CHAPTER-3 LITERATURE REVIEW

3.1. Introduction:

Present conveys it’s meaning in terms of the past, there is nothing new in the context of old. Every new thing is taught with reference to the old. It is universally acknowledged that effective research cannot be accomplished without critically studying what already exist in relation to it in the form of general literature and specific studies. The survey of related literature therefore is considered as an important perquisite to actual planning and execution of any research project. It helps to eliminate the duplication of what has been done and provide useful hypothesis and helpful suggestion for successful investigations. Citing the studies the show substantial agreement and those seem to present conflicting conclusions help to sharpen and decline understanding of existing knowledge in the problem area, provides a background for the research work, and makes the investigator aware of the status of the issue. So for the fuller and better understanding of the problem, the research scholar has made her sincere efforts to review the related literature regarding the research problem taken by her. All the possible books, journals, periodicals, research papers, thesis and dissertation available from different sources were glancing through for this purpose. Many investigators have attempted to research in the realm of “banking services”. Such studies helped the investigator in establishing the relationship of these studies with the present investigations. This helped in building deep insight and clear perspective in this area of research. Review of related studies helped the investigator in deciding the tools and techniques used for the study.

The investigator has tried to search studies from different sources including the original studies conducted in the field. Some of the significant documents that were of immense helped the investigator are as follows:

3.2. Committee Reports

Information Technology and the communication networking systems have revolutionized the functioning of banks and other financial institutions all over the world. Reserve bank
of India has played an important role in the implementation of information technology in the banking sector. Various researchers have also contributed in this regard. In addition to the work done by various scholars in the area of Information Technology and banking organization, RBI had appointed various committees to work in this area. The reports of various committees are briefly summarized below:

1) Dr. C. Rangarajan Committee [1983]

Dr. Rangarajan committee had drawn up in 1983-84 the first blueprint for computerization and mechanization in the banking industry and looked into modalities of drawing up a phased plan for mechanization for the banking industry covering the period 1985-89. The committee in its report in 1984 recommended the introduction of computerization and mechanization at branch, regional office / zonal office and head office levels of banks.

In 1988 another committee was constituted under the chairmanship of Dr. Rangarajan for making plans for computerization for the next five years from 1990-94 for the banking industry. It identified the purpose of computerization as improvement in customer service, decision making, housekeeping and profitability. The committee observed that banking is a service industry and improved efficiency will lead to a faster rate of growth in output and help to expand employment all around. The work force in the banking industry must, therefore, look upon computerization as a means to improve customer service and most welcome it in that spirit.

2) W.S. Saraf Committee [1994]

In 1994, the Governor, Reserve bank of India had appointed a committee on technology issues under the chairmanship of W. S. Saraf. The committee looked into technological issues related to the payment system and made recommendations for widening the use of modern technology in the banking industry. The Saraf committee recommended setting up institutions for electronic funds transfer system in India. The committee also reviewed the telecommunication system like use of BANKNET and optimum utilization of SWIFT by the banks in India.
3) Shere Committee [1995]

In 1995, RBI formed a committee under the chairmanship of K. S. Shere, to study all aspects relating to Electronic Funds Transfer and propose appropriate legislation. The Shere committee had recommended framing of RBI (EFT system) regulations under section 58 of the Reserve bank of India Act 1934 (RBI Act.), amendments to the RBI act and to the bankers book evidence act, 1891 as short term measures and enacting of a few new acts such as EFT act, the computer misuse and data protection act etc. as long term measures.

