CHAPTER 1
INTRODUCTION

A bank has been often described as an institution engaged in accepting of deposits and granting loans. It can also be described as an institution which borrows idle resources, makes funds available to. It does not refer only to a place of tending and depositing money, but looks after the financial problems of its consumers. This era is the age of specialization with the changing situation in the world economy, banking functions have broadened. Financial institutions which are shaped by the general economic structures of the country concerned vary from one country to another. Hence, a rigid classification of banks is bound to the unrealistic. There seem so be no uniformity amongst the economist about the origin of the word ‘Bank’. It has been believed that the word ‘Bank’ has been derived from the German word ‘Bank’ which means joint stock of firm or from the Italian word ‘Banco’ which means a bundle. In India the ancient Hindu scriptures refers to the money - lending activities in Vedic period. They performed most of those functions which banks perform in modern times. During Ramayana and Mahabharata eras also banking had become a full-fledged business activity. In other words the development of commercial banking in ancient times was closely associated with the business of money changing. In simple words, bank refers to an institution that deals in money. This institution accepts deposits from the people and gives loans to those who are in need. Besides dealing in money, bank these days perform various other functions, such as credit creation, agency job and general service. Bank, therefore is such an institution which accepts deposits from the people, gives loans, creates credit and undertakes agency work.

1.1 DEFINITIONS OF BANK

- As per the The Banking Regulation Act, 1949 “Banking Company is one which transacts the business of banking which means the accepting for the purpose of lending or investment of deposits money from the
public repayable on demand or otherwise and withdrawal by cheque, draft, order or otherwise”.

- The oxford dictionary defines a bank as “an establishment for custody of money received from or on behalf of its customers. Its essential duty is to pay their drafts on it. Its profits arise from the use of the money left employed by them”.

- The Webster’s Dictionary Defines a bank as “an institution which trades in money, establishment for the deposit, custody and issue of money, as also for making loans and discounts and facilitating the transmission of remittances from one place to another”.¹

The above definitions of bank reveal that bank is a Business institution which deals in money and use of money. Thus a proper and scientific definition of the bank should include various functions performed by a bank in a proper manner. We can say that any person, institution, company or enterprise can be a bank. The business of a bank consists of acceptance of deposits, withdrawals of deposits, Making loans and advances, investments on account of which credit is taken by the banks.

1.2 INDIAN BANKING SYSTEM

Banks are the most significant players in the Indian financial market because they are the biggest source of credit and attract most of the savings from the population. Banking plays very important role in the economic development of all the nations of the world because a developed banking system holds the key as well as serves as a barometer of economic health of a country. The banking sector is core competency of the world economy which influences the strength of every nation’s economy in the world economy. The overall development and growth of any economy depends more on the sound services sector. The role of service sector in Indian economic development has increased by several notches from the fact that service sector which was contributing only 20 percent during the independence time, now it is contributing over 50 pc of GDP India. Indian economy is the fastest growing major economy in the world with GDP growth
rate of 8.4 percent at the end of third quarter of 2007-08. Hence, Indian banking industry is also growing at the cost of new competitive changes after liberalization, privatization and globalization. Now, banking sector is performing well to make every citizen free from poverty, ignorance, finance problems which had overwhelmed millions of our people for centuries.

Further, the performance of banks is completely linked with the growth of economy and response to the requirements of changing environment to make our economy more competitive. Because with the globalization trends world over, it is difficult for any nation, big or small, developed or developing, to remain isolated from what is happening around and such isolation is nearly impossible for India also. In response to these dynamic changes, India has also adopted liberalization, privatization and globalization (LPG) policy under banking sector reforms in 1991 and hence resulted in improved performance and continuous developments in every sphere of the banking business. Indian banking industry has undergone radical changes due to liberalization and globalization measures and transformation is taking place amid broader changes in banking sector and the banks are benefiting from increasing globalization of financial services. Indian banking has succeeded to gain improvement in many aspects of its business but still information technology is a major challenge to adopt in totality.

1.3 INDIAN BANKING IN GLOBAL PERSPECTIVE

The financial crises caused shrink in the world economy by 1.1 percent in 2009 however it is projected to recover by 3.1 percent in the year 2010. The World Economic Outlook of IMF, October 2009 has projected real GDP of United States, United Kingdom, Euro Area, Japan and advanced economies to shrink by more than 2 pc in 2009 where Japan contributes the maximum i.e. 5.4 pc decline. But, India, China and developing economies demonstrate admirable expansion with utmost contribution of China (8.5 pc) however, India is also growing at 5.4 pc rate. Even though all the countries have succeeded to recover in 2010 where again China cultivates at the maximum of 9 pc rate followed by India with 6.4 pc of GDP growth. Overall expansion in world economy is pulled by the strong performance of Asian economies where India also proves its position with
utmost contribution from financial sector which contributes more than 50 pc of GDP.

As a result of financial crisis, the banking sector has also undergone dramatic changes which is perceived to be uncertain in future also especially the United States banking. The Report on Trend and Progress of Banking in India, 2008-09 recognizes that at the end of March, 2008 developed countries projected to have below 1 pc Return on Assets (ROA) which is just 0.3 pc in case of United States and Japan while it is above 1 pc in developing countries where Indonesia, Brazil and Turkey confirm above 2 pc ROA. India also has 1 pc ROA at the end of 2008 which is matured from 0.8 pc in 2002. Despite the financial crisis Indian economy is mounting considerably which is mainly because of outstanding contribution of financial sector. But due to the significant changes in global economy, Indian financial sector is also undergoing transformation a major challenge ahead and structural development is a cause of concern. The banking sector can defeat these confronts by developing the technically sound structure.²

1.4 PHASES OF TRANSFORMATION

1.4.1 Pre-Nationalization of Banks (Before 1969)

The earliest Indian Bank was the Bank of Hindustan set up in 1770. Then in the 19th century the Presidency Banks (Bank of Calcutta in 1806 Bank of Bombay 1840 and Bank of Madras in 1843) were set up under a charter. Private Banks were allowed in 1900. In 1921 these banks were amalgamated to form the Imperial Bank of India. In 1935 the Reserve Bank of India (RBI) was constituted as the Apex Bank. Up to 1949, it was a private ownership bank, and then with the passage of the Banking Regulations Act 1949, it came under government control. State bank of India came into existence and became the Bank of the government of India in 1955 with RBI taking control of the Imperial Bank of India. State bank of India, in turn took over the shares in the private banks floated in the erstwhile princely states.
1.4.2 Nationalization of Banks (1969-1990)

The first phase of nationalization of the banking sector took root in 1949 and culminated in the nationalization of fourteen banks in the year 1969. Before the nationalization of banks, they all were profit maximization oriented but the social aspect was ignored as they served the rich people while the purposes of poor people were not served properly. And this was the main reason to nationalize our banks so that all the people can be served without any discrimination with the main objective of social banking.

The independence to the first nationalization period was marked by the consolidation of the banking sector. From 566 banks in 1951, the number came down to 86 in 1971, as weaker banks were emerged with the healthier ones. The department of Banking was set up under the Ministry of Finance. In 1974, priority sector norms were introduced and commercial banks were given five years to meet the norm of 33 or 1/3 percent of credit. The lead bank scheme was formulated for making banks responsible for the credit need to specific districts. The twin structure of rural branches of commercial banks and co-operative banks however was not sufficient to meet the needs of the rural economy and hence Regional Rural Banks were promoted in 1975. For commercial banks also the accent was on branch expansion into the semi-urban and more importantly the rural areas.

Priority Sector target was raised to 40 pc for the commercial banks and the focus of lending changed to rural and agriculture lending with social banking becoming the norm in place of profitable commercial banking. Then in 1980, six more banks were brought into the nationalization fold. The measure bore fruit with rural branches increasing to more than 45 pc of the total branch network in 1979 from 22.2 pc in 1969. The priority sector lending increased to 30.6 pc from earlier 15 pc during the same period.

1.4.3 Banking Sector Reforms (1991-2000)

In 1991 the liberalization wave did not leave the banking sector unchanged. Unprofitable branch expansion, non-performing priority sector lending and loan melas had left large gaps in the banks' balance sheets. High
regulatory requirements had also taken their toll and most banks were completely in the red. Capital was infused operating restrictions were relaxed, competition was promoted, but most importantly the profit motive in banking system was brought in. Responding to the crisis of late 1980s, and to cope up with the above discussed problems in tune with this liberalization wave seeping across the world, a program of liberalization, privatization and globalization was initiated in July 1991 with the main motive of improvement in productivity, efficiency and competitiveness. In this context, the government decided to review the banking policy and first Narsimham Committee was organized in 1991 which worked out the road map of banking sector reforms. The successful implementation of its various recommendations has given a new dynamism to the banking sector since 1991.

Again with the gradual up gradation of skills, technologies with the high level of globalization, government appointed second Narasimham Committee to further provide banking reforms in the light of changing environment. Then this committee worked out some new reforms in 1998 for the development of Indian banking. The current structure of the banking system which has succeeded is a product of this external and internal change. For well over two decades, after the nationalization of 14 large banks in 1969, no new banks had been allowed to be set up in the private sector even though there has been and is still no legal barrier on the entry of new private sector banks. Progressively over this period, the public sector banks have expanded their branch network considerable and catered to the socio-economic needs of large masses of the population, especially the weaker sections and those in the rural areas. While recognizing the importance and role of public sector banks, there was increasing recognition of the need to introduce greater competition which can lead to higher productivity and efficiency of the banking system. Therefore a stage has now reached when New Private Sector Banks are allowed to be set up with a view to induce competition and market oriented system.
1.4.4 Computerization of Banks

Through the 1991 banking sector reforms, foreign and private banks were allowed to enter freely in Indian banking industry with the main objectives of higher profitability and fierce competition. Deregulation allowed banks to flourish their business and enter into new markets with new technologies involving both individual and institutional customer interaction and computerization was the first step to respond technology advancements. Banking which forms a core industry of any economy should be growth oriented. Computerization is a positive step to bank growth. With the aid of computers, the bank work can be done faster. Not only the present work load can be reduced to a great extent but also the bank can expand its working area with the same manpower.

Computerization in banking sector/financial sector dates back to 1963, when Life Insurance Corporation introduced computers for maintenance and processing of insurance policies. Later on Reserve Bank of India and State Bank of India installed computer systems for processing reconciliation of inter branch transactions, processing statistical data and for research purposes, while the rest of the work was left to be handled easily with the help of calculators, accounting machines and cash registers. A number of working groups were appointed in
concern to the computerization of banking sector in 1975, 1981, 1988 etc. There was stiff resistance from bank employees’ unions to implement recommendations of these working groups. At last settlement was made in to permit the banks to use computers for their easy work and database management.

Another landmark in history of computerization was the setting up of Rangarajan Committee on computerization and mechanization of banking service of 1983. The committee headed by Dr. C. Rangarajan, deputy governor of Reserve Bank of India, was to look into modalities of drawing a phased plan of mechanization in banks in view of further expansion. It recommended a three level mechanization structure- branch, regional and head office level. Further in 1988, Reserve Bank of India appointed the second Rangarajan Committee to review the progress made in computerization in view of growing volumes of computer technology and problems associated with implementation of the recommendations of the first committee. The committee submitted its report in 1989 and recommended a thrust of computerization in banks for the next five years by fully computerizing the branches and use of bank net for several inter and intra bank applications.

In October 1993, settlement on mechanization and computerization was signed between 58 banks under IBA and workmen represented by all India bank employees association. According to the agreement banks were free to computerize some or all operations in branches, administrative offices communication and networking, automated teller machines, notes and cash counting machines, signature verification equipment and pass book printers, demand draft printers and terminals at customer location and equity terminals. Since then the process of computerization and mechanization has picked up momentum. By the end of 1996, it was estimated that around 5,000 branches would be computerized. Out of these, 750 will be fully computerized with rest being semi-computerized (Report on Trend and Progress 2004-05). And at the end of March 2009, our public sector banks have 95 pc of their branches as fully computerized.
1.4.5 Current Stage of Electronic Banking (Post 2000)

Current stage is of IT advancement because technology continues to make a dramatic and profound impact in service industry and radically shapes how services are delivered. The world has become a global village where it has brought a revolution in the banking industry. The banks appear to be on fast track for IT based products and services. Deregulation and Liberalization in the financial sector have stimulated financial innovations. Breath taking developments in the technology of telecommunications and electronic data processing have further accelerated these changes. Technology has become the fuel for rapid change. IT is no longer considered as mere transaction processing or confined to management information system. In its wider definition, it implies the integration of information system with communication technology and of innovative applications to product manufacturing, design and control.

One sector that has undergone fundamental changes as a consequence of the application of IT is banking. Information technology developments in the banking sector have sped up communication and transactions for clients. The new technology has radically altered the traditional ways of doing banking business. Increasingly, the customers in retail sector are doing business with their banks from the comfortable confines of their homes or offices. Customers can view the accounts, get account statements, transfer funds, purchase drafts by just making a few key punches. Availability of ATMs and plastic cards to large extent avoid customers going to branch premises. EDI is another development that has made its impact felt in the banking industry. In fact in banking industry, IT is finding its use in five key areas.

- Convenience in product delivery access
- Managing productivity access,
- Product design,
- Adapting to market and customer needs and,
- Access to customer market.
Electronic Funds transfer and delivery versus payment system have been introduced. Bank customers are becoming very demanding and it is the extensive use of technology that will enable banks to satisfy adequately the requirement of customers. With the coming into the effort of the IT Act on October 17, 2000, India had reached the significant milestone on the information super highway. The Act provides legal sanctity. To electronic commerce and lays down penalties for hacking and other crime. India will become the 12th country in the world to have an IT bill in place for recognizing digital signature and facilitating e-commerce.

IT is also helping in cutting costs by providing cheaper ways of delivering products to customers. Banks are moving into the primary services of helping their customers buy things like automobiles, real estates, in all these areas, IT has been enormous help. The younger age group customers are much more amenable to using electronic delivery channels rather than visiting physical branches. Banks have been cautious in launching new services using IT. Banking in India is poised to enter yet another phase of reforms once the door opens further to foreign players in 2009 which requires further improvement in technology management, human resource management and the ability to foresee rapid changes in the financial landscape and adopt quickly.⁴

1.5 MOBILE BANKING IN INDIA

Mobile banking in layman terms means the using of a mobile phone to offer banking services. Banks have introduced two different products in mobile banking. One is a personal/retail banking product and the other is a product to promote financial inclusion. As a personal banking product it is offered to every savings/current account holder and provides anytime anywhere banking. The mobile banking initiatives were started by foreign and private banks followed by public sector banks. The rationale for using mobile banking as a product to promote financial inclusion is that even 63 years after independence, the majority of Indians do not have access to banking services. Growth and development of the Indian economy has to translate into income generation and empowerment of the whole population irrespective of areas and sectors. Access to finance by the
poor and vulnerable groups is necessary for poverty reduction and social cohesion. Providing access to finance is a form of empowerment of the low income and weaker sections of the society. The various financial services include credit, savings, insurance, payments and remittance facilities.

The majority of the low income groups are wary of opening accounts with Banks partly because the nearest bank branch means an expenditure on transport (especially in the rural areas) plus loss of a day’s wages and partly because they are intimidated by the bank branch. The poor are not able to access banking facilities because of illiteracy, gender, age, low and irregular income, regulating factors like identity documentation, non availability of bank branches etc. A major barrier cited to expand appropriate banking services to the poor is also the cost of providing these services. Servicing the poor with small value services is not viable using conventional retail banking approach. To overcome these problems RBI permitted Banks to open basic bank accounts with nil or low minimum balances called No Frills accounts and simplified Know Your Customer (KYC) norms. RBI also permitted Banks to outsource certain activities and issued guidelines for appointment of Business Correspondents and Business Facilitators as Delivery Channels of finance to the poor.

Banks use mobile phones to open smart card based No Frills accounts in unbanked villages and offer banking services through Points of Sale (POS) instruments handled by agents of Business Correspondents. Operations are not permitted for these accounts at the branches except as a fall back (like failure of BC, etc.). This can be called as a Bank in a Box. The entire set up consists of a mobile phone which serves as a POS machine, a finger print scanner and a tiny printer, all of which works on rechargeable batteries and can be packed into a small box. The customers open a No Frills account on smart cards. The smart card is akin to an e-purse and stores information about the customer, the account number, finger prints as well as balance in the account. The smart card can handle a number of accounts including loan accounts. The card is highly secure as it works on the biometric validation of the customer. The smart card works in conjunction with a mobile or hand held connectivity devise using the appropriate technology. Transactions are possible in both online and offline mode. It also
permits real time updating of the balances in the card. By issuing a smart card to
the customer, the cost of the transaction is reduced because paper based
transactions are being dispensed with and the actual operation of the transaction
in the account is being shifted from the branch to the Customer Service
Point/Provider at any outlet in the location of the customer.

Since it is not feasible to open bank branches to cater to every individual
and in order to reach the maximum number of people, Banks have adopted
mobile based channels as delivery channels, because of their reach and low cost
service delivery platform. The mobile phone market is growing at 20% p.a. with
mobile connectivity in almost every part of India. It is felt that mobile banking is
going to be the next revolution in the telecom and banking sectors. To enable
wide coverage of mobile banking services, major telecoms and banks are entering
into deals and MOUs. The telecom companies will act as Business
correspondents and provide a range of financial products and services offered by
the bank through the mobile operator’s retail outlets.

A mobile account will have to be opened by every user for doing mobile
banking transactions. The present focus of the banks and telecom companies will
be on the unorganized sector like migrant laborers who need money remittance
services. A remitter in one city of India can send money back to his home in
another city or village either by account transfer or instant money transfer
module. The account transfer method is where money is transferred from the
account of the remitter to that of the beneficiary when they both have accounts
with the same bank. The second method is by the instant money transfer module,
whereby, the remitter with an account with a particular bank remits money to the
beneficiary who has a registered mobile connection but does not have a bank
account.

1.5.1 Meaning of Mobile Banking and Mobile Banking Services:

The Federal Reserve survey defines mobile banking as "using a mobile
phone to access your bank account, credit card account, or other financial
account. Mobile banking can be done either by accessing your bank’s web page
through the web browser on your mobile phone, via text messaging, or by using
an application downloaded to your mobile phone.” Mobile banking is defined by Tiwari and Buse⁵ as mobile banking refers to provision and an availment of banking and financial services with the help of mobile telecommunication devices. The scope of offered services may include facilities to conduct bank and stock market transactions, to administer accounts and to access customized information."

According to this model mobile banking can be said to consist of three inter-related concepts:

- Mobile accounting
- Mobile brokerage
- Mobile financial information services

Most services in the categories designated accounting and brokerage are transaction-based. The non-transaction-based services of an informational nature are however essential for conducting transactions - for instance, balance inquiries might be needed before committing a money remittance. The accounting and brokerage services are therefore offered invariably in combination with information services. Information services, on the other hand, may be offered as an independent module. As per Reserve Bank of India guidelines u/s 18 of payments and settlements system Act, 2007; RBI defines ‘mobile banking’ as – “Undertaking banking transactions using mobile phones by bank customers that involve credit/debit to their accounts.” It also covers accessing the bank accounts by customers for non-monetary transactions like balance enquiry etc. In today’s world Mobile Banking is a popular term. Mobile Banking means a financial transaction conducted by logging on to a bank’s website using a cell phone, such as viewing account balances, making transfers between accounts, or paying bills. It is a term used for performing balance checks, account transactions, payments etc. via a mobile device such as a mobile phone. In recent time Mobile banking is most often performed via SMS or the Mobile Internet but can also use special programs called clients downloaded to the mobile device. In other words Mobile banking can be a system that allows customers of a financial institution, to
conduct a number of financial transactions through a mobile device such as a mobile phone or personal digital assistant.

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 mobile phone while one almost always carries a mobile phone, one does not carry one’s PC or laptop if one can look at overall context the number of cell phone users is four and half times the total number of bank accounts in this country, so mobile banking is being looked at as an option for providing transfer across the length and breath. Thus mobile banking is the usage of mobile phone as a platform for banking transactions. The high penetration of mobile phones in India is the biggest driver for mobile banking in India. SMS, interactive voice response and wireless internet protocol are few modes available to Indian users for mobile banking. Mobile phone facility is an easy and faster means of communication and one communicates with family and friends, and transacts the business anywhere, anytime at a reasonable cost. It means the mobile phone is no doubt a communication tool but it has enormous potentials to aid other value added services especially financial services. In Japan and Korea, mobile banking has taken the bank into mobile phone, but in India, mobile banking is in a budding stage and act like win–win situation for both the banks and the bank’s customers due to the fact that mobile banking services are innovative, intangible and employing high technology. Mobile phone provider many of the services in banking sector such as request for accounts balance, business from accounts, transfer funds, trading or buying and selling, price information etc. If should be very clear that from mobile phones it is not necessary to have net access on phone because now banks are offering wireless service connection with or without mediating internet on phones have mobile banking refers to any kind of banking services through phone. On the other hand internet banking refers to have desktop arrangements with proper land line connection. The mobile banking service is among the recent innovations that use the mobile devices such as smart phone, cell phone or personal digital assistant (PDA) in banking service; and currently mobile banking services enable consumers, for example, to request their account balance and the latest transactions of their accounts, to transfer funds between accounts, to make buy and sell others for the stock exchange and to receive portfolio and price
information. These are referred mobile banking services. Mobile banking services means providing all banking services or facilities to users through mobile device by bankers. Mobile banking services means providing all banking services or facilities to users through mobile device by bankers. Mobile banking services includes making various/payments, paying bills, various enquiries, checking various accounts, selling and purchasing of financial instruments, money transfer/remittances, making fixed deposits, setting various information like product, foreign exchange, domestic exchange, stock market/commodity prices enquiries and reports, enquiry on ATM branches, balances, sms services, etc. In short sms alerts, account inquiries, fund transfer, bill payment, payment and stock exchange services, loan request and deposit services are called mobile banking services. The following chart help to know various services provided bankers through mobile to customers/users.

Thus banks offering mobile access for the following services:

1. Account Balance Enquiry
3. Cheque Status Enquiry.
5. Fund Transfer between Accounts.
6. Credit/Debit Alerts.
8. Bill Payment Alerts.
10. Recent Transaction History Requests.
11. Information Requests like Interest Rates/Exchange Rates.

One way to classify these services depending on the originator of a service session is the ‘Push/Pull’ nature. ‘Push’ is when the bank sends out information based upon an agreed set of rules, for example your banks sends out
an alert when your account balance goes below a threshold level. ‘Pull’ is when the customer explicitly requests a service or information from the bank, so a request for your last five transactions statement is a Pull based offering. The other way to categorize the mobile banking services, by the nature of the service, gives us two kind of services – Transaction based and Enquiry Based. So a request for your bank statement is an enquiry based service and a request for your fund’s transfer to some other account is a transaction-based service. Transaction based services are also differentiated from enquiry based services in the sense that they require additional security across the channel from the mobile phone to the banks data servers. Based upon the above classifications, the following taxonomy of the services can be listed.

Table 1.1: Push and Pull based mobile banking service

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<tr>
<th>Transaction Based</th>
<th>Push Based</th>
<th>Pull Based</th>
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<tr>
<td>Enquiry Based</td>
<td>• Credit/Debit Alerts.</td>
<td>• Fund Transfer</td>
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<td></td>
<td>• Minimum Balance Alerts</td>
<td>• Bill Payment</td>
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<td></td>
<td>• Bill Payment Alerts</td>
<td>• Other financial services like share Trading.</td>
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<td></td>
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<td>• Account Balance Enquiry</td>
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<td>• Account Statement Enquiry.</td>
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<td>• Cheque Status Enquiry.</td>
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<td>• Cheque Book Requests.</td>
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<td></td>
<td>• Recent Transaction History.</td>
</tr>
</tbody>
</table>

Thus mobile banking service defined as the wireless access to banking services/facilities via mobile devices, promises to users access to tremendous amount of information and products (here banking services) available on the mobile phone, anywhere and anytime.

1.5.2 Some Aspects of Mobile Banking and Mobile Banking Services:

One must be fascinated by the massive growth in mobile phone penetration globally. This must be one of the biggest social changes that humans
were ever submitted to. This social phenomena, will eventually impact the way that we trade and pay as well and it will contribute to the business activity and its movement on a large scale. The last time that technology had a major impact in helping banks service their customers was with the introduction of the Internet banking. Internet Banking helped give the customer's anytime access to their banks. Customer's could check out their account details, get their bank statements, perform transactions like transferring money to other accounts and pay their bills sitting in the comfort of their homes and offices. However the biggest limitation of Internet banking is the requirement of a PC with an Internet connection, not a big obstacle if we look at the US and the European countries, but definitely a big barrier if we consider most of the developing countries of Asia like China and India. Mobile banking addresses this fundamental limitation of Internet Banking, as it reduces the customer requirement to just a mobile phone. Mobile banking may also be used to help in business situations as well as financial, along with to know the business activities and movement of mobile banking. Then what is mobile banking? Its global and national history. What services or functions are offered by Indian mobile banking? What are the types of movement styles of mobile banking users or customers? This subsection focused on conceptual framework of mobile banking and its related issues.

**Advantages of Mobile Banking**

- Providing banking service to unbanked areas and to those customers who otherwise would not have got the banking service.
- The wage earners staying away from their homes and finding it difficult and expensive to remit money to their families, can send money instantly through mobile banking
- The wage earners can do bank transactions without visiting the bank. The advantage being that they do not lose a day’s wages which they would otherwise lose by going to the branch for getting any banking service.
- All non cash banking requirements can be carried out using mobile phones.
Constraints to rapid widespread adoption of mobile banking channels

- Genuine concerns about security aspects of mobile banking have to be addressed.

- Different mobile operating systems and diversity of devices. Banks and telecom companies have to launch mobile apps. WAP sites that will run on all handsets and operating systems.

- Reluctance of customers to learn new technology and lack of incentives for customers to use a new channel. As most of the customers would be first time banking users, they would need to be made aware of the mobile banking platform and the best way to use this platform.

- Lack of pertinent initiatives from banks to move people to mobile banking channels

1.5.3 Global History and Evolution of Mobile Banking:

The first mobile banking and payment initiatives was announced during 1999 (the same year that Fundamo deployed their first prototype). The first major deployment was made by a company called Pay box (largely supported financially by Deutsche Bank). The company was founded by two young German’s (Mathias Entemann and Eckart Ortwein) and successfully deployed the solution in Germany, Austria, Sweden, Spain and the UK. At about 2003 more than a million people were registered on Pay box and the company was rated by Gartner as the leader in the field. Unfortunately Deutsche Bank withdraws their financial support and the company had to reorganize quickly. All but the operations in Austria closed down. Another early starter and also identified as a leader in the field was a Spanish initiative (backed by BBVA and Telephonic), called Mobi Pago. The name was later changed to Mobi Pay and all banks and mobile operators in Spain were invited to join. The product was launched in 2003 and many retailers were acquired to accept the special USSD payment confirmation. Because of the complex shareholding and the constant political challenges of the different owners, the product never fulfilled the promise that it had. With no marketing support and no compelling reason for adoption, this
initiative is floundering at the moment. Many other large players announced initiatives and ran pilots with big fanfare, but never showed traction and all initiatives were ultimately discontinued. Some of the early examples are the famous vending machines at the Helsinki airport supported by a system from Nokia. Siemens made announcements in conjunction with listed and high-flying German e-commerce company, Brokat. Brokat also won the lucrative Vodafone contract in 2002, but crashed soon afterwards when it runs out of funds. Israel (as can be expected) produced a large number of mobile payment start-ups. Of the many, only one survived – Trivnet. Others like Adamtech (with a technically sound solution called Cellpay) and Paytt disappeared after a number of pilots but without any successful production deployments. Initiatives in Norway, Sweden and France never got traction. France Telecom launched an ambitious product based on a special mobile phone with an integrated card reader. The solution worked well, but never became popular because of the unattractive, special phone that participants needed in order to perform these payments. Since 2004, mobile banking and payment industry has come of age. Successful deployments with positive business cases and big strategic impact have been seen recently. The increasing circulation of mobile technology and WAP –enabled strategy has brought very visible development in e-banking or mobile banking during 2008-09. Global mobile subscription in June, 2013 reported to 6587.4 millions.

1.5.4 History and Evolution of Mobile Banking in India:

Union bank of India, the first state – owned bank which introduced mobile banking services in India, has so far added only 1700 customers in mobile banking. SBI has so far received only 10,000 registration for mobile banking, while ICICI bank has 80 lakh customers registered so far for mobile banking while HDFC bank has 40 lakh registered clients as against Kotak Mahaindra bank has around 52000 clients under the mobile banking fold. The Boston – based financial regional and consulting firm reports that 84 percent of India households were unbanked in 2005 and that mobile banking in India has grown 94 percent since 2002. In this context Patel projected that India’s mobile banking active user base may reach to 25 million by 2012. COAI Annual Report shown that were 752 million mobile phone users in Dec, 2010 as against less than 200
million bank account holders; a great opportunity for tapping financial inclusion. According to RBI projection, the penetration of mobile phone banking active use base is anticipated to increase to 53 million in 2013 as compared to 10 million in 2009 which represents a compound annual growth rate of 51.8 percent. The two business drives namely customer experience and cost savings and two technology drivers such as security and customer experience to adopt technology which contributed to the evolution of mobile banking.

### 1.5.5 Growth of Mobile Banking in India:

The business drivers contributed to the growth of mobile banking over various modes of operation which is shown in figure 1.2.

**Figure 1.2: Growth in Mode of Operation of Mobile Banking**

- **SMS alerts:** One of the key concerns banks were facing was that of customers did several inquiry transactions on ATMs and this was adding to the burden on the ATM infrastructure. This traffic was particularly heavy during salary days. Banks adopted a solution of proactively communicating account balances and important transactional activity on accounts to customers through a simple SMS. Customers stopped queuing up in front of ATMs for inquiry transactions.
• Account inquiries: The SMS technology proved simple enough for banks to adopt this as a self service channel. This model of operation involved customers sending an SMS to a published number of the Bank with a key word and identification information. The customer experience for SMS-based inquiries was not very good and this led to the introduction of real-time communication channels such as WAP and USSD recently.

• Funds transfer and bill payment: As customers experience from mobile banking improved and the penetration improved, banks began to realize the potential of offering financial transactions through the mobile device. The first set of transactions to be offered were funds transfer between the customers own accounts and payments to pre-designated billers such as utility companies. These facilities vastly reduced the use of cheques, hence contributing to the cost benefit for banks.

• Payment services: Mobile phones had caught on much faster than all previous technology delivery channels and banks were being forced to offer new facilities. The mobile phone was unique in that it was a personal device which had computation power, storage ability and occupied a greater mind-share of the customer than the traditional money wallet. This triggered new thoughts among bankers who wanted to leverage these capabilities to offer newer set of transactions on the mobile phone. This came in the form of enabling payment transactions through the mobile phone. The mobile-based payment comes in two basic forms (i) proximity payments and non – proximity payments.

• Loan requests and service requests: As mobile phones evolve into smart phones and the usability is improving, banks are finding it easier to offer more complex services on the mobile phone. The latest trends include offering loans through requests placed from the mobile phone where pre-registered customers can provide details about the loan and avail instant approval of loans. The mobile device technology progressed at a rapid pace and consumer expectations on usability of began to progress.
Mobile banking progressed to offer enhanced customer experience and adopt the latest technology trends in communication to offer real time exchange of data.

Figure 1.3: Growth in Technology of Mobile Banking

- SMS banking: The early generations of mobile banking were powered by SMS communication. Using SMS banking, banks could alert customers about activities on their bank accounts and customers could request for information by sending an SMS to a published number. This mode of banking was quite popular but had the following limitations:
  - SMS communication was not real time and customer experience started deteriorating
  - Security issues around SMS transmission was another bugbear

- WAP banking: In time mobile banking progressed to WAP banking which allowed customers to access their bank accounts using a real time data communication mode. This improved the customer experience as information access was now real time and secure.

- USSD: WAP banking, while quite popular, was restricted to a specific set of devices and the use of Unstructured Supplementary Service Data
(USSD) came into practice which permitted a real-time interactive access to bank accounts on basic handsets.

- Mobile web: The mobile communication technology progressed and mobile devices began supporting full-fledged web pages. This vastly enhanced customer experience on smart phones and sophisticated handsets which provided an almost desktop like experience. Mobile banking began progressing in this direction by providing an almost Internet banking kind of experience on the mobile phone.

- Application on mobile phone: The mobile devices became advanced and it was possible to have applications installed on the mobile phone to provide a rich user interface. The new generation mobile banking applications offer several comprehensive features such as:
  - Pre-stored customer relationship information to improve response times and customer experience
  - Enhanced communication layer security through use of encryption algorithms
  - Richer user interface and mobile device specific user interface enhancing customer experience
  - Richer user experience leads to more comprehensive features being offered on mobile banking.

In 2010, SBI recorded a year-over-year growth of 1865 percent in transaction values, ICICI recorded a growth of 532 percent and HDFC recoded 512 percent growth.
Figure 1.4: Growth of Mobile Banking in India

![Graph showing growth of mobile banking transactions]

Source: RBI

Mobile banking transaction values have surged to Rs 49,029 crore in the month of December 2015, as per RBI reports. This represents a 46.48% increase in value of transactions from Rs 33,471 crore. The volume of transactions (the number of transactions) on the other hand, has decreased to 39.49 million, a decline of 2.37%, from 40.45 million from November 2015. This might indicate that the ticket sizes of these transactions have increased. The value of mobile banking transactions has increased 82% in the September-December 2015 period. Private sector banks and State Bank of India (SBI) dominated in terms of value of transactions and volumes. SBI was the leader in value of transactions (Rs 17,636.04 crore) followed by ICICI Bank (Rs 10,577 crore) and HDFC Bank (Rs 8,716.89 crore).

MOBILE BANKING TRANSACTIONS IN INDIA - OPERATIVE GUIDELINES FOR BANKS BY RESERVE BANK OF INDIA (RBI)

Mobile phones as a delivery channel for extending banking services have off-late been attaining greater significance. The rapid growth in users and wider coverage of mobile phone networks have made this channel an important platform for extending banking services to customers. With the rapid growth in the number of mobile phone subscribers in India (about 261 million as at the end of March 2008 and growing at about 8 million a month), banks have been
exploring the feasibility of using mobile phones as an alternative channel of delivery of banking services. Some banks have started offering information based services like balance enquiry, stop payment instruction of cheques, transactions enquiry, and location of the nearest ATM/branch etc. Acceptance of transfer of funds instruction for credit to beneficiaries of same/or another bank in favor of pre-registered beneficiaries have also commenced in a few banks. In order to ensure a level playing field and considering that the technology is relatively new, Reserve Bank has brought out a set of operating guidelines for adoption by banks.

**Regulatory & Supervisory Issues**

- Only banks which are licensed and supervised in India and have a physical presence in India will be permitted to offer mobile banking services.
- The services shall be restricted only to customers of banks and holders of debit/credit cards issued as per the extant Reserve Bank of India guidelines.
- Only Indian Rupee based domestic services shall be provided. Use of mobile banking services for cross border transfers is strictly prohibited.
- Banks may also use the services of Business Correspondent appointed in compliance with RBI guidelines, for extending this facility to their customers.
- The guidelines issued by Reserve Bank on “Know Your Customer (KYC)”, “Anti Money Laundering (AML)” and combating the Financing of Terrorism (CFT) from time to time would be applicable to mobile based banking services also.
- Only banks who have implemented core banking solutions would be permitted to provide mobile banking services.
• Banks shall file Suspected Transaction Report (STR) to Financial Intelligence Unit – India (FID-IND) for mobile banking transactions as in the case of normal banking transactions.
• Registration of customers for mobile service
• Banks shall put in place a system of document based registration with mandatory physical presence of their customers, before commencing mobile banking service.
• On registration of the customer, the full details of the Terms and Conditions of the service offered shall be communicated to the customer.

**Technology and Security Standards**

Information Security is most critical to the business of mobile banking services and its underlying operations. Therefore, technology used for mobile banking must be secure and should ensure confidentiality, integrity, authenticity and non-reputability. The framework for security provided by RBI is as follows:

1. The security controls/guidelines mentioned in this document are only indicative. However, it must be recognised, the technology deployed is fundamental to safety and soundness of any payment system. Therefore, banks are required to follow the Security Standards appropriate to the complexity of services offered, subject to following the minimum standards set out in this document. The guidelines should be applied in a way that is appropriate to the risk associated with services provided by the bank and the system which supports these services.

2. Banks are required to put in place appropriate risk mitigation measures like transaction limit (per transaction, daily, weekly, monthly), transaction velocity limit, fraud checks, AML checks etc. depending on the bank’s own risk perception, unless otherwise mandated by the Reserve Bank.

3. Authentication: Banks providing mobile banking services shall comply with the following security principles and practices for the authentication of mobile banking transactions:
Mobile banking shall be permitted only by validation through a two factor authentication.

One of the factors of authentication shall be mPIN or any higher standard.

Where mPIN is used, end to end encryption of the mPIN shall be ensured, i.e., mPIN shall not be in clear text anywhere in the network.

The mPIN shall be stored in a secure environment.

Proper level of encryption and security shall be implemented at all stages of the transaction processing. The endeavor shall be to ensure end-to-end encryption of the mobile banking transaction. Adequate safe guards would also be put in place to guard against the use of mobile banking in money laundering, frauds etc. The following guidelines with respect to network and system security shall be adhered to:

- Implement application level encryption over network and transport layer encryption wherever possible.
- Establish proper firewalls, intruder detection systems (IDS), data file and system integrity checking, surveillance and incident response procedures and containment procedures.
- Conduct periodic risk management analysis, security vulnerability assessment of the application and network etc at least once in a year.
- Maintain proper and full documentation of security practices, guidelines, methods and procedures used in mobile banking and payment systems and keep them up to date based on the periodic risk management, analysis and vulnerability assessment carried out.
- Implement appropriate physical security measures to protect the system gateways, network equipments, servers, host computers, and other hardware/software used from unauthorized access and tampering. The Data Centre of the Bank and Service Providers should have proper wired and wireless data network protection mechanisms.
5. The dependence of banks on mobile banking service providers may place knowledge of bank systems and customers in a public domain. Mobile banking system may also make the banks dependent on small firms (i.e. mobile banking service providers) with high employee turnover. It is therefore imperative that sensitive customer data, and security and integrity of transactions are protected. It is necessary that the mobile banking servers at the bank’s end or at the mobile banking service provider’s end, if any, should be certified by an accredited external agency. In addition, banks should conduct regular information security audits on the mobile banking systems to ensure complete security.

6. For channels which do not contain the phone number as identity, a separate login ID and password shall be provided to ensure proper authentication. Internet Banking login IDs and Passwords shall not be allowed to be used for mobile banking.

**Inter-operability**

- Banks offering mobile banking service must ensure that customers having mobile phones of any network operator is in a position to avail of the service. Restriction, if any, to the customers of particular mobile operator(s) is permissible only during the initial stages of offering the service, up to a maximum period of six months subject to review.

- The long term goal of mobile banking framework in India would be to enable funds transfer from account in one bank to any other account in the same or any other bank on a real time basis irrespective of the mobile network a customer has subscribed to. This would require inter-operability between mobile banking service providers and banks and development of a host of message formats. To ensure inter-operability between banks, and between their mobile banking service providers’ banks shall adopt the message formats like ISO 8583, with suitable modification to address specific needs.
Clearing and Settlement for inter-bank funds transfer transactions

- To meet the objective of a nation-wide mobile banking framework, facilitating inter-bank settlement, a robust clearing and settlement infrastructure operating on a 24x7 basis would be necessary. Pending creation of such a national infrastructure, banks may enter into bilateral or multilateral arrangement for inter-bank settlements, with express permission from Reserve Bank of India, wherever necessary.

Customer Complaints and Grievance Redressal Mechanism

- The customer /consumer protection issues assume a special significance in view of the fact that the delivery of banking services through mobile phones is relatively new. Some of the key issues in this regard are as follows:

- Any security procedure adopted by banks for authenticating users needs to be recognized by law as a substitute for signature. In India, the Information Technology Act, 2000, provides for a particular technology as a means of authenticating electronic record. Any other method used by banks for authentication is a source of legal risk. Customers must be made aware of the said legal risk prior to sign up.

- Banks are required to maintain secrecy and confidentiality of customers' accounts. In the mobile banking scenario, the risk of banks not meeting the above obligation is high. Banks may be exposed to enhanced risk of liability to customers on account of breach of secrecy, denial of service etc., on account of hacking/ other technological failures. The banks should, therefore, institute adequate risk control measures to manage such risks.

- As in an Internet banking scenario, in the mobile banking scenario too, there is very limited or no stop-payment privileges for mobile banking transactions since it becomes impossible for the banks to stop payment in spite of receipt of stop payment instruction as the transactions are completely instantaneous and are incapable of being reversed. Hence,
banks offering mobile banking should notify the customers the timeframe and the circumstances in which any stop-payment instructions could be accepted.

- The Consumer Protection Act, 1986 defines the rights of consumers in India and is applicable to banking services as well. Currently, the rights and liabilities of customers availing of mobile banking services are being determined by bilateral agreements between the banks and customers. Taking into account the risks arising out of unauthorized transfer through hacking, denial of service on account of technological failure etc. banks providing mobile banking would need to assess the liabilities arising out of such events and take appropriate counter measures like insuring themselves against such risks, as in the case with internet banking.

- Bilateral contracts drawn up between the payee and payee’s bank, the participating banks and service provider should clearly define the rights and obligations of each party.

- Banks are required to make mandatory disclosures of risks, responsibilities and liabilities of the customers on their websites and/or through printed material.

- The existing mechanism for handling customer complaints / grievances may be used for mobile banking transactions as well. However, in view of the fact that the technology is relatively new, banks should set up a help desk and disclose the details of the help desk and escalation procedure for lodging the complaints, on their websites. Such details should also be made available to the customer at the time of sign up.

- In cases where the customer files a complaint with the bank disputing a transaction, it would be the responsibility of the service providing bank, to expeditiously redress the complaint. Banks may put in place procedures for addressing such customer grievances. The grievance handling procedure including the compensation policy should be disclosed.
- Customers complaints / grievances arising out of mobile banking facility would be covered under the Banking Ombudsman Scheme 2006

Transaction limit

- A per transaction limit of Rs. 2500/- shall be imposed on all Mobile Banking transactions. Subject to an overall cap of Rs. 5000/- per day, per customer.

- Banks may also put in place monthly transaction limit depending on the bank’s own risk perception of the customer.

Board approval

- Approval of the Board of Directors (Local Board in case of foreign banks) for the product as also the related security policies must be obtained before launching the scheme.

Approval of Reserve Bank of India

- Banks wishing to provide mobile banking services shall seek prior one time approval of the Reserve Bank of India, by furnishing full details of the proposal.
REFERENCES:


