

Chapter 2

E-banking in India- An Overview

CHAPTER 2

E-BANKING IN INDIA-AN OVERVIEW

2.1 Introduction

The last chapter reviewed the literature on role of information technology in banking industry. In addition to that, all the aspects pertaining to information technology in banks have been discussed. While Information technology in banking industry is introduced in details, work to be carried out under this study has been explained. The research methodology adopted along with objectives and hypotheses of the study have also been clearly defined. The framework was made to proceed with the work and to bring the study to a logical conclusion . The present chapter is devoted to present an overview of e-banking and discuss its theoretical background. An elaborate discussion on the concept of e-banking is presented. Various e-banking product and facilities will also be discussed in this chapter.

2.2 Meaning and Concept of E-banking

Liberalization and de-regulation process, which started in 1991-92 has made a drastic change in the Indian banking system. From a totally regulated environment, we have gradually moved into a market driven competitive system.

In today's era, one cannot think about the success of any service industry including banking industry without information technology. It has increased the contribution of banking industry in the economy. Financial transactions and payments can now be processed quickly and easily in friction of seconds. Every second development in Information Technology (IT) and its acceptability by the commercial banks in India has enabled them to use IT extensively to offer their products and services to customers apart from just back office processes. Banks with latest information technology techniques are more successful in the cut throat competitive market in these days. Further, they can generate more and more business opportunities resulting in greater profitability. Information technology revolution in banking sector has not only provided improved service to the customers, but also reduced the operational cost (Talwar, 1999) .

Latest Developments in Information Technology have also brought along a whole set of challenges to deal with. Speedy changes in technology, complexities, high costs, security and data privacy issues, new rules and regulations and lack of trained manpower are some challenges faced by commercial banks in India.

E-banking can simply be defined as using Automated Teller Machines (ATM's) , telephones, internet and mobiles for doing day to

day simple and advance transaction without being physically present in the bank , to use the services like making queries for account balance, making different type of payments like bills, mobile recharge, money transfer, filing income tax return electronically. In simple words, e-banking is concerned with doing all these transactions from home or office without visiting the branch; 24 hours, 7 days in a week by using ATM's , telephones, internet and mobiles etc for doing banking services.

E-banking technology is gaining all-round adoption in banking industry across developed and developing countries. The use of e-banking technologies that includes automated teller machines (ATM's) , telephone-banking, internet banking and mobile banking i.e. branchless banking in the delivery of banking products and services to their customers has become an essential aspect of modern banking system. Since banking services are informational (Bradley and Stewart, 2002) and can easily be automated and digitised (Porter and Miller, 1985), every bank these days is considering the adoption of information technology equipments as a means to improve the performance, service quality and efficiency in delivering the services. E-banking refers to the system that enables the banks to offer their customers access to their accounts, transact business and obtain information via electronic communication channels; these channels can be Automated Teller

Machines (ATM's), tele-banking, home-banking and internet banking (Turban, 1999). Banks have now been able to provide single window system for quick delivery of services to their customers, where one can deposit cheque, receive payment, deposit cash etc all at one place.

According to Nehmzow (1997), traditional banking methods (e.g. back office processes such as paper filling, paper work processing, sorting cheques and cash handling) from both banks and customers perspective, has become most costly . Regular requests from customers for bill payment (telephone, mobile, electricity, insurance and credit card bills), cash withdrawals, loan applications, cheque clearings, money transfer were huge tasks for traditional banks, thus there was a clear need to adopt information technology equipments to automate back office work (Keyes, 1999). Despite the benefit of e-banking technology in improving service quality, productivity and efficiency, some banks have struggled to adopt and integrate information technology related services in their current banking system . This might be due to bank staff's resistance to new technologies (Khalfan and Alshawaf, 2004) or due to lack of fund that is needed to install and upgrade the current banking system. Private and foreign banks have added multiple technological up-gradation in their various branches .Even though public sector banks followed the private banks in their

technological initiative and services but still they are far behind from their competitors due to constraint of financial resources required to upgrade e-banking services.

E-banking system is growing its roots in developing countries like India. Private sector banks have been adopting e-banking since their birth, but for public sector banks, it is an uphill task. However, it is believed that e-banking will help banks to cut cost, increase revenue, cut time for delivering service and become more convenient for the valuable customers (Halperin. 2001). Cost of e-banking services is very low to traditional way of delivering the services. Rough estimates in India assume banking teller cost Re 1 per transaction, ATM transaction cost is only 0.45 Re , phone banking at 0.35 Re, debit card costs around 0.20 Re and internet banking cost only 10 paisa per transaction (Sharma, 2005) .

Electronic delivery solutions would make flow of information much faster, more accurate and enable quicker analysis of data received. This would make the decision making process faster and more efficient. Fundamental shift in the functioning of banks has been brought up by information technology. This not only helps the banks in improvement of their internal functioning but also enables them to

provide better customer service. Information technology will break all the boundaries for using any services.

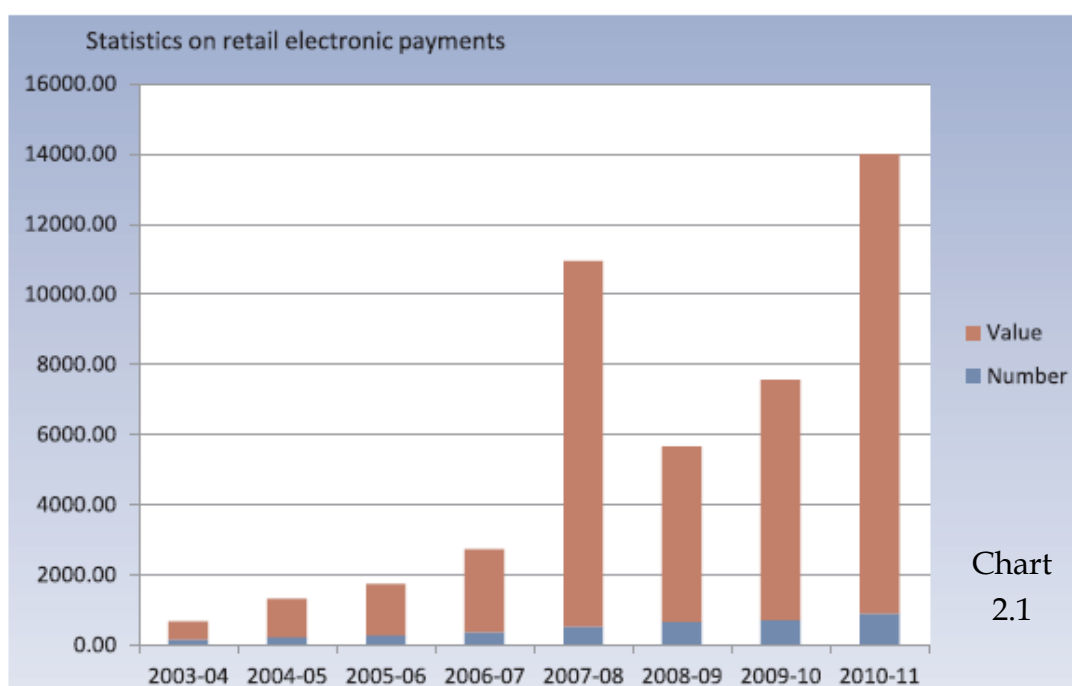
The banking environment of today is rapidly changing and the rules of yesterday are no longer applicable. Most of the banks in India have adopted core-banking solutions (CBS) in a fully networked environment. Back office functions have been taken away from branches to a centralized place. While physical branches would continue to be relevant in the Indian scenario, the real growth driver for reducing the cost would be virtual branches i.e. Automated Teller Machines (ATMs), internet banking, mobile banking, kiosks, phone banking etc., which is made possible by few persons and run on 24 x 7 basis to exploit the real potential of these information technological utilities. New technologies cannot completely replace the branch network but it can support old methods of delivering the services to their customers.

Information Technology has brought drastic change in the day to day functioning of banking operations. It not only brings improvements in their internal functioning and daily routine work but also enable them to provide better customer service efficiently and effectively.

By directing various banking transactions through electronic channel and by providing customers direct access to their account

without visiting the branch, banks now offer quick service along with transparency and incentives to their customers for using e-banking services. Because of all this, work load of banks' employees has reduced has consequently improved the quality of customer service in branches.

According to data compiled by Reserve Bank of India, steady growth in the number of transaction via electronic form along with the amount of money transferred is shown in chart 1.



Source: RBI

Chart 2.1

2.3 Benefits of E-banking:

E-banking helps the customers as well as banks by overcoming the drawbacks of manual system as computers are capable of storing , analysing , consolidating, searching and presenting the data as per the requirement of customers and banks with a lot of speed and accuracy.

Advantages to the Banking institutions

1. E-banking helps in reducing the cost of delivering the services to the customers.
2. It provides banks with competitive advantage among their peers.
3. It reduces the use of paper money that helps the central bank in printing less paper notes.
4. Through websites, banks can earn revenue by promotional activities.
5. FAQ's uploaded over the banks' website will reduce the workload on employees.
6. Customers can avail e-banking facility from anytime, anyplace, therefore there is a need to invest more and more on relevant infrastructure.

Advantages to the customers

1. E-banking delivers 24x7 services to customer.
2. Easy access to account information in quick time.
3. Payment can be made online for the purchase of goods and services.
4. With e-banking, customers can check account balance, can get statement of their account, apply for loans, check the progress of their investments and collect other relevant information.

2.4 E-banking Services in India

E-banking is a term that includes the entire information technology revolution that has taken place in the banking industry. E-banking simply refers to the use of electronic channels like phone, mobile, internet etc for delivery of their services to their valuable customers. It increases the efficiency in the area of effective payment by enhancing the delivery of banking services in quick time. E-banking has helped banks to retain the current customers, increase customer's satisfaction, acquire further share in the markets and reduce the costs of delivering service to the customers. Delivery of services has gained increasing popularity through electronic platform. It provides alternative way for delivery of services in a faster way to the customers. Various number of services are being offered by banks through electronic banking. It is quite difficult to measure the extent of such services, but an effort has been made by classifying these services into following categories.

2.4.1 Automated Teller Machines (ATM's)

Automatic teller machines have transformed the concept of banking in India. It has eliminated the requirement of to stand in long queue and filling of forms for routine banking transaction. Now customers of banks can access their money with the scratch of a ATM

card. An automated teller machine (ATM) is an electronic computerised device that allows banks customers to directly use a secured method of communication to access their bank accounts. Entry of Automated teller machines (ATM's) has changed the office atmosphere of the branches of banks. There is no need for a customer to visit branches for their day to day banking transaction like cash deposits, cash withdrawals, balance enquiry, dropping cheque etc. Electronic channels have opened new avenues for banks. ATM's are electronic machines which are operated by customer himself to withdraw or deposit cash.

If it takes ten seconds for an ATM transaction as compared to more than a minute for a counter transaction then it can be said that number of customer serviced in a day will be much more via ATM's. Flexible payment methods and user friendly banking services are now available for the customers. This has been possible due to introduction of information technology in banking industry. Internet banking , mobile banking, phone banking are the new development in banking industry and expected to result in more efficient banking system. However the pressure from private and foreign banks in India to public sector banks has posed a challenging environment. Latest advance banking technology brought up by private and foreign banks have great impact on Indian banking system. These alternative delivery channels

includes ATM's (Automated teller machines), phone banking, internet banking, mobile banking. Out of all these e-banking services, automated teller machines are most heavily demanded and fulfil most of the needs of the customers without visiting the bank. ATM delivers multiple services 24x7, which is major cause of making it a success in the history of banking industry. In fact, e-banking services became profitable and successful due to various services delivered through ATM's. The management of ATM's involves loading of cash, arrangement of money with bank service of car that delivers cash, providing insurance for all areas such as theft of cash from ATM's. ATM's helps customers in withdrawing cash at anytime, from anyplace. Along with these services, many more services are also provided by ATM's that includes checking their account balances, recharging pre-paid mobile phone credit, transfer of money, making bill payments.

The customer is identified at ATM by inserting a plastic ATM/Debit card with a magnetic stripe or a plastic smart card with a chip that has a unique card number issued to the customer and some security information such as an expiration date or CVVC (CVV). Authentication is provided by the customer entering a personal identification number (PIN) for using any service at ATM's. The

number of ATM machines has grown from 34789 in March 2008 to 114014 in March 2013(RBI working report, 2013) .

Facilities provided to the ATM customers

1. Anytime, anywhere access to cash, withdrawal of cash is available 24x7.
2. Transfer of money from one account to another account is possible with the help of ATM's.
3. A customer with the help of ATM's can check his/her last transactions and current balance. In addition to these, a mini statement can also be generated with the help of ATM's.
4. Change of personal identification number of ATM/debit card can be made with ATM's.
5. Cheque book request can be made by the customers through ATM's.
6. Fixed deposits can be done with the help of ATM's.
7. Utility bills can be paid by the customers with the help of ATM's.
8. Customers can pay their credit card bill with ATM's.
9. Mobiles can be recharged via ATM's.
10. To get the latest updates on mobile, customers can change their mobile number through ATM's.
11. Check drop facility can also be used by customers at ATMs.

2.4.2 Telephone Banking/Tele Banking/Phone Banking

Phone banking, tele banking or telephone banking are all the same. In phone banking, banking transaction is done over the telephone. Customers of banks can get information about their accounts, make banking transaction like fixed deposits, money transfer, demand draft, collection and payment of bills etc by using telephones. As more and more people are using mobile phones, telephone banking is also possible with the help of mobile phones .

Telephone banking satisfies the customer with fast, anytime transaction and account information via telephone access. With a simple push of a button, customers can check a deposit, account information, transfer fund as well as perform number of other functions. Telephone banking system uses technology that keeps the cost of delivering the service very low. On the other hand, customers can do the banking work directly from their homes or from their office desk, without being stuck in traffic and without standing in queue for hours and without the need to visit a bank branch or automated teller machine. Telephone banking allows the customers to access their account 24 hours a day, 7 days a week. They can dial in and get the current account information. For using telephone banking facilities, a customer must first register with the bank's branch for availing the service and a password is set for

customer verification. Password may or may not be same as in internet banking. For using telephone banking, customer has to dial special phone number set up by the bank. Most telephone banking services use automated phone answering system with phone keypad response or voice recognition capability.

Facilities provided to telephone/phone banking customers

1. Customer can get the details of saving, current, fixed deposits available in their account balance.
2. With phone banking facility, customers can get their cheque book and latest account statement delivered to them.
3. Money transfer can be possible with the help of phone banking.
4. Customers can request the bank to stop payment of a particular cheque by using phone banking service.
5. Mobile banking request can be made with the help of phone banking.
6. Customers can get the latest information about the interest rates prevailing along with the foreign exchange rates.
7. Customer can use phone banking for blocking of Internet Banking User ID

8. Blocking of ATM/debit card credit cards can be done by phone banking.
9. Phone banking can be used by the customers for issuing ATM card.
10. TDS certificate can also be received by the customers via phone banking.

2.4.3 Internet banking

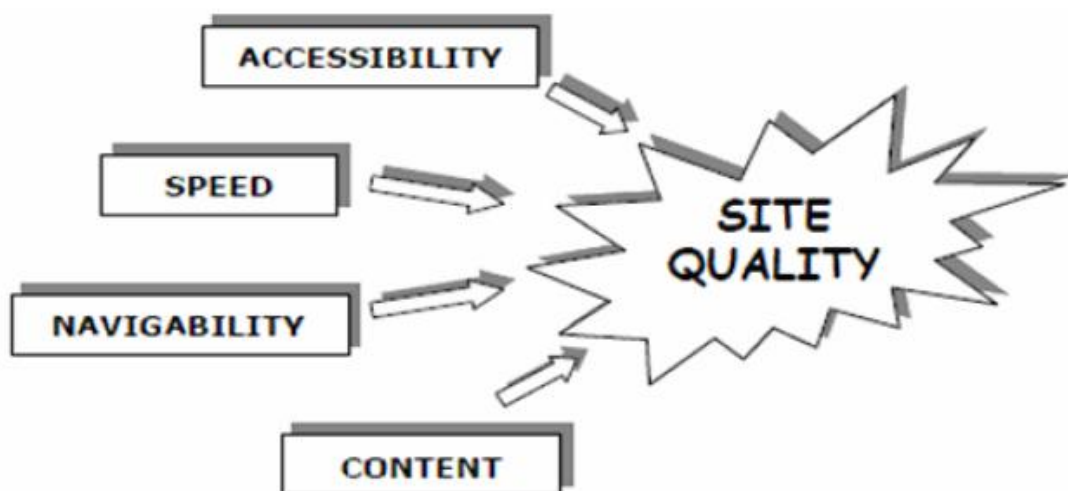
E-banking has been prevailing in India around sometime in the form of automated teller machine. Thereafter, it has been transformed by the internet and a new delivery channel has emerged that benefits both banks as well as customers. Internet banking or online banking, as it is sometimes called, simply is an extension to traditional banking, which uses internet both as a medium for receiving instructions from the customers and also delivering services to them. Internet banking, as a medium of delivering the banking services to customers and as a strategic tool for the development of banking business, has gained wide acceptability in all developed nations and is quickly spreading in developing nations like India with more and more banks entering the fray.

Internet technology has totally transformed the design of banking business. The success of internet banking operation totally depends

upon the well designed website of the bank. It should be informative, functional, user-friendly and most importantly, secured.

Internet Banking lets clients handle many banking transactions via their personal computer. For instance, one may use his/her computer/laptop/smart-phone to view his/her account balance, request transfer between accounts and pay bills electronically.

Figure 2.2
Website Quality Assessment Model



Source: Mirando and Cortes (2006)

From the above diagram, it is clear that if the website is easily accessible by the customers, it enhances its quality. The speed of the website enables customers to make the transaction quickly.

Facilities provided to internet banking customers

Various services under Internet Banking Account are as follows:

1. Customers can check the current balance in their account.
2. All the past transactions from the date of opening the account can be checked by the customers.
3. Money can be transferred to any bank account of that particular bank or any other bank.
4. Transfer of Fund having visa/maestro, debit card holders or credit card holders
5. Customers can recharge their prepaid mobile online anywhere, anytime in a few minutes.
6. Mutual Fund schemes can be bought/sold online with the help of internet banking account.
7. With the help of internet banking account, fixed deposits and recurring deposits can be applied for.
8. Cheque book request can be made and, the same will be delivered on the said address.
9. Customers can issue instruction to banks to stop payment of a particular cheque with the help of internet banking account.

10. Internet banking account provides customer one point access to all accounts securely. With this facility, customers can view all his/her account like credit card, Demat, loan account through single user ID.
11. Request of ATM/Debit cards can be made with the help of internet banking account.
12. Re-issue and up-gradation of ATM/Debit Cards can be made with the help of internet banking.
13. Statement of bank account can be received on emails.
14. Customer can make request for a Demand Draft with Internet banking account.
15. Renewal of current fixed deposit and recurring deposit and request of its premature closure can be made.
16. A customer can change password whether it is log in or transaction password.
17. Demat account detail and transaction can be provided.
18. A customer can view detail related to loan account, type of loan, date of sanction, date of maturity, rate of interest.
19. Customer can get information about the rate of interest on deposit and loan scheme.

20. Payment of utility bills (electricity, telephone, house tax etc), bank credit, mobile bills, insurance premium.
21. With internet banking account, customers can pay e-shopping bills
22. Booking of railway and air ticket can be done with the help of Internet banking account.
23. Share trading in security market can also be done.
24. Customer can make online payment of service tax, income tax, house tax etc.
25. Loans can be sanctioned online with help of internet banking account.
26. Internet banking account allows the customers to send money anytime anywhere in India through money order. The fund will be delivered to the beneficiaries doorstep.
27. All the donation of customers can be made from the convenience of your home or office with the help of internet banking account.
28. Recharging of DTH connection from comfort of home or office, anytime, anywhere can be done.
29. Customer can even buy gold and silver with the help of internet banking account.

30. Forex can be bought and delivered to the doorstep of the customer with the help of internet banking account.
31. Document storage facilities are also provided by the banks to their customers via internet banking account to store birth or marriage certificate, passbook statement, life insurance policy, PAN card copy or any other prized document etc.
32. Account opening request can be made online. One can apply for a new account only in branches where he/she already has an account.

2.4.4 Mobile banking

Mobile technology is well accepted and widely available at an affordable price. It is also suitable for banking and payment services and provides huge opportunity to extend financial services to each and every individual irrespective of the place where one is residing. Internet banking has helped the customers by accessing their account anytime, anywhere, at any place. Customers can check their account details, get their banks statement, perform many transaction in the comfort of their home or office. However, biggest limitation of internet banking is the requirement of personal computer/laptop/smart phone with an internet connection. Mobile banking reduces this very limitation of internet banking. As mobile banking, reduces the customers'

requirement to just having a mobile phone for using this service. Mobile phone usage has seen an explosive growth in India in the last decade. The main reason that mobile banking scores over internet banking is that mobile banking enables anywhere, anytime banking. Customers do not need to have an internet connection to make a transaction from his account. Customers can use their account on the go while waiting at the bus stop, travelling, at home, at work place. Mobile Banking refers to provision and availability of banking and financial services with the help of mobile telecommunication devices.

Barnes and Corbett (2004) suggest that recent innovations in telecommunications have enabled the launch of new access methods for banking services. One of these is mobile banking; whereby a customer interacts with a bank via a mobile device such as a mobile phone or personal digital assistant. Mobile banking concept is one of the biggest innovations along with ATM's in the field of banking sector. Mobile banking services can be used by either short message service (SMS) or through an application installed on the cell phones.

RBI Guidelines for mobile banking

Guidelines define mobile banking as, “doing any banking transaction by using mobile phones by the banks’ customer that would include debit/credit of customers account”. After the initial guidelines

set by Reserve Bank of India , several relaxation policies have also been made to encourage the use of mobile banking due to continuous change in the environment and priorities of banking customers.

1. Any branch which offers mobile banking services should note that the mobile banking service should be available to customers on any network available. It should not be limited to few networks only.
2. In the long run, each bank would enable transaction between two accounts in different banks, irrespective of the network.

Regulatory and supervisory issue

1. Only banks which are licensed, supervised and have physical presence in India are permitted to offer mobile banking services.
2. Mobile banking service will only be issued to the customers who have debit/credit cards issued as per the Reserve Bank of India guidelines.
3. Domestic services shall be provided i.e. only transaction of Indian rupee is permitted.
4. For extending this facility to their customers, banks can also use the services of Business Correspondent appointed in compliance with RBI guidelines etc.

Various guidelines framed by Reserve Bank of India on different dates

From time to time, Central Bank of India has framed many guidelines:

October 8, 2008

Mobile banking transactions were defined as undertaking banking transactions using mobile phones by bank customers that involve credit/debit to their account.

Some of the significant norms were as under:

1. Technology and security standards were laid down.
2. All transactions to be encrypted* irrespective of value limit
3. Inter-operability was ensured.
4. Customer complaints and grievance mechanism were laid down.
5. Daily cap of Rs.5,000 per customer for funds transfer and Rs10,000 per customer for transactions involving purchase of goods and services were prescribed.
6. Banks to seek one-time prior approval of the Reserve Bank of India after obtaining their respective Board's approval.

* Encryption is the conversion of data into a form, called a cipher text, that cannot be easily understood by unauthorized people.

7. Such services can also be offered through the BCs[†] (Business Correspondents).

December 24, 2009

1. Raise in the daily cap transaction limits for funds transfer and for purchase of goods and services to Rs. 50,000
2. Transactions upto Rs. 1,000 can be facilitated without end to end encryption of messages.
3. Permitted to provide cash-outs to the recipients through ATMs or BCs subject to a cap of Rs. 5,000 per transaction and a maximum of Rs. 25,000 per month per customer.

May 4, 2011

1. Transaction upto Rs 5,000 can be facilitated without end to end encryption of messages.

December 22, 2011

1. Transaction cap limits for funds transfer and for purchase of goods and services of Rs.50,000 per customer per day removed.
2. Banks may place their own limits based on their risk perception with the approval of their Board.

[†] Business Correspondents are retail agents engaged by banks for providing banking services at locations other than a bank branch/ATM.

3. Ceiling on cash-outs to the recipients through ATMs or BCs raised to Rs.10,000 per transaction subject to the existing cap of Rs. 25,000 per month.

Telecom Regulatory Authority of India (TRAI) has issued regulation for mobile banking in 2012, prescribing quality of service standards for mobile banking for ensuring the customer for faster and reliable communication through the mobile phones. Some of the important regulations are as under:

1. Access service providers shall facilitate banks to use SMS, USSD and IVR to provide banking services.
2. The response time for delivery of message for mobile banking services generated by the customer or the bank shall be within the prescribed time frame.
3. If the SMS sent by the bank is not delivered to the customer due to network or handset related problems, an USSD communication to the customer confirming the completion of the transaction should be sent.
4. Service providers have to maintain complete and accurate record of transactions, using mobile banking services through mobile phones.

Facilities provided to Mobile banking customers

1. Information about the updated account balance without using internet or phone banking can be gathered with the help of mobile banking that includes balance enquiry and mini statement.
2. Fund transfer can be made possible with the help of mobile banking.
3. Customer can request a cheque book with the help of mobile banking.
4. Mobile banking provides the facility of demat inquiry to the customers.
5. Making payment of all bills (utility bills, credit cards, insurance premium).
6. Customers can donate money via mobile banking account.
7. Mobile/DTH recharges can be done with the help of mobile banking account.
8. Online payments for shopping, movie etc can be done too.

2.5 E-banking issues

The dependence on information technology is such that the banking business cannot be thought of in isolation without it. Such has been the spread of information technology footprints across the Indian

commercial banking sector. Developments in IT have also brought along a whole set of challenges to deal with. The development of e-banking will not proceed without conflict, as those who are likely to be worse off under this scenario will try to slow down the process and delay the introduction of the distribution channels (Mols, 1999).

Reserve Bank of India defines fraud in the Report of RBI Working Group on Information Security, Electronic Banking, Technology Risk Management and Cyber Frauds which reads as under:

“A deliberate act of omission or commission by any person, carried out in the course of a banking transaction or in the books of accounts maintained manually or under computer system in banks, resulting into wrongful gain to any person for a temporary period or otherwise, with or without any monetary loss to the bank.”

2.5.1 Mindset of employees

Information technology revolution changes are creating challenges for banks and employees have to adapt to changing conditions. The employees resist to change and the seller market mindset is yet to be born . These problems, in addition to fear of uncertainty and control orientation is adding more problems for the banks. In addition to that, banking industry is adopting the latest technology but its utilisation is far below satisfactory level.

2.5.2 Language and literacy barrier

Unfamiliar language and illiteracy could be barriers in using e-banking service. Currently, all the websites of banks providing internet banking service are mostly in English language. It is difficult to be operated by those individuals who are residing in rural areas, especially those who do not know English language.

2.5.3 Fraud by human resource of the bank

Apart from fraud from outside, banks are also exposed to risk from their respective employees. Various employees of the banks are familiar with different systems and their loopholes and their weaknesses. Thus they become possible threat to valuable customers and bank also. Some employees can manage to acquire the private and confidential data of customers to access their accounts causing losses to customers as well as to the bank.

2.5.4 Skimming

Skim the information off the cards is another method of accessing customers private information. It is a most commonly used method to obtain illegally any consumer's card information. Skimmers are electronic device that is used by the criminals to capture the data stored on the magnetic strip of the ATM card.

2.5.5 Cyber squatting

Cyber squatting is the act of registering a famous domain name and then selling it for a fortune. Cyber Squatters register domain names identical to popular service providers' domains so as to attract their users and benefit from it. This is an issue that has not been covered in the IT Act, 2000.

2.5.5 Phishing

Phishing is just one of the many frauds on the Internet, trying to fool people into parting with their money. Phishing refers to the receipt of unsolicited emails by customers of financial institutions, requesting them to enter their username, password or other personal information to access their account for some reason. Customers are directed to a lookalike replica of the original institution's website. They click on the links to enter their information and remain unaware that fraud has occurred. The fraudster then can access the customer's online bank account and to the funds contained in that account.

2.5.6 SMS spoofing

It is a relatively new technology which uses the short message service (SMS), available on most mobile phones and personal digital assistants, to set who the message appears to come from by replacing the originating mobile number (Sender ID) with alphanumeric text.

Spoofing has both legitimate uses (setting the company name from which the message is being sent, setting your own mobile number or a product name) and illegitimate uses (such as impersonating another person, company, or product).

2.5.7 Money laundering risk

Since internet banking can be done remotely, banks may find it difficult to apply traditional methods for preventing and detecting undesirable criminal activities like money laundering. Application of money laundering rules may not be adequate for some forms of e-payments.

2.5.8 International boundary risk

Internet banking is totally based on information technology. So it can be operated from any place in any country. Since it is difficult to check the application for a loan from a customer abroad as compared to familiar customer base. Acceptance of foreign currencies in payment of electronic money may be subject to market risk due to ups and down in forex rates.

2.5.9 Cyber fraud

Banks are asking their customers to adopt newer service delivery electronic platforms like mobile, internet, ATM's for delivering service efficiently and further it helps in cost cutting. While the customers are

becoming more tech-savvy and had started using electronic channels, the fraudsters are using newer ways of doing frauds by exploiting the loopholes in information technology systems and processes. There have been many frauds of low value where the fraudster has used software programs, malware attacks, phishing, emailing and through SMS etc.

2.5.10 Holes

Hole is any defect in hardware, software or privacy policy that allows hackers to have unauthorised access to personal computers/laptops/smart phones. The network tools that can be affected by holes are routers, server software, operating system, firewalls and client.

Table 2.1
Bank Group Wise Technology Related Frauds

(Number of cases in absolute terms and amount involved in Rs. Crore)

Bank group	2009-10		2010-11		2011-12		2012-13	
	No. Of Cases	Amount involved	No. Of Cases	Amount involved	No. Of Cases	Amount involved	No. Of Cases	Amount involved
Nationalised Banks including SBI	118	1.82	143	3.39	172	7.26	190	9.85
Private Sector Banks	14396	34.68	9642	21.87	6561	16.6	3414	35.06
Foreign Banks	5273	26.88	4486	14.77	3315	14.60	5161	22.45
Grand Total	19787	63.38	14271	40.03	10048	38.46	8765	67.36

Source: RBI Working Report, 2013.

Dominance of private and foreign banks in number of technological related frauds is expected as they lead the technologically enabled service delivery in Indian banking sector. It is evident from the above table that though cyber fraud incidents are extremely high but the actual amount involved is generally very low (RBI Working Report, 2013) . Even though the amount involved may be low for banks but these are significant from the point of view of customers who are victims of such frauds. It is therefore in banks' own interest to ensure that they are on guard and are ready for the challenges of providing a secure atmosphere for customers to conduct electronic transaction.

Around 65% of the total fraud cases reported by the banks were information technology related frauds that were reported (covering frauds committed via internet banking channel, Automatic Teller Machines and other alternate payment channels like credit/debit/prepaid cards and mobile banking frauds) stated in RBI Working Committee Report 2013.

2.6 Strategic options to cope with the challenges

For making e-banking services a successful arsenal to cope with changing environment, banks need to take certain measure to overcome the loopholes in securely delivering services electronically. The major initiatives are:

1. The primary focus of banks should be on ensuring reliable service delivery through investing on and implementing right technology.
2. Banks should improve the system security in ATM location and at the same time, they must educate their customers about using their cards with due caution and about the risks involved while transacting through cards.
3. Information Technology is expected to be the main facilitator of change in the banking industry. Implementation of technology related solutions involves huge investment. Banks need to look for ways to optimize resources for technology applications. In this regard, global partnership on information technology and skills sharing may help.
4. Banks using internet as a medium for financial transaction must have proper information technology equipments and systems in place to build a secured environment for every transaction.
5. Investment in outdated technology could land the bank in revenue loss. A defenceless system and inefficient service is also risk of loss of business. Banks should always be armed with latest technology to tackle the attacks. Acceptance of e-banking depends on factors like convenience, experience, safety and

security. Despite many steps taken up by banks, news regarding cyber frauds are frequently in the air. Banks need to keep ahead of the fraudster by investing and adopting latest technology.

6. For reducing risks, banks need to conduct a pilot survey, consult experts of various fields and then monitor performance. Further they need to analyse the availability of additional resources and cost of delivering the service, periodic evaluation of new technology and appropriate consideration for the cost of upgradation of information technology equipments.
7. Banks should make explicit security plan for information security equipments. Separate officer/group should be made to deal with information systems security. Information technology division should directly deal with computer systems.
8. Banks should use proxy server type firewall so that there is no direct connection between internet and banks system. This will facilitate a high level of control and in-depth monitoring using logging and auditing tools.
9. Banks should regularly keep back-up of their data. There should be periodic check on the back up data to ensure the recovery without loss of transaction.

10. Banks should organise meetings with the customers to educate them regarding the use of e-banking services securely.
11. Many times it is observed that the server goes down very frequently and customer has to wait till the network is resettled. This takes much more time for a delivering a service as compared to traditional banking. Banks should have strong infrastructure to manage such kind of issues.
12. Banks should regularly train their available human resource to tackle the queries of e-banking customers.
13. Unauthorised online transaction, ATM transactions not done by customers, fraud involving cloned cards can not be said as valid transaction. Instead of putting pressure on customers, banks should prove that this transaction is done by the customer.
14. Customer should sync their mobile numbers with their bank accounts to receive any information about the transaction taken place in their account.
15. Procedure for blocking of cards/internet banking/mobile banking service should be simple and quick.

2.7 Conclusion

E-banking is delivery of banking services through electronic channels. ATM's, internet banking, mobile banking, phone banking are all such e-banking services. All the commercial banks these days are delivering these services to their valuable customers. In the next chapter, history of SBI is given, transformation of SBI from 1955 to 2013 is discussed. Various e-banking services/products of SBI have been brought to light.

2.8 References

- Barnes, S.J. and Corbitt, B. (2003). "Mobile banking: Concept and Potential". *International Journal of Mobile Communication*, Vol 1, (3), 279-288
- Bradley, L. and Stewart, K. (2002) A Delphi Study of the Drivers and Inhibitors of Internet Banking, *International Journal of Bank Marketing*, Vol 20, (6), 250-260.
- Basel Committee on Banking Supervision, (1999), "Enhancing Corporate Governance for Banking Organisations". September BIS.
- Chalam, G.V. and Nageswara , K.S.(2006). "E-banking Application in Indian banks: Emerging Issues". *Professional Banker*, Vol.17, (2), 72-82.
- Dannenberg, M. and Kellner, D.(1998). " The Bank of Tomorrow with Today's Technology". *International Journal of Bank Marketing*, Vol.16, No. (2), 90-97.
- "Frauds in the Banking Sector: Causes, Concerns and Cures". Retrieved on 12/07/13
<http://rbidocs.rbi.org.in/rdocs/Speeches/PDFs/DGKCAF290713.pdf>
- "Growth and extent of electronic banking services in India". Retrieved on 12/01/11
http://shodhganga.inflibnet.ac.in/bitstream/10603/3563/12/12_chapter%204.pdf

- Halperin, Karin. (2001). *Balancing Act., Company Business and Marketing.* February.
- Kaptan, S. S. and Choubey, N. S.(2003). *“Indian Banking in Electronic Era”* . Sarup and Sons: New Delhi.
- Keyes, J. (1999). *“Banking Technology Handbook”*. CRS Press: London.
- Khalfan, A. and Alshawaf, A. (2004). *“Adoption and Implementation Problems of E-banking: A Study of the Managerial Perspective of the Banking Industry in Oman”*, *Journal of Global Information Technology Management*, 7, (1), 47-64.
- Khan, H.R. (2012). *“Customising Mobile Banking in India: Issues and challenges”*. In his speech. *RBI Monthly Bulletin October 2012* , Accessed on 01/01/2013 from... <http://rbidocs.rbi.org.in/rdocs/Bulletin/PDFs/6CMBII101012.pdf>
- Miranda, F.J., Cortes, R. and Barriuso, C. (2006). *“Quantitative Evaluation of e-Banking Web Sites: an Empirical Study of Spanish Banks”*, *The Electronic Journal Information Systems Evaluation*, Volume 9 Issue 2. pp73 – 82 .
- Mols, N.P. (1999). *“ Organising For The Effective Introduction And Explanation Of New Distribution Channels In Retail Banking”*. Working paper, University of Aarhus. Denmark. *European Journal of Marketing*, Vol. 35 No. 5/6, 2001. pp. 661-686. MCB University Press. Retrieved on 02/04/2012. <http://www.emeraldinsight.com/journals.htm?issn=0309-0566&volume=35&issue=5&articleid=853734&show=html&PHPSESSID=p35bog1smr3liirj0oesuafo3>.

- Mols N P. (1999). "The Internet and banks' strategic distribution channel decision". *International Journal of Bank marketing*, Vol.17, No.6. pp.295-300. Retrieved on 02/04/2012. <http://www.emeraldinsight.com/journals.htm?issn=0265-2323&volume=17&issue=6&articleid=854992&show=html>
- Nehmzow, C. (1997). The Internet Will Shake Banking's Medieval Foundations, *Journal of Internet Banking and Commerce*, 2. Retrieved on <http://www.arraydev.com/commerce/IIBC/9702-01.htm>.
- "Overview of banking industry in India". Retrieved on 05/06/11. http://shodhganga.inflibnet.ac.in/bitstream/10603/2299/10/10_chapter%201.pdf
- Padmanabhan, G. (2012). "Techno-banking-prospects and challenges". Retrieved on 15/12/2012. http://rbi.org.in/Scripts/BS_ViewBulletin.aspx?Id=13746
- Porter, M.E. and Millar, V.E. (1985). How Information Gives you Competitive Advantage, *Harvard Business Review*, 63, 4, 149. Retrieved on <http://zaphod.mindlab.umd.edu/docseminar/pdfs/porter85.pdf>.
- "Review of literature". Retrieved on 22/06/11, http://shodhganga.inflibnet.ac.in/bitstream/10603/3563/10/10_chapter%202.pdf
- RBI. *Annual Report*. (2011-12). Retrieved on 05/01/2013. <http://rbidocs.rbi.org.in/rdocs/Publications/PDFs/AR0401201112E.pdf>.

- Sharma, R.K. (2005). "Technology and security in Indian Banking System". *Professional Banker*, 5(10), 63-68.
- Talwar, S.P. (1999). "Banking Regulation and Corporate Governance". *RBI Bulletin*, July, Vol. LIII (7)
- Talwar, S.P. (1999). "IT and the banking sector", *Reserve bank of India bulletin*. August, 985-992.
- Turban, E., Lee, J., King, D. and Chung, H. (1999). "*Electronic Commerce: A Managerial Perspective*", Prentice Hall.
- Uppal, R.K., (2009). "*Banking Services & Information Technology The Indian Experience*". New century Publications: New Delhi.
- Vastiney, P.N., (2009). "*Banking Law & practice*". Sultan Chand & Sons: New Delhi.