4) Narasimham Committee [1998]

In order to examine the various issues related to the technology up gradation in the banking sector, the Reserve Bank of India appointed Narasimham committee in September 1998. The committee consists of representatives from the Government, the Reserve Bank of India, banks and academic institutions associated with the information technology. The committee dealt with the issues on technology up gradation and observed that the most of the technology that could be considered suitable for India in some form or the other has been introduced in some diluted form or as a pilot project, but the desired success has not been achieved because of the reasons inter-alia lack of clarity and certainty of legal issues. The committee also suggested implementation of the necessary legislative changes, keeping in the view the recommendations of Shere committee. The need for addressing the following issues was also emphasized:-

- Encryption on Public Switching Telephone Network (PSTN) lines
- Admission of electronic files as evidence
- Treating Electronic Funds Transfers on par with crossed cheques / drafts for purposes of Income Tax etc
- Electronic Record keeping
- Provide data protection
- Implementation of digital signatures
- Clarification on payment finality in case of EFT
Taking into consideration the recommendations by various committees appointed by RBI and guidelines of RBI, banks have started using IT to automate banking transactions and processes.

3.3. Review of related studies:

Banks all over the world have been effectively deploying information technology as an innovative resource to achieve speed, efficiency, cost reduction, customer service and competitive advantage. Technology enabled products and delivery channels offer value to customers providing them with anywhere, anytime, anyway banking to customers. Even in a developing country like India the banks have realized that in order to remain competitive and provide the best services to their customers they need to have the latest technology in place. These technological changes have been pioneered in India by foreign sector and private sector banks but now it is seen that the traditional banks in the public sector are also increasingly pursuing technology. Various researches are taken at national and international levels. Many studies are conducted on computerization of banking sector, Impact of Information Technology in the Banking Industry, IT enabled banking services. In the present research an attempt was made by the investigator to relate the role of IT in banking Industry. Therefore the review of related studies is divided into different parts:

1. Role of information technology in banking industry
2. Changes in banking system and services
3. Customer adoption to banking services (ATM banking, Branch banking, mobile banking, Internet banking)
4. Acceptance of employee to change and IT
5. Future scope of banking system and services.

3.3.1. Role of Information Technology in banking Industry

The great Indian philosophy, shown to the world a word “Vasudheva Kutumbakam” means the world is a single society. Today world has become a global hub for business. To sustain and grow in the global market industries requires a strong banking system, which
can satisfy the increasing need of customers. The Indian banking system is now ready for the global market because of the Automation.

**V. Chandrasekhar, Joseph John (2010)**, Head Banking Products Division, i-flex solutions: investigated in their studies adoption of the core - banking solution in banks. "Banks are increasingly adopting core-banking solutions for retaining customers and lowering service costs to the customer. These applications help banks to achieve centralized processing and provide 24-hour customer service. After the turn of consolidated databases and networks then come core banking applications. Core banking applications provide complete front and backend automation of banks."Core banking applications provide anywhere, anytime 24 by 7 non-stop services, which is not possible with traditional localized branch automation systems that are available only between 10 am to 2 pm.

**Manoranjan Mohapatra, et al. (2010)**, founded about forty percent of the population in India is unbanked. E-banking has evolved as a platform for future innovations that have long ranging socioeconomic benefits for India and hence able to capitalize Indian government’s dream of, one bank account per Indian. He stated all concerned, operator banks and specialist companies are gradually getting themselves organized to operate e-banking services. E-banking is the need of the hour in India today. Banks are able to reach remote areas without incurring the heavy expenses to open a branch, also the ATM is penetrating in rural areas is not that high with only forty ATM s per million people in India.

**Bernadette D. Silva et al. (2010)** conducted an analysis for internet banking that the bank corporate to understand certain parameters in e-banking that are affected by the demographic status like gender, income level and educational qualification etc., for opening internet bank account. He suggested bank operations through the internet can attract customers and it may enhance the brand image of banks for the use of sophisticated technology.
Kamath K.R. (2010) conducted a study on banking and founded that universal banking is driven by the forces of deregulation, liberalization, and technological advancement. He highlighted technology has played and is playing a critical and arguably the most important role in redefining the financial business. Banks are responding by offering alternative delivery channels like ATMs, telebanking, internet banking, mobile banking etc. He also found that most of the banks have already implemented core banking solution (CBS) across all offices to provide “anytime anywhere” banking in true sense.

Nyangosi et al. (2009) collected customers' opinions regarding the importance of e-Banking and the adoption levels of different e-Banking technologies in India and Kenya. The study highlighted the trends of e-banking indicators in both countries. The overall result indicated that customers in both countries have developed a positive attitude and they give much importance to the emergence of e-banking.

Al-Hajri (2008) examined various factors that might act to determine whether a given technology is likely to be adopted by the banking industry in developing country such as Oman by comparing it with a developed country such as Australia. The result indicated that relative advantage, organizational performance, customer organizational relationship and ease of use, shed light on the reasons for adoption of technology.

Migdadi Y.K.A. (2008) examined the quality of internet banking service encounter by retail banks in Jordan. He evaluated the banks' web sites by using the web site quantitative evaluation method (QEM) in March 2008 for sixteen retail banks in Jordan. The results of his study indicated that the banks in Jordan have significant positive quality of the internet banking service, further the banks' web sites have enhanced their contents, navigation, speed of home page download and web site accessibility.He suggested quality dimensions of internet banking should be improved.

Uppal R.K. (2008) analyzed the quality of e-banking services in the changing environment. The sample size of bank customers was 25. The data was collected through
pre-tested and well structured questionnaire in Ludhiana, Punjab in May 2006. The study concluded that the customers of e-banks were satisfied with the different e-channels. He also suggested some measures to make e-banking service more effective in the future.

**Padh K.C. (2007)** studied the impact of technology development in the banking system and he highlighted the future of banking sector. The core competencies may provide comparative advantages.

**Uppal R.K. (2007)** studied the responses of 768 customers of public sector banks, Indian private sector banks and foreign banks operating in Amritsar District of Punjab in month of September 2007. Time was the major factor that affected the quality and reputation of banks. He addressed that Indian banking industry has undergone radical changes due to liberalization and globalization measures undertaken since 1991. He highlighted a highly satisfied and delighted customer is a very vital non-financial asset for the banks in the emerging IT era. E-banks provide quick services and that is why they are becoming more popular. He suggested all bank groups should place the right kind of systems to further cut down on service time and render instantaneous services to the customers.

**Agboola A. A. (2006)** examined electronic payment systems and Tele-banking services in 36 banks of Nigeria and data was collected through questionnaires from bank workers during 2005. Findings of his study revealed that connectivity via use of Local Area Network (LAN) and wide area network has facilitated electronic transfer of funds. 35 banks have fully networked their system to ease communication of account information. The use of smart cards, point of sales system and computerized credit ratings were not very popular as less than half of the studied banks have fully adopted them. ATM, electronic home and office banking and telephone banking were the least fully adopted technologies due to low level of economic development, epileptic supply of power, high cost, fear of fraudulent practices and lack of facilities necessary for their operation. He concluded that tele-banking is capable of broadening the customer relationship, retain customer loyalty and enable banks to gain commanding height of market share if their attendant problems are taken care of.
Chopra V.K. (2006) highlighted the importance of IT and business re-engineering to achieve the objectives of banks. He concluded that PSBs and old private sector banks are slow in imbibing technology in their operations, whereas new private sector banks and foreign banks are early adopters of the technology and increasing the competition. He emphasized that IT along with the business process re-engineering may provide ideal technology environment catering to the stated business objectives.

Kumar N. K. (2006) discussed various phases of computerization from automating the accounting process and back office function to the current phase of inter-bank connectivity through Real Time Gross Settlement (RTGS). His study emphasized on some key IT issues like driving factors, IT budget, process re-engineering, outsourcing etc. He suggested through introduction of IT in banking and automation might improve and stabilize the mechanization process in Indian banking industry.

Kumar and Walia (2006) produced information on integrated approach adopted by Indian banks and discussed how Indian banks are aligning their services as per global requirement. They studied visualized that per transaction cost through various channels. Rs.0.10 per transaction through internet-banking while Rs.1.00 if transact manually. The study also highlighted the percentage of computerization in all Indian banks is only 24 pc up to 2003 and 52 pc branches of public and old private sector banks are computerized whereas 100 pc computerization is made in new private sector banks and foreign banks, mainly due to less spending only 0.5 pc of its revenue on information technology by the public sector banks where new private sector banks spend 4-5 pc and foreign banks spend 9 pc on IT. Very few banks like SBI, Bank of Baroda, and Bank of India etc. are reorienting their strategies to become more focused. The study suggested by giving confidence and competence to public sector banks too, Indian banking sector should surely touch new heights in the years to come.

Nair K.N.C. (2006) explored the future challenges of technology in banking and revealed that automation of 20 pc per branch covered 80 pc business followed by large
banks conveniently ignore their rural branches. His study concluded that technology usage has improved the efficiency of operations in banks and reduced the cost as ATM transaction costs 25-30 pc of a counter transaction and electronic system has made the banking easy and more attractive but also risky because of ignorance of human touch. He also pointed out how IT poses a bright future in rural banking.

According to VP Shetty (2006), globalization in banking is based on four important pillars viz. 1) trade in goods and services; 2) flow of capital and movement of human beings across boundaries; 3) harmonization of regulatory framework in different countries; and 4) developments in technology, particularly those in information technology.

Uppal R.K. (2006) analyzed the profitability of four major bank groups that is SBI and its associates (G-I), Nationalized banks (G-II), New private sector banks (G-III) and foreign banks (G-IV) in the second post banking sector reforms era. He concluded that there is a significant difference in the profitability of various major bank groups. The average profitability is the highest in the foreign banks and new private sector banks but the public sector banks are far behind in many parameters due to the significant and negative effects of burden whereas new private sector banks have higher profitability and the lowest burden with positive impact of interest income and expenditure. He suggested some strategies for the survival of PSBs in the liberalized and globalized environment.

Uppal R.K. (2006) studied the impact of computerization on the performance of public and private sector banks. His study was based on primary and secondary data. The study concludes that the performance of fully computerized banks (HDFC, PNB, IDBI, ICICI and OBC) is much better than the partially computerized banks. In inter-bank group comparison, all bank groups show significant difference in profitability and productivity. The primary survey concluded that majority of the customers are satisfied with computerization of banking services where urban sector respondents show keen interest in computerization of banking business.
3.3.2. Changes in banking System & Service

**V. Chandrasekhar, Joseph John (2010),** Head Banking Products Division, i-flex solutions investigated adoption of core banking solution in banks. "Banks are increasingly adopting core banking solutions for retaining customers and lowering service costs to the customer. These applications help banks to achieve centralized processing and provide 24 hour customer service. After the turn of consolidated databases and networks then come core banking applications. Core banking applications provide complete front and back end automation of banks."Core banking applications provide anywhere, anytime 24 by 7 non-stop services, which is not possible with traditional localized branch automation systems that are available only between 10 am to 2 pm.

**Madhavankutty G. (2007)** concluded that the banking system in India has attained enough maturity and is ready to address prudential management practices, which is an integral part of policy. Banking in India is poised to enter another phase of reform once the door opened further to foreign players in 2009. He further address improvement in technology management, human resource management and the ability to foresee rapid changes in the financial landscape and adopt quickly. At present, there is a huge gap between the top management earnings of state owned banks and private, as well as foreign banks. He also suggested banks have to lay down sound risk management strategies and internal capital adequacy assessment committees to ensure that they do not diverge from the prudential requirements.

**Uppal R.K. & Kaur R. (2007)** analyzed the efficiency of all the bank groups in the post banking sector reform era. The time period of study was related to second post banking sector reforms (1999-2000 to 2004-05). Their study concluded that the efficiency of all the bank groups has increased in the second post banking sector reform period but these banking sector reforms were more beneficial for new private sector banks and foreign banks. They suggested some measures for the improvement of efficiency of Indian nationalized banks.
Uppal R.K. (2007) study was based on the responses of 768 customers of public sector banks, Indian private sector banks and foreign banks operating in Amritsar district of Punjab in the month of September 2007. Time was considered as a major factor that affects the quality and reputation of banks. Indian banking industry has undergone radical changes due to liberalization and globalization measures undertaken since 1991. He concluded that a highly satisfied and delighted customer is a very vital non-financial asset for the banks in the emerging IT era. E-banks provide quick services and that is why they are becoming more popular. Hence, it is very essential that all bank groups should place the right kind of systems to further cut down on service time and render instantaneous services to the customers.

Kasman and Kasman (2006) studied the impact of technical change on the costs as well as environmental factors of banking firms operating in 11 central European countries by using Fourier-flexible cost function specified for the period 1995-2002. He concluded that technical progress, on an average, reduced banks’ total cost in five countries that ranges between 0.48 pc and -0.25 pc. The decline in technical change during 2000-02, indicates that the introduction of new technology has been fully utilized starting from 2000. Their study again concluded that larger banks are benefiting significantly more from cost savings than smaller banks. They suggested consolidation of smaller banks to get more benefits of cost reduction due to technical change.

Krishnaveni R. and Prabha D.D. (2006) recognized the need to develop long term relationship with customers to prosper in a competitive environment. Banks have realized the need to adopt a people oriented approach as compared to exclusive profit oriented approach towards improving customer service. In their study a sample of 27 banks was selected at random from the list of 49 public and private sector banks. Their study revealed that among the different internal service quality dimensions taken up for the study, offering the right information and facilities to the employees may improve internal service quality perceptions better than the other dimensions.
Uppal R.K. (2006) analyzed the profitability of four major bank groups that is SBI and its associates (G-I), Nationalized banks(G-II), New private sector banks (G-III) and foreign banks (G-IV) in the second post banking sector reforms era and concluded that there is a significant difference in the profitability of various major bank groups. The average profitability is the highest in the foreign banks and new private sector banks but the public sector banks are far behind in many parameters due to the significant and negative effects of the burden whereas new private sector banks have higher profitability and the lowest burden with the positive impact of interest income and expenditure. His study suggested some strategies for the survival of PSBs in the liberalized and globalized environment.

3.3.3. Customer adoption to Electronic Banking services (ATM banking, Branch banking, mobile banking, Internet banking, Tele banking)

Technologies have been prevalent in the Indian banking sector for over a decade and a half, very few studies have been carried out regarding the Indian bank consumers’ usage patterns and their experience in using them. The few published studies done in India deal with only aspects pertaining to any one of the technology enabled banking self-services such as ATM (Thamaraiselvan and Raja, 2007) or internet banking (Singh and Malhotra, 2005; Mukherjee and Nath, 2003). Several studies which had been done mainly in other countries have been examined to understand the pattern of usage of electronic banking services by bank customers.

Gbadeyan R. A., Akinyosoye O. O. (2011) studied “Customer’s preference for e – banking services: A Case study of selected banks in Sierra Leone. They examined customers’ choice of banks is influenced by the quality of e–banking services. The statistical techniques used for the analysis were the Chi-Square and correlation. The Chi–Square analysis revealed that the quality of e–banking services offered by banks have significant influence on their customers at 95%, 3 degree of freedom. They recommended that various measures should be put in place to ensure more security such as installation of encrypted software, verification system of customer’s identification cards, frequent change of password, examining test questions and using mixed password such as the use
of alphanumeric amongst others. They concluded that e-banking has become important phenomenon in the banking industry and it will continue as more progress and innovations are made in information technology.

**Kavitha S., Lakshmi A. (2011)** studied influence of demographic variables on customer satisfaction. The main objective of their study was to identify the overall satisfaction of customer regarding the e-banking transactions. Their study also aimed at knowing whether demographic variables of the respondents have influence on customer satisfaction on e-banking. They analyzed the overall satisfaction of customers regarding the performance of e-banking. Age, sex, type of account and amount they maintain in the bank are the important demographic factors which have major impact on the satisfaction of the customers on e-banking. The study concluded that bankers have to adopt the right strategies to attract and different age group and different sex customers so as to retain the customers and to offer better services to them. E-banking will be successful for banks only when they have commitment to e-Banking along with a deeper understanding of customer needs. This can come only when the bank has a very big base of customers, best people, and a service attitude. Banks should concentrate on above lines in order to have effective e-banking practices.

**Olalekan Asikhