CHAPTER-3

REVIEW OF LITERATURE

3.1 INTRODUCTION

Banking has gone through massive transformations in the past decades. This is a universal fact that banking sector forms the core of any economy. Banking system captures an important place in a nation’s economy. A banking institution is indispensable in a modern society. The Banking sector in India has always been one of the most preferred areas of study. In this decade, this sector has emerged as a sunrise sector in the Indian economy.

In this chapter, review of literature has been done for various important components of banking sector like internet banking, mobile banking, electronic payment systems, plastic money, banking sector reforms, technology in banking, ATM banking, etc. The literature review is one of the important academic requirements. A lot of work has been done in various areas of banking sector. The following literature review highlights various aspects related to innovative
interventions like Internet Banking, Mobile banking, ATM services, RTGS & NEFT services, Plastic Money, role of technology, banking sector reforms and other important factors related to innovation in banking.

3.2 LITERATURE REVIEW OF BANKING SECTOR REFORMS IN INDIA

Reddy (2009) studied that there was a convergence of performance among public, private and foreign banks in recent years due to acceptance and adoption of new technology. There was an appreciating importance of non-interest income in recent years for all banks. Though, PSBs comparing was extremely poor with the other two categories in terms of profit, PSBs had the highest efficiency in deposit mobilization. Further, foreign banks and private banks are efficient in value added services.

“According to Karim, (2010) Indian banking sector had to welcome the transformation in order to match with the market that resulted from the acceptance of financial liberalization by the Indian Government. After the transformation, banks have been very much progressive to come up with those products that have a better match with customer demands and they have been extremely successful in meeting up the customer needs. This fact is evident from the continuous injection of products in the financial sphere of Indian economy and accurateness in giving the customers what they want.”

Another study depicts that the reforms in banking sector have brought about perceptible improvement in the overall performance of banks. Indian banking is now operating in a more competitive setting with induction of new banks, both Indian and foreign who have brought in new work technology, specialized expertise and a variety of new financing Instruments. The authorities have move towards simplifying and deregulating the complex administered system of interest rates and have brought rates into closer alignment with underlying market forces. There is greater transparency and consistency in banks’ account. The capital status of banks has also got better by accessing the capital market. Banks are attuning themselves to be market
oriented and also responding sensitively to the changes and monetary circumstances. (Seth, 2009)

“What the transition process in the banking sector has certainly not yet come to an end, sufficient time has passed for an interim review. The objective of the particular paper therefore is to assess the progress made in liberalizing the banking sector so far and to test if the reforms have allowed the banking sector to better perform its functions. (Roland)”

“A study on reforms in banking sector says that before the nationalization of large banks in 1969 and 1980, Government-owned banks dominated the banking sector. Due to the scarcity of competition, the use of technology was minimal and quality of service was not considered for performance evaluation. (Kumar, Malathy and Ganesh, 2010)”

3.3 LITERATURE REVIEW OF INTERNET BANKING SERVICES

“Internet banking is a radical and new service under the present banking sector and HDFC Bank is at top in providing this service. It provides state-of-the-art payment gateway services to industries and companies in order to ease out transaction processing. This in turn results in enhancement of the credibility of business and makes banking extremely cost-efficient. This is suggested by Sudeep (2008) in his doctoral thesis with special reference to private banks.”

“A study taken says that many banks and other big organizations are anxious to use this channel to deliver their services because of its relatively lower and bearable delivery cost, higher sales capacity and potential for offering greater convenience for customers. It is seen as a revolutionary development. (Shah and Clarke, 2009)”

“A study mentions the following point. If considering the legal position prevalent, there is an indebtedness and obligation on the side of the banks not just only to establish the identity but also to make enquiries about integrity and reputation of the future potential customer. Thus, even though request for opening account can be accepted over Internet and accounts should be opened only after appropriate introduction and physical verification of the complete identity of the customer. From a legal point of view, security and protection procedure adopted by banks for authenticating needs of the users to be recognized by law as a substitute for signature. (Shukla and Shukla, 2011)”
Numerous number of studies support the idea that there exist a link between online banking and customer satisfaction (Saha and Zhao, 2005; Casalo et-al, 2008). Various studies taken up by Raman et-al (2008), Michael (2007) produced hard data passing successfully these relationships about between online banking and customer satisfaction. Both studies emphasized a direct relationship and connection between consumer satisfaction and internet banking.

“A study reveals that many factors like education, knowledge in computer, eagerness, zeal, receptiveness of the people, people’s level of convenience and awareness etc. are responsible for the successful operation of E-banking in any area. Again a large no of people (especially the old generation) having no computer knowledge are till now prefer the conventional banking but along with some medium and moderate changes and quick service delivery system. A thorough study of the data reveals that the young generation is more known to computer and internet banking. So they are more interested in using the E-banking system. (Paul, 2008)”

“A study taken by Irfana and Raghurama (2013) tries to analyze the customer behavior towards e-banking services. It is found that most of the respondents who used e-banking facility were in the age group of 30-40 years. Also, majority of the respondents used e-banking facility for bill payment, sales, account transfer, purchases, updating of savings account and online bank statement status. Respondents followed basic safety measures while e-banking. Online safety measures are not followed by majority of the respondents as they are not aware of them. Offline safety measures are followed by the respondents to some extent. Over all safety measures followed by the respondents while e-banking is very low. Majority of the respondents are not aware of the frauds in e-banking and the security procurable and available to control internet warnings, dangers and challenges.”

“Jenkins (2007) took up a study in North Cyprus to analyze adoption of internet banking services in a small island state; assurance of bank service quality. The findings of this study show that, despite a very small and humble market to share, banks are consistently moving towards providing internet banking services to their customers. The number of foreign banks offering these services increased from two (33 percent) to five (83 percent) between 2004 and 2006. On the other hand, the number of domestic banks offering internet banking services increased from zero to two (11 percent) and they are expected to increase to four (22 percent) by
the end of 2006. Internet banking services are expected to be offered by all domestic banks, except four very small banks, by the end of 2008. When addressing the question of what motivated domestic banks to introduce internet banking services, it was found that the quality assurance of banks’ services was the most important factor affecting the domestic bank’s decision. In other words, the long run benefits represented by customer satisfaction and customer retention were more important for banks than short-term profitability.”

“Singh and Kaur (2012) in their study about SBI and ICICI bank found that both the banks attempted to make their online portals more secure, informative and user-friendly but still they differ on one account or another. ICICI bank’s portal has good features such as direct access from home page, Mandatory ‘One Time Password’ if login from different locations/browsers, large number of transaction in mini statement, More Download Formats of Account Statement, grouping of billers, facility of prepaid recharge, Debit Card Grid Authentication, etc. On the other hand, SBI bank’s portal has few good features like mandatory profile password for number of transaction, drop down menu, display of biller city –wise, display of payment alerts on Home page etc. From the comparative position, it is clear that ICICI bank’s online portal has upper hand as compare to SBI Bank. However, ICICI bank may also lack on few features when its online portal will be compare with other banks in the industry. So, the present study is just beginning in this line to compare the online portals. Research in future which may be focused on comparison more and more online portals can come out with the best features enabled model online banking portal which will be helpful to the bankers and customers using internet banking. Internet banking in India is only at its primitive stage dominated by the Indian private and foreign banks. The use of Internet banking is confined to a few consumer segments.”

“Another work done in the area of internet banking depicts that the risks associated with Internet banking are many, which the banks have to model using sophisticated systems and extensive use of technology. The legal framework as its exits requires an updating to streamline and handle the issues associated with Internet banking. The functional model can be used to prioritize perceptual variable concerning consumer behavior so that value to the consumer can be maximized. The banks can focus on strategic consumer groups to maximize its revenues from Internet banking. (Gupta, 2008)”
“One can access account at any time of the day and are no longer confined to conventional business hours. Instead of having to adjust your personal schedule to conform to the restrictive hours of branch offices, you can check your balance and perform most transactions online from the comfort of your home. For cash withdrawals, you might need to walk a few blocks to find an ATM, but even this can be done at “odd” hours like 2 AM or 3 AM when the machine is most likely to be unoccupied. E-Banking is generally faster and more convenient. Traditional banking can be a relatively slow process, especially if you encounter long lines at the teller windows or must delay transactions because the bank has already closed. Online access circumvents these kinds of hassles and allows you to do your transactions relatively quickly once you are comfortable with the required technology. As long as you have access to a computer and an Internet connection, physical location is not a problem. If you're on vacation or traveling somewhere for business reasons, you can still keep an eye on your accounts and transfer money as needed. This is discussed by Kumar (2014).”

“A study discusses the major disadvantages of plastic money. There are many cases where various companies do not permit their cards to be used in areas where they have a regional dispute with. The magnetic strip of a credit card can get worn out due to massive use. If such a condition happens while travelling, and this is the only way of cash that the consumer has, then he or she has to wait till the time they receive a new card, which can take a minimum of 48 hours. Credit Card provider financial institutions and companies charge high interest rates (may be 10% to 25%) on extra money if you fail to pay off up to the fix date of the month. This interest is their earning, for which they give you extra buying limits then your money. This is not a good idea that you owe loan on high interest rates and spend it in unnecessary things or purchasing. This is complete money wastages. (Satam, 2015)”

“A study on factors influencing young user’s online banking channel usage in India shows that, young user’s actual usage is influenced by their negative feelings towards security and privacy dimensions of online banking transactions. This may be attributed to the loss experienced by their past online transactions or lack of awareness of the existing security system. Hence the banks have to create awareness among the students by educating about their authentication system, soundness and privacy policies. The Technology Accepted Model (TAM) identified few factors that influence actual usage of online technology. The aim of this paper was to
extend TAM to add the perception towards risk of transacting online and online efficacy of individuals to capture their combined influence on actual usage of online banking services among young users in India. The study identified that all the variables, perceived usefulness, perceived ease of use, online self-efficacy and risk to influence youngster’s actual usage of online banking channel. In Indian context, the young users are driven to use online banking technology because of its ease and usefulness. (Kalaiarasi and Srividya, 2012)"

Rao (2013) in his study mentions that internet banking services the awareness is very low in the rural area. It is suggested that The SBI should launch campaign to educate and create awareness to consumers. Instead of merely displaying the information in the branches through posters and banners, media could use intensively for this purpose in local language. “It is suggested that The SBI has to initiative necessary measures to increase the awareness level through awareness programs in the rural areas and the bank has to concentrate more on Promotional measures through agents, banks services, advertisement and merchant establishments are the sources of information and awareness providers for bank customers. As part of create awareness SBI should pay attention to reach out their female customers who are in a majority of cases would have less experience and willingness to avail e-banking. It is suggested that the SBI is required to more emphasis on training programs for their employees to aware them in order to promote Online Banking Services& facilitate all the services to their customers.” SBI can introduce expert mode of system to reduce troubles of employees while providing guidance about online banking services as well as to reduce troubles of customers while availing online banking services.

“With the development of the internet, more knowledge is accessible to people anywhere at any time. Facilitating communication, data transmission, and global interaction, the internet is a playing field unlike any other. Transcending the traditional barriers of time and space, the internet is redefining the world of banking. The internet has created new methods for carrying out a variety of financial transactions. With these developments, a new era of banking has emerged which has come to be known as e banking. E-banking encompasses an array of financial transactions, once done through the tangible exchange of information, now are done electronically. While the benefits of such advancements have been welcomed, there also have
been drawbacks. Issues such as security, fraud, and theft have deterred people from participating in the internet e banking revolutions. (Taleghani, Sharifi, Gilaninia, 2011)"

“A study has identified the various factors which explain why certain consumers are not using internet banking. The two most frequently mentioned factors were perceptions about the risks associated with internet banking and the lack of perceived need. Other less frequently mentioned factors were lack of knowledge of the service, inertia, inaccessibility, lacking the human touch, pricing and IT fatigue. The findings suggest that marketing campaigns which aim to encourage consumers to become internet bank users are likely to attract more males, the higher income groups, the better educated, those who have already used the internet to buy services and /or goods and those who are knowledgeable about internet banking. (Gerrard, Barton, Cunningham and Devlin, 2006)”

“A study on effects of electronic banking on customer satisfaction and loyalty shows that by offering personalized Internet banking services which tailor to suit Internet banking products and services to specific user preference of customers in developing countries, bank management and marketing practitioners face stiff competition worldwide can still be victorious by improving customer attitude towards using Internet banking. By making sure that the customers can easily be reached through the creation of email discussion list, asking customer opinions to improve a particular Internet banking product and building customers’ profiles through the use of transaction log to recommend the most suitable Internet banking services and products based on customers’ previous purchasing activities over the Internet, bank management and marketing practitioners can resolve the Internet banking risks. By offering free Internet banking trainings and demonstrations to assist users with frequent physical branches visit, it helps the management and marketing practitioners may reduce the Internet banking risk of insufficient organizational support.” (Momeni, Kheiry and Dashtipour, 2013)

“Walia and Jain (2012) suggest that at present, Indian banking system needs a fresh outlook and keeping in mind the various distortions, government should introduce third banking sector reforms. In the end the key to banking reform may lie in the internal bureaucratic reform of banks, both private and public. In part this is already happening as many of the newer private
banks (like HDFC, ICICI) try to reach beyond their traditional clients in the housing, consumer finance. The major factors, which are critical for the success in the complex scenario, are:

a) Commitment to develop strong long lasting relationship with customers and to provide quality services;
b) Professional, motivated and innovative staff;
c) Commitment to earn the highest possible profits with consistent produce and management of risk;
d) Obsess for growth.”

3.4 LITERATURE REVIEW OF MOBILE BANKING SERVICES

“SMS banking is the future of banking technology and SMS banking would play an important role in the creation of a cashless economy, what is left is for us to recognize this fact and utilize it. (Rotimi, Awodele, Bamidele, 2007)“

Bajaj (2008) suggests that mobile banking also spells more business for banks, especially as they ride the wireless telephony boom in India's rural hinterland, which has a large population of the financially excluded.

“The value of mobile banking for consumers is in its immediate location-free access to banking services enabling time savings, real-time information, and enhanced feelings of control. (Laukkanen and Lauren, 2005)”

As mobile phone technology is a growing technology in banking, finance and commerce sector by which we can save our time and can access our account and information of our account from anywhere and anytime and it also keeps alert us with our account transaction and with other necessary information. But there is some security related risk and challenges may come to overcome these risk and challenges we have to improve our security system and improve the authentication system for secure services and make trust in customer to use of mobile banking services and can remove barrier in adoption of mobile banking services. (Tiwari, 2014)
“Mobile banking service quality assessment requires analysis of the full interface design. A good mobile system service will promote users’ adoption intention; contrarily, a poor mobile system service will decrease users’ adoption intention (Lee, 2005)“

“A study on customer perception towards Mobile Banking in Indian overseas bank, Chennai shows that a majority of users were between the age group of 30-40. The internet banking does not seem popular among the above 50 age group with only 12% representing the sample size. Among the respondents a significant percentage i.e. 41% of the sample are graduates and post graduates and diploma holders and negligent percentage are school students. Majority of the users are the salaried class who form 66% of the sample size. The students are the next frequent user while self-employed and professional formed the next category. There are respondents who use mobile banking monthly (52%), weekly basis (23%), daily basis (16%), and as and when required (9%). A substantial number of respondents still use it only when required and the banker have to attract such customers towards frequent usage. From the statistical analysis it seems that most of the customers are satisfied with the Mobile banking service provided by Indian overseas bank. (Palami and Yasodha, 2012)”

“Another work on mobile banking throws light on the present scenario. Around the globe, various initiatives use the mobile phone to provide financial services to those without access to Traditional Banks. It has become imperative for the banks to adopt such technologies and strategies which ensure their success. As a result, the banks are trying to develop an understanding about their customers by analyzing their behavior regarding the services. The findings of the present study convey that the banks must concentrate in not only providing the core services through Mobile Banking but also improving the quality of the services that leads to Customer Satisfaction. The research findings confirmed that SMS/Mobile Banking is an effective banking and financial service delivery channel. Results clearly show that all the respondents of both the Banks were using the Periodic Balance Service, further Fund Transfer and Electronic Bill Payment service was most popular among the Bank customers. Since acceptability of SMS/Mobile banking significantly differ among the Bank customers and hence it was noted that the major challenges in front of Banks were services like 'poor acceptance among customers' 'security concerned', etc. (Malik and Gulati, 2013)”
“A study discusses certain key challenges in developing a sophisticated mobile banking application. These are mainly-

a. There are a large number of different mobile phone devices and it is a big challenge for banks to offer mobile Banking solution on any type of device. Some of these devices support Java ME and others support SIM Application Toolkit, a WAP browser, or only SMS.
b. Initial interoperability issues however have been localized, with countries like India using portals like R World to enable the limitations of low end java based phones
c. There is a myth that there is a challenge of interoperability between mobile banking applications due to perceived lack of common technology standards for mobile banking.
d. Money eco-systems (many participants, some behaving in unpredictable ways) makes it very difficult to ensure equilibrium.
e. Proliferation of access mechanisms to payment schemes will dilute security, by allowing access to the payment system in many different ways. It also seems as if the proliferation of social media access, connecting in their own way, with their own hash-tags and special codes happens without clear design and architecture.
f. The customer may be sitting in any part of the world (true anytime, anywhere banking) and hence banks need to ensure that the systems are up and running in a true 24 x 7 fashion. Banks unable to meet the performance and reliability expectations may lose customer confidence.
g. India does possess some infrastructure in the forms of postal payments, reasonable transport and local governments. Therefore, any mobile banking must be inexpensive enough to be attractive for the end-customer over existing methods.
h. Although the RBI is supportive of mobile banking in India, there are many regulations that are being put into place that, only existing financial institutions and banks are allowed to offer mobile banking, all transactions must be done only in India’s national currency and, only those having a valid bank account would be allowed mobile banking.
i. India has 18 official languages which are spoken across the country. Additionally, two-thirds of the population in India is illiterate, creating difficulties in deployment of mobile banking solutions. (Rao, 2013)”
“According to an article in Business Standard, a sharp increase in use of smartphones has led to a sudden surge in mobile banking transactions, almost four times in a year in value terms. Leading the pack is ICICI Bank, the country’s largest private-sector lender, which has reported a three-fold rise to clock more than Rs 1,000 crore worth of transactions in a month, the first time by a bank in India. ICICI Bank’s share in the country’s mobile banking payments is the largest. Abonty Banerjee, general manager and head of digital channels, ICICI Bank, says financial transactions on mobile devices are rising steadily. “In the first quarter of this financial year, we have already logged Rs 2,635.37 crore worth of mobile banking transactions, close to half the Rs 5,741 crore seen in full 2013-14. Also, compared with the June quarter of last year, we have almost tripled our value of mobile transactions — from Rs 941 crore to Rs 2,635.37 crore.” Similarly, the value for June alone was Rs 1,000 crore, compared with Rs 333.23 crore in the month last year. “Even other banks have seen significant jump in transactions on the mobile platform. HDFC Bank, India’s second-largest private lender, has also seen its transactions growing about three times — to Rs 795.6 crore in June this year from Rs 266.3 crore in the month last year. Axis Bank witnessed a five-fold increase during the same period — from Rs 115.8 in June 2013 to Rs 586.1 crore. In the month, the total value of mobile transactions across banks grew to Rs 3,985 crore from Rs 1,147 crore a year ago. While private-sector banks have led the charge in tapping the digital opportunity with better technology, State Bank of India (SBI) is one of the few state-run lenders that have seen meaningful traction. (Anand, 2014)”

**BANKING ON MOBILITY**

<table>
<thead>
<tr>
<th>Bank</th>
<th>June 2013 (₹ cr)</th>
<th>June 2014 (₹ cr)</th>
</tr>
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<tbody>
<tr>
<td>ICICI Bank</td>
<td>333.2</td>
<td>1,021</td>
</tr>
<tr>
<td>HDFC Bank</td>
<td>266.3</td>
<td>795.6</td>
</tr>
<tr>
<td>Axis Bank</td>
<td>115.8</td>
<td>586.1</td>
</tr>
<tr>
<td>SBI</td>
<td>210.7</td>
<td>546.3</td>
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Source: RBI
“Significant effects of perceived usefulness, perceived convenience, perceived flexibility, perceived reliability etc. on usage of mobile banking in public and private sector banks was observed. The study found a significant difference in perception of customer related to mobile banking services in public and private sector banks. Further, a significant effect of perceived usefulness was examined on both public and private sector banks. Bank customers’ intention to adopt it would be greater, if they pay more attention to its usefulness. (Motwani, Sukhjeet and Haryani, 2013)”

"Message-based banking, where you don't even need smartphones, has just been launched (in India). I do believe that once this is understood by people, there will be an explosion of activity in the mobile space. This is what the future holds," said SBI chairman Arundhati Bhattacharya. She said mobile banking will also play a large part in the role of the yet-to-be-launched payment banks with which SBI plans to have tie-ups. This study shows that mobile banking is an available option for even ordinary cell phone holders. (Shetty, 2014)

According to Tysiac (2013), mobile banking has the potential to provide convenience to consumers and new service opportunities for financial institutions, mobile network operators and innovators. But there are risks involved, too, as consumers engage in payments, financial transfers and account monitoring via mobile devices such as smartphones and tablet computers. Regulators have taken interest in making sure benefits are delivered to consumers while risks are minimized.

According to Furrer (2013), a smart mobile banking strategy also helps in mitigate the tendency of younger generations to move their funds away from their family’s longstanding relationship with a local or regional bank.

3.5 LITERATURE REVIEW OF ATM BANKING
Multimodal biometrics along with two tier security provides a higher level of security. The error rates like FAR (False Acceptance Rate and FRR (False Reject Rate) has been reduced, which
avoids the various types of attacks in ATM system and fraudulent activities are reduced. The chance given for hackers to make use of fake biometrics to act as an authorized user is strictly avoided, which makes the ATM system more secure. But the cost spend to design and implement this type of system is higher when compared to the existing ATM system. (Kande and Govardhan, 2013)

In recent years, with the wide utilization of internet technology it is necessary to raise ATM security. However, the internet communication will be exposed there by unwanted people allow to do different kinds of attacks on ATM System. Some of the threats affected to the ATM are Eavesdropping spoofing, Skimming Attack, Card Trapping, PIN Cracking, Phishing Attack ATM Malware, ATM hacking, etc. This point is raised by Lavanya and Raju. (2013)

From a study taken up in Coimbatore city, it is concluded that most of the customers are satisfied with the ATM services provided by the banks. But still many customers have faced many problems such as unavailability of ATM centers, non-functioning of ATM machines, wrong deductions of amount etc. The main problem they have come across is the security problems like the absence of security personnel and non-functioning of auto door locks. Hence all these problems must be taken into consideration by banks to provide the customers with better ATM services. (Umamaheswari and Bhuvaneswari, 2013)

Sachan (2008) highlights the ATM development strategies for the Indian markets. The study results indicate that ATM Breakdown, ATM Functionality and ATM Location are the three most important factors for the ATM users. Banks can devise niche strategies to serve the specialist markets.

“A study shows that Mean values are more than 2.5 in all the cases, indicates that people of Bihar are satisfied from ATM service of various public and private sector banks. Results indicate that Convenience” has the highest mean score implying that it is the most important dimension of service quality. Thereafter Responsiveness and Accessibility are next important dimensions of service quality. This study attempts to find out the satisfaction level of customers in ATM services in Bihar. For this purpose primary data was collected from 100 respondents of different bank ATM users of Bihar. Data was tested for normality and reliability and then analyzed to meet the objectives. (Barun Kumar Jha, Shilpa Sureka and Shitika, 2014)”
“According to a study, a high degree of association between the ratio of the number of ATMs to the number of tellers and the ratio of the cost per ATM to the cost per teller is seen. The degree of substitutability of the teller by the ATM is quite high at 0.56, predicting the eventual replacement of the teller by the ATM. Also the simultaneous decrease in the cost per ATM and the increase in the teller wage bill have led to the rapid spread of ATMs. This shows that IT investment is indeed important in the Indian banking sector. (Kumar et al, 2010)”

“A comparative study of customer attitude towards ATM of SBI and ICICI bank highlights that there is a difference in attitude of customer of ICICI and SBI bank towards use of ATM. Another objective was to identify the problem usually face by customer while using ATM. This study find that the main problem face by customer of SBI is that they get old currency notes from ATM of SBI. 21% people agree that often it’s machine also get out of order. The main problem from ICICI ATM is that its machine go out of cash and 18% says often it’s ATM does not work. (Tuli, Khatri and Yadav, 2012)”

“Automated Teller Machine is a computerized telecommunications device that provides the customers of a financial institution with access to financial transactions in a public space without the need for a human clerk or bank teller. On most modern ATMs, the customer is identified by inserting a plastic ATM card with a magnetic stripe or a plastic smartcard with a chip that contains a unique card number and some security information, such as an expiration date. Security is provided by the customer entering personal identification number (PIN). (Adepoju and Alhassan, 2010)”

“A study conducted on Challenges of Automated Teller Machine (ATM) Usage and Fraud Occurrences in Nigeria shows that most victims of ATM fraud are students and ATM users who are not aware of any incidence of ATM fraud. A total of 83 females (55. %) and 67 males (44.7%) from the three banks participated in the study. From the data gathered in obtaining the most victims of ATM fraud, 41 respondents out of 67 respondents of the male have ever been a victim of ATM fraud. 24 out of 83 respondents of the female have been a victim of ATM fraud. This implies that the males are the major victims of ATM fraud from the study. Also, 33 out of the 60 respondents of the students have ever been a victim of ATM fraud, 7 out of the 20
respondents of business men/women have been a victim of ATM fraud. The age ranges that are most victims of ATM fraud are respondents of age between 21-25 years. (Adepoju at el, 2010)

3.6 LITERATURE REVIEW OF RTGS AND NEFT SERVICES

“As part of its public policy objective of promoting a safe, secure, sound and efficient payment system, the Reserve Bank has taken several initiatives to develop and promote electronic payments infrastructure. Towards this end, the RBI introduced the Electronic Clearing Service (ECS) and the Electronic Funds Transfer (EFT) system in 1995, the Real Time Gross Settlement (RTGS) system in March 2004, the National Electronic Funds Transfer (NEFT) system in November 2005 and Cheque Truncation System (CTS) in February 2008. (Karimzadeh and Alam, 2012)”

“The world-wide application of at least some of these public and private sector principles and good practices is reflected in findings reported by the World Bank (2008). In 88 of the 98 distinct systems identified by the survey, the central bank settlement authorities grant intra-day credit to their RTGS system participants by way of loans, repos, or current account overdrafts. In 85 systems a further source of RTGS liquidity is the ability of participants to draw down during the day, in full (65) or partially (20), fixed reserves they are required to hold with the central bank, including reserves held for monetary policy purposes, or deposits required to finance the central bank itself. In only 40 of the 98 RTGS systems participants make use of lines of credit between banks.”

“The migration of our payments system towards a cashless society would require some reform and a lot of effort and sensitization especially for low income customers, who are currently deeply rooted in using cash and see it as a convenient and easy way of receiving and making payments. The sensitization exercise would require the combined effort of various stakeholders, including government, financial institutions and non-bank providers of payment services. The cashless system of payments idea was well received by the majority of Nigerians, but with some concerns/challenges which can hamper its success and must be addressed by providers. (Nwankwo and Eze, 2013)”
As per Whyel (1974), EFTS offers tools to reduce the ever mounting piles of paper-work. It makes banks over burdened with work. The main challenge is to make EFTS error proof.

“A study investigates the reasons why person-to-person electronic funds transfers are still not very common in the United States compared with practices in many other countries. The reason lies in the context of privacy. (Shy, 2010)”

The electronic funds have appeared as a necessity in the nowadays financial industry. The most important reasons are the transaction processing low cost, low time processing, low risk in the financial messages transmission (private, personal communication networks). (Poenar, 2008)

There are a plethora of risks and issues which are associated with EFT which in other words has proved to be disadvantages of electronic banking. “The major issues are the issues of security and privacy. Security risk arises on account of unauthorized access to a bank’s critical information stores like accounting system, risk management system, portfolio management system, etc. the specific privacy issue related to protection of personal data became an issue of growing concern with the advent of computerized systems which could store and disseminate large amounts of information with relative ease via automated processes. Research on payment systems has also been motivated by the important design changes that have occurred in the past 30 years from delayed net settlement system, to real-time gross settlement (RTGS) system, to the introduction of liquidity-saving mechanisms in many countries more recently. (Jurgilas and Martin, 2013)”

3.7 LITERATURE REVIEW OF PLASTIC MONEY SERVICES

“The issuing bank should take necessary step to improve their cardholder’s awareness and satisfaction. Varieties of banks card and their services were preferred by them. Services like wider acceptability, discount on purchase and quick processing, popularity and convenience services of bill payments opting have to be increased for further satisfaction. Therefore it is clear that satisfy the cardholder the issuing bank should adopt suitable marketing strategy, to create better satisfaction and future growth of credit cards in market. (Dwarkadas, 2011)”
“The world has been dreaming of a cashless society ever since credit instruments were introduced in the 1950s. With the increase in smartphone penetration and 3G networks becoming a reality, the outlook for mobile payments in India is optimistic. While we have over 900 million mobile subscribers, less than 40% of our countrymen have bank accounts. One of the lowest ATM density in the world, low share of Debit/Credit cards in the total retail electronic payments, further contribute a strong business case. (Patel and Amin, 2012)

Vimala (2014) in her research has studied the impact of credit cards on HDFC bank customers in Shimoga. According to her study, the plastic money efficient services and credit card development in Shimoga district contributes significantly to the banking development of the country. HDFC Bank provide the best timely quality services at the reasonable cost to their customers in the Shimoga district. 40% of customers and approximately 52% of public customers belongs to private sector banks, business man and government employees and 08% are others who use the credit cards and other services effectively in the city. The Most effective media to promote the credit cards was newspaper, it’s about 55% in the city which created a strong impact on the HDFC Bank customers and credit cards are quite safe to the people.”

“As many economies now feature new forms of payment such as credit cards, smart cards, and electronic money, it is increasingly important for policymakers to understand how consumers substitute between cash and competing media of exchange. Inflation triggers agents to substitute from money to credit for two reasons: a higher inflation rate both lowers the rate of return on money and makes default more costly, which relaxes agents' borrowing limits. (Lotz and Zhang, 2013)”

“The Number of innovative products for making payment has developed after the privatization and globalization. Customers have showed their preference over the usage of the plastic money generally over a period of time in the banking process. Plastic money is an alternative to the cash or the standard ‘money’. The use of Plastic cards is more and more increasing for online payment. Around 50% of payments of the customers are done through credit/Debit cards. Sample survey shows Debit cards are preferred over credit cards. The main reason for the increase in plastic money is that the customers are not a victim of a fraud. The customers have
rated that the telephonic payment option is average due to long timeliness and security concern for CCV/PIN number. (Patil, 2014)”

Plastic Money i.e. usage of Credit card was measured a luxury, and has become needed. These plastic money and electronic payments was and used by only higher income group. Among the various financial services rendered by commercial banks and other financial institutions, extending their credit card facility to customers is an important modern day function. This facility extended not only to customers in urban areas or cities, but also to customers residing in rural area. However, today, with development of banking and trading activity, the fixed income group or salaried classes are also start using the plastic money and electronic payment systems and particularly Credit cards. There may be the criticism that, it induces far more purchases or make people spendthrift. This may be so in the initial stage, but when once a customer gets used to the credit cards, they will know how to use the same in a discretionary manner. (Manivannan, 2013)

“Another study on plastic money depicts that when plastic money users are satisfied, they will be attached to the bank for a long time. It will be strength for a specific bank to compete with other banks. It will help the growth of the plastic money users’” confidence on the bank and users will be tempted. If banks want to sustain positively, there is no alternative but to satisfy the customers, especially the plastic money users, because they use it against their valuable deposited money in the bank. Bank must improve its strategies to fill up the demand of Plastic money users because if the users switch to another bank, the particular bank will lose some cash flow that will negatively affect the goal of the bank. (Sumi and Safiullah, 2014)”

“A research shows the usage of Debit cards in rural areas is also influenced by some of the factors like age, income, occupation, educational level, and years of association with the bank. These factors are said to be influential in the usage of debit cards among the rural consumers. The results allow banks’ decision makers to develop strategies that can increase the usage of Debit Cards by Rural customers. Debit cards are widely used everywhere; fortunately our rural India has started the eve of adopting the new technology of ATMs and debit cards. The major customers of rural areas consists of students, business people, vendors and farmers, this amply indicates the growth of the nation and raise in the standards of people. Literacy was one of the
factor affecting the adoption and long term usage of ATMs and debit cards, but now a days the trends are even changing in the rural areas. The secured transactions are ensured by the technology, the continuous need for withdrawal of money and change in the customer’s attitude towards debit cards has influenced the long term usage of debit cards in rural areas. (Ravikumar and Maran, 2013)"

3.8 LITERATURE REVIEW OF ROLE OF TECHNOLOGY IN BANKING

“Raheem and Krishnamoorthy (2011) in their study concluded that the of effects of new banking technology on service quality in public sector banks in Chennai city, using Multiple Log Linear Regression analysis, which explain that the value of co efficient (b) of new banking technology variables viz., Net Banking (1.65), ATMs smart, credit and debit cards (1.065), FOREX Remittances (1.99), E-Finance (1.069), ATM and Bill Payments (1.04) determined service quality in public sector banks is significant. The signs of the co-efficient (b) of the entire five new banking technology attributes are positive indicating that the higher the level of the new banking technology, higher will be the service quality in public sector banks in Chennai city. The value of co-efficient of determination (R2) indicates that the parameters included in the new banking technology attributes bring about differences in service quality by 0.6875 ( i.e 68.75 per cent) in public sector banks. Therefore, the new banking technology attributes viz., Net Banking, ATMs smart, credit and debit cards, FOREX Remittances, E-Finance, ATM and Bill Payments, are most important variables which determined service quality of public sector banks in Chennai City. The study has highlighted that new banking technology and quality service in public sector banks in Chennai city which need to improve to survive the competition posed by the new entrants in the foreign sector. The exiting organizational structure and policies of public sector banks are ill equipped to meet the new objective. Despite various committees being set up to examine the changes required in the exiting insurance framework, not much work has been done to improve quality of service delivery. Asset management not only entails the management of funds but also efficient handling of clients who are the invisible assets on the balance sheet. If public sector banks hope to survive, they will have to equip themselves with a commitment to quality services”.

Due to the growth of IT sector, banks are being able to reach their customers anywhere at any time. (Paul, 2013)
“In the last two decades, there has been a paradigm shift in banking industry by the
technology-based approach in business. Banks across the world are motivated to integrate
information technology (IT) into their daily operations to gain top-line as well as bottom line
benefits. (Kesharwani and Radhakrishna, 2013)”

“With e-banking services, one can actually carry out a number of transactions sitting on one’s
seat with just a few clicks. Net banking customers view their account balance and also open
fixed deposits, transfer funds, pay electricity, telephone or mobile phones bills and much more.
The accounts of the customers are updated as soon as the transaction takes place i.e., the
accounts show the information updated to the last second. This means if a cheque issued by you
has been debited from your account in the morning, your account status will reflect this when
you log in to your accounts in the afternoon as against the earlier updating at the end of the day.
This highlights the advantageous part of technology in banking sector. (Singh, Pandey and
Gupta, 2011)”

“The Internet is an extremely efficient channel for banks to collect the information from
customers and manage information flow to meet wide-range financial needs of individuals and
businesses. In fact, offering e-banking services is not only allow small banks to enter markets
and reach customers that were previously off limits to them, but also to provide a considerable
economies of scale in record storage and data processing - which were only available to large
banks (which have the necessary equipment). (Yang, Whitefield, Bhanot and Johnson)”

Technology is being used to engage customers throughout their lifecycle. Banks are now
focusing on their service offerings to suit customer preferences. Technology is playing a
strategic role in driving the growth of the organisation and is no longer viewed as a support
function, few banks are launching campaign as a ‘corporate social responsibility’ objective with
a purpose to promote Green banking which is paperless and queue less banking and also
promotes use of recyclable products for Bank’s stationery using TYVEK material. (Manohar
and Kumar, 2013)

A study taken by Roopadarshini and Shilpa (2014) focuses to find out the impact of IT
innovation in banking and to analyze the impact of banking technologies. Following table
shows the technological changes in banking services. Around 50% of the respondents are highly satisfies with the technological changes taken place in banking area. On the other hand 5% are not satisfied.

![Figure 3.2](image)

It is also seen from the figure below that around 24% of the respondents are satisfied with the security aspect.

![Security of online banking](image)
It is also deduced that E - Banking facilities have reduced the cost and the time of customers. Technological upgradation in banking sector for reaching the customers demand is a must. Majority of customers are satisfied by the high safety and security provided by the bank. Banks should update the technological innovation in order to satisfy the need of the customer. The suggestions say that the banks should maintain of high quality assets. Protecting the pin number is equally important as protecting hard cash. Replacement of old with new technology helps to attract more customers. Bank should interact with the customers to render better service.

“Consumer acceptance of online banking: an extension of the technology acceptance model is another good work in the field of mobile banking with special reference to technology. Advances in electronic banking technology have created novel ways of handling daily banking affairs, especially via the online banking channel. The acceptance of online banking services has been rapid in many parts of the world, and in the leading e-banking countries the number of e-banking contracts has exceeded 50 percent. Investigates online banking acceptance in the light of the traditional technology acceptance model (TAM), which is leveraged into the online environment. On the basis of a focus group interview with banking professionals, TAM literature and e-banking studies, developed a model indicating online-banking acceptance among private banking customers in Finland. The model was tested with a survey sample (n=268). The findings of the study indicate that perceived usefulness and information on online banking on the Web site were the main factors influencing online-banking acceptance. (Pikkarainen, Pikkarainen, Karjaluoto and Pahnila, 2004)”

“In the task of making banking services available to everyone, technology has an important role to play in creation of channels beyond branch networks. The RBI has set up an Advisory Group for IT Enabled Financial Inclusion to facilitate development of information technology solutions for delivery of banking services. Technology can play an important role in reducing operating cost of providing banking services, particularly in the rural and low income groups segments. The technology, if blended appropriately with the right business model and policy, holds the key to extending affordable, viable and sustainable access to finance for the population at large. (Trivedi, 2009)”
“Computerization in Indian banking sector and the use of modern innovation has increased many folds after the economic liberalization as the country’s banking sector has been exposed to the world’s market. In 1984 a committee was formed by RBI on mechanization in the banking industry whose chairman was Dr. C Rangarajan, Deputy Governor of RBI. Under mechanization an electronic ledger posting machine was installed which included a type writer keyboard, a printer, two floppy disc drives and a video screen. The machine was used to prepare statement on accounts for customers, maintaining primary ledgers and post transaction entries in them. The reports were submitted by the committee in 1989 and computerization began from 1993 with the settlement between bank administration and bank employees association. In 1994 for issues related to payment system, security settlement and check clearing a committee on technology was set up in the banking industry which emphasized on Electronic Funds Transfer system. (Mittal, Jadaun and Dash, 2013)”

3.9 LITERATURE REVIEW OF OTHER IMPORTANT ASPECTS RELATED TO INNOVATION IN BANKING

A study shows that to strive, to attract and to retain customers, the bank has to introduce innovative products, which will enhance the customer services and marketing services with the help of different channels targeted at specific customer. (Dhanabhakyam and Anitha, 2011)

The biggest challenge to obtain effective customer knowledge includes obtaining a complete view of customers is complex and quite difficult. The main challenge is to move away from stand alone, disjointed, inconsistent channels to a cohesive, integrated, multi-channel offering. The cost and difficulty of meeting with the strict and highly rigid government regulations and client privacy and security requirements is also an issue. This view is regarding CRM in banking sector which says that CRM is all about bringing people, processes, methods and technology altogether – a case study of banking sector in India. (Bihari, 2012)

“A study shows that customer satisfaction vary according to the nature of the services and in this case, highest customer satisfaction is shown in such areas like prices charged by banks is nominal, favorable location of bank branches and staff attitude toward problem solving of customers. When the private banks are compared with public sector banks, private sector bank customers were found to be more satisfied with their bank because of their multiple branches at
convenient locations and technology (like check deposit machines, utility bill accepting machines etc.) which were not even seen in public sector banks. But when we talk about public sector banks customers of public sector banks were more satisfied with reputation, reliability and the prices which public sector banks impose on services like cheque/cash deposit and cheque/cash withdraw (it has been shown that price charges are lower in public sector banks than in private sector). When we compare both types of banks in terms of customer care service, private sector banks are favored more than public sector banks. Although overall both public and private sector bank customers are satisfied with their banks but due to wide difference of response, both public and private sector banks should concentrate on their weak areas in order to meet their customer expectations and this study gives us some sort of guidelines to managers of banks to take suitable decisions to get more satisfied responses from their customers. (Mishra and Pandey, 2013)"

“Delivering high service quality is one of the best ways for banks to respond to competition. Trustworthy and valid measures of customer service quality are essential to achieve, and as a result service quality programmes should become high priority matters of the banks. Expenditure on such programmes should be viewed as long-term investment for future growth, development and profitability. It is, therefore, suggested that banks should make investment in research in order to understand customer needs and expectations at all stages in the service delivery process so as to determine the key components of service quality. They should also conduct frequent training programs in areas like prompt cash payments and receipts at the counter, efficient pass book and statement service, prompt collections and remittance services, early decisions on credit applications and quick attention to complaints. All these activities also have direct impact on customers’ perception towards service quality. Bank should also offer such products or services which would fully meet customers’ needs and develop systems and procedures which are user-friendly. They should make best use of technology in products, services, systems and environment so as to ensure speed, accuracy and efficiency. Although, these banks have invested in technology heavily, there are still many bottlenecks which need to be addressed. (Padhy and Swar)”

“Another study says that developing countries like India, still has a huge number of people who do not have access to banking services due to scattered and fragmented locations. But if we talk
about those people who are availing banking services, their expectations are raising as the level of services are increasing due to the emergence of Information Technology and competition. Since, foreign banks are playing in Indian market, the number of services offered has increased and banks have laid emphasis on meeting the customer expectations. the various challenges and opportunities like rural market, transparency, customer expectations, management of risks, growth in banking sector, human factor, global banking, environmental concern, social, ethical issues, employee and customer retentions. Banks are striving to combat the competition. The competition from global banks and technological innovation has compelled the banks to rethink their policies and strategies. (Goyal and Joshi, 2012)

“Lohani amd Shukla (2011) studied that the perceived quality of services provided by private sector bank (ICICI) is better than public sector bank (Bank of Baroda) in Lucknow city region. It is evident that public sector banks have a strong presence in the market, but in recent times they are facing stiff competition from private sector banks in the range and quality of services offered. In the present scenario banks have to be service oriented in order to keep ahead of competition. Public sector banks must concentrate on providing updated information to customers regarding the new services offered by them. They must also change their policies, customer service norms and service efficiency keeping in view the strategies adopted by private sector banks.”

“Tiwari studied that Union Bank of India is providing very innovative services. This bank has focused on the backward side of the society. The CSR policy of the bank is really very innovative. This is the only bank that is providing this type of facility to the rural area. It is observed that banks in India moving towards sustainability through innovative service operations and offerings. The sample considered here for analysis has proved this point very clearly. The rate at which innovation are adopted by firm constitute an important part of the process of technological change. Union Bank of India is more aggressive in innovation and it is position ahead it terms of services. So the banks must create and sustain an environment that promotes creativity. Also innovation can give the better success to the banking sector. It is one of the best policies and the key of success of any bank.”
“Accepting the key role of perceived risk in online banking adoption, finding an operational segmenting variable that could both reduce consumers risk perception and positively influence internet banking adoption would be of great managerial interest. It is believed that consumer innovativeness, understood as the tendency to willingly embrace change and try new things and buy new products more often and more quickly than others may successfully assume that role. (Manzano, Navarre, Mafe and Blas, 2008)”

Long time back Brian (1996) suggested that private banks must be prepared to attract a new generation of primarily middle- aged investors.

Indian banks have adopted measures either for reducing carbon emission or for public awareness as a part of Green Banking initiations. Many Indian banks have started to realize the importance and they are taking up various Green Banking initiatives. “Government of India, Ministry of Finance, Department of Financial Services has issued guidelines / instructions to banks on Green Initiatives. Advising banks to take proactive steps in this regard by increasing the use of electronic payment systems, elimination of post-dated cheques and gradual phase-out of cheques in their day-to-day business transactions. As part of the Green Initiative, the Public Sector Bank (PSBs), Financial Institutions, viz., NABARD, SIDBI, EXIM Bank, and Public Sector Insurance Companies (PSICs) would take up the e-Governance initiatives in a pro-active manner. Through these initiatives, it is expected that on one hand, the quality and efficiency of the service delivery will improve and, on the other, banks will gradually move towards less paper based transactions. (Manohar et al, 2013)”

3.10 KEY OBSERVATIONS AND RESEARCH GAP

A lot of studies have been taken up by researchers and academicians on different innovations. In the course of review of literature, there were many studies which were found to be instrumental in this research work. Following are the key observations identified related to the review of literature on this study:

a) Many studies have emphasized on the positive role played by banking sector reforms in the development and improvement of Indian banking industry. Karim(2010), Reddy(2009), Seth(2009) and Roland have given credit to liberalization in banking
operations and introduction of new financial instruments for improved performance of public and private sector banks in past decades.

b) Shah and Clarke(2009) have mentioned that most of the banks and big organizations now are anxious to use internet banking because of its relatively lower and bearable delivery cost, higher sales capacity and potential for offering greater convenience for customers.


d) A study on e-banking reveals that the young generation is more known to computer and internet banking. So they are more interested in using the E-banking system. (Paul, 2008)

e) Tiwari (2014) in his study mentions that mobile phone technology is a growing technology in banking, finance and commerce sector by which we can save our time and can access our account and information of our account from anywhere and anytime and it also keeps alert us with our account transaction and with other necessary information.

f) A key challenge posed before mobile banking is use of different regional languages across the nation is discussed by Rao(2013). India has 18 official languages which are spoken across the country. Additionally, two-thirds of the population in India is illiterate, creating difficulties in deployment of mobile banking solutions.

g) Some of the threats related to the ATM are Eavesdropping spoofing, Skimming Attack, Card Trapping, PIN Cracking, Phishing Attack ATM Malware, ATM hacking, etc. This point is raised by Lavanya and Raju. (2013)

h) A study taken up in Coimbatore city by Umamaheswari and Bhuvaneswari reveals that most of the customers are satisfied with the ATM services provided by the banks. But
still many customers have faced many problems such as unavailability of ATM centers, non-functioning of ATM machines, wrong deductions of amount etc. (2013)

i) The electronic funds have appeared as a necessity in the nowadays financial industry. The most important reasons for the use of electronic fund transfer systems are the transaction processing low cost, low time processing, low risk in the financial messages transmission (private, personal communication networks). (Poenar, 2008)

j) The issuing bank should take necessary step to improve their cardholder's awareness and satisfaction. This point is raised by Dwarkadas (2011).

k) A research shows the usage of Debit cards in rural areas is also influenced by some of the factors like age, income, occupation, educational level, and years of association with the bank. These factors are said to be influential in the usage of debit cards among the rural consumers. The results allow banks’ decision makers to develop strategies that can increase the usage of Debit Cards by Rural customers. Debit cards are widely used everywhere; fortunately our rural India has started the eve of adopting the new technology of ATMs and debit cards. The major customers of rural areas consists of students, business people, vendors and farmers, this amply indicates the growth of the nation and raise in the standards of people. Literacy was one of the factor affecting the adoption and long term usage of ATMs and debit cards, but now a days the trends are even changing in the rural areas. (Ravikumar and Maran, 2013)

l) Due to the growth of IT sector, banks are being able to reach their customers anywhere at any time. (Paul, 2013)

m) Most of the studies indicate that introduction of new and updated technology has changed the face of Indian banking sector.

n) SMS banking is the future of banking technology and SMS banking would play an important role in the creation of a cashless economy. This is mentioned by Rotimi, Awodele, Bamidele (2007).
According to Vimala, the *plastic money efficient services and credit card development contributes significantly* to the banking development of the country.

Research Gaps have been also identified. Not much work has been taken up specifically in Eastern Uttar Pradesh region though many developments have taken place in banking sector in this region as well. Attitude of bank employees towards various innovative products and services is also very relevant as they deal with the customers and know the exact reality of banking operations which has been taken up in this study which till now has not been covered by a descent number of researchers. Studies related to customers and bank employees’ attitude towards NEFT and RTGS are also now been observed especially in India. Factors like ease of handling ATMs, simplicity in operations, impact of knowledge about computers and mobiles, cost, accessibility in regions, ease of understanding and availability have not been studied much in composite manner. Various promotional activities like advertising, public awareness programmes; bancassurance, coins dispenser machines, etc. have also been studied in this research which have not been studied earlier to much extent.

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