (now part of HDFC Bank), were the early ones to introduce online banking (Rajneesh De and Padmanabhan, 2002). At first the online banking facility was used as a vehicle for meeting the information requirements of the customers and gradually transaction facilities like fund transfer and third party transfers were introduced.

The proposed setting up of a Credit Information Bureau for online collection and sharing of credit information on borrowers has boosted internet banking. The deadline set up by the Chief Vigilance Commissioner for computerization of not less than 70 per cent of the bank’s business by end of January, 2001 also gave a thrust to development of banking technology. The recommendations of Vasudevan committee on technological upgradation of banks in India also gave impetus to the implementation on a large scale (Mann and Sahni, 2007).

Malhotra and Singh (2004) had studied the status of internet banking offered by the private, public and foreign banks operating in India during the
year 2004. Their finding at that time was that even though 90 out of 93 of these banks were having websites only 48 of the banks had transactional websites of which they could classify only 34 as fully transactional websites. Of late many public sector banks and scheduled commercial banks like State Bank of India, Bank of India, Bank of Baroda, Syndicate Bank, Allahabad Bank, Punjab National Bank and so on have taken a lead in this area and set up fully transactional websites.

2.3.2.1 Internet banking issues

The main issues in internet banking today relate to security, authentication, non-repudiation, internet banking business continuance plan, customer awareness creation about security aspects and security awareness breach detection and reporting. These issues are not only important for the banks but also they are essential to build customer confidence and satisfaction (Kumar et al., 2007).

**Security**: Information is an important asset in internet banking, so proper measures have to be taken to protect it through information technology infrastructure and software.

**Authentication**: there has to be a method of identifying and verifying the identity of the user, so that unauthorised persons cannot gain access.

**Non-Repudiation**: to verify whether the transactions have been effected through proper encryption measures and digital signature.

**Business Continuity planning**: to ensure transaction despite any interruptions.

**Customer security awareness creation**: educating customers about preventive measures.
These measures are essential as there is increased threat of phishing or online identity theft according to a study by Gartner, as cited by Balaraju and Balakrishnan (2008). They also found that most of the senior bankers surveyed by them (97%) felt that phishing is a threat to their online banking services and they also felt that most of the customers have low knowledge levels about it.

Stronger authentication such as two factor authentication, usage of biometrics, quantum cryptology along with proper customer sensitization are required to increase security and reduce stealing of customer data (Joshi, 2008).

2.3.3 Tele banking

Telephone banking which is still another form of technology-enabled banking providing various banking services in the self-service mode through the telephones to its customers. A customer can carry out transactions by accessing his/her account through telephone at any time or from any place throughout the country with the same Telebanking PIN. Telebanking is offered by the banks (Kunjukunju, 2008) through a technology known as Interactive Voice Response System (IVRS). To guarantee security the customer must first authenticate through a numeric or verbal password or through security questions asked by a live representative, a process known as authentication. With the obvious exception of cash withdrawals and deposits, it offers virtually all the features of an automated teller machine account balance information and list of latest transactions, electronic bill payments, funds transfers between customers’ accounts and so on.

Another variant of tele banking is sometimes called the phone banking in which a customer talks to a phone banking officer for transacting a banking business. But in the present study this particular service is not being considered as it does not come under the purview of the technology-enabled self-service.
Here the service encounter is a telephonic encounter in which services are being provided by the service employee who interacts with the customer over phone.

### 2.3.4 Mobile banking

Mobile banking is the latest addition to the technology-enabled banking. As the mobile phone penetration in India is quite high with an annual growth rate of about 83.17%, mobile banking has immense potential to be a cost-effective method of conducting banking transactions by the Indian customers including the rural population.

Asian countries such as China, Indonesia, India, and Philippines are high growth markets for mobile telephones. The Indian mobile sector crossed the 16.5 crore subscriber base at the end of the financial year 2006-07. The number of mobile subscribers has become 405.18 percent of the basic landline subscribers as on March 31, 2007 (Srivastava, 2008).

Mobile banking refers to the provisioning and availability of banking and financial services through the mobile technology. Mobile banking can be provided as a value-added service for the existing customers and at the same time it has the potential to be used as a means to bring into the banking fold the unbanked and underbanked segment of the population.

The pioneering bank to offer mobile banking services in India was ICICI bank in the year 1999, followed by HDFC bank and IDBI bank (Aithal, 2008). Among the 11 prominent private sector banks, seven are providing mobile banking facility to their customers. State Bank of India, Bank of Baroda and Corporation Bank are some of the public sector banks which have started offering this service to their customers.

The classification of the services offered through mobile banking can be done depending on who originates the service ‘Alerts’ and ‘Request’ services.
Alerts or push services happen when bank sends out information based on an agreed set of rules, for instance the bank sends out an alert when a client’s account goes below a threshold level, or when a debit or credit occurs above a certain limit and so on. Request or pull happens when a customer explicitly initiates a service or information from the bank. Last three transactions, bill payments, cheque book request are all examples of the request services.

Another way to classify the services is based on the nature of services, whether it is transaction-based or enquiry-based. So a request for bank statement is enquiry-based service and a request for fund transfer to some other account is a transaction-based service.

Mobile banking can be enabled through two technologies of which one is SMS (short messaging service) based and the other one being WAP (wireless application protocol). In India, mostly SMS based mobile banking is provided by the banks offering mobile banking since in a country like India majority of the mobile phone users’ hand sets have only SMS based services and it is easier and economical to provide the service. But the disadvantage is that the SMS based mobile banking will not be able to support the full breadth of transaction-based services. Mobile banking enabled with the SMS technology uses text messages to initiate mobile application based banking. The customer requests for information by sending an SMS containing a service command to a pre-specified number and the bank responds with a reply SMS containing the specified information.

WAP is similar to internet banking in its operation and it offers secure online access of web using mobile phones. Banks maintain WAP sites which customers access using a WAP compatible browser on their mobile phones. WAP site offers similar form based interface and allows the customers to access
all enquiry and transaction-based services and addition they can also access more complex transactions like trading in securities.

Services such as *account balance enquiry*, *account statement enquiry*, *cheque status enquiry*, *cheque book request*, *fund transfer between accounts*, *credit/debit alerts*, *minimum balance alerts*, *bill payment alerts*, *bill payments*, *recent transaction history*, *information requests on interest rates/ exchange rates* and so on are offered through mobile banking.

### 2.4 The Technology-Enabled Banking Self-Services scenario

Reflecting on the developments that have taken place during the past three years in the banking technology field in the Indian banks, the RBI has stated the following in its latest Financial Sector Technology Vision Document, 2007:

1) Core Banking Systems (CBS) implementation is in full swing with all banks at varying stages of implementation of the same in their branches.

2) This has resulted in the computerization and networking of branches on a larger scale as it is a necessary and essential condition for the implementation of CBS.

3) Even a few of the older banks have now fully implemented CBS across all their branches.

4) There has also been tremendous growth in the use of payment and settlement systems for fund transfers using electronic means, which shows a welcome shift from traditional paper-based transaction flows.

5) Most importantly, one of the major developments during the period was the introduction of new delivery channels for customers. Internet banking, mobile banking, mobile automated teller machines, multi-functional ATMs, shared ATM services, large scale usage of Real Time
Gross Settlement (RTGS) for quick, immediate funds transfer and smart card-based transactions as part of initiatives aimed at financial inclusion are some of the landmark developments during this period.

2.5 Global E-banking scenario- glimpses from select countries

Finland was the first country in the world to take a lead in e-banking. Online banking was launched in Finland in the year 1996. It has become common place across that country with penetration rates of over 50 per cent, with penetration rates of over 60 per cent among private bank customers and in some age categories (35-49) in the year 2004 according to the Finnish Banking Association’s survey of usage of credit, the penetration rate is over 70 percent (Pikkarainen et al., 2006)

As per the latest results about 84 percent of the Finns use internet today with the usage of internet banking at 67 percent for activities such as bill payments. This is a tremendous leap from only 4 percent of the interviewees using internet for bill payments in the year 1992. The usage of ATMs and Telebanking is found to be coming down according to the Finnish Banking Association survey Spring 2007 report on ‘Saving and borrowing in Finland’. The number of people paying bills on ATMs has decreased further as compared to the previous year (2006). Use of direct debit has increased slightly in the past year while use of payment service has decreased a little. Telephone is used for paying bills by a very small number of Finns, only one per cent of the respondents. According to this report while 88% of respondents aged between 18 and 34 years pay their bills on the internet, the corresponding figures for age groups 55 to 64 years and 65 to 74 years stand at 50% and 20% respectively.

More than 50 million of the US adult population is banking online according to a new survey by the Pew Internet & American Life Project
(Susannah Fox and Jean Beier, 2006). This is a major growth considering the fact that in the year 2000 only about 14 million people used online banking sites. This has been facilitated by the growth in broadband connections, as it is found that broadband users are twice more likely to use internet banking than dial up connection users.

Survey on internet banking in U. K. by Forrester Research during 2007 showed that about 31 percent of British adults use online banking. This is despite the fact that about two thirds (67%) of the British are regular users of the internet. Only about 46 percent of the internet users in Britain bank online. The main reason why non-users are not going for net banking is because they are happy with the other channels, with 44% of them stating that they are happy to visit their branch, while others preferred banking through ATMs (33%) and telephones (11%). Security as a reason of non-usage was cited by only 31% of the nonusers.

The study by Laforet and Li, 2005 in China shows that most of retail banks were providing online banking as add-on services to the existing branch activities and the mobile banking was in the initial stages. From their survey among six major cities in China among the relatively wealthy and youth segment who were the potential target segments for online/mobile banking they found that only 33% and 14% used internet and mobile banking respectively. These findings however, they said, were not representative of the Chinese population as a whole since the population in rural areas was not included in the survey considering the lack of accessibility and internet infrastructure.
2.6 Conclusion

A brief overview of the Indian banking, its history with the changes that have taken place, the post liberalization period reforms and how it has culminated in the infusion of technology into the banking system with a view to improving-efficiency and productivity has been dealt with in this chapter. The various aspects regarding each technology-enabled banking self-service such as ATMs, internet banking, tele banking and mobile banking have been given. Finally, experiences of e-banking from select countries have been explored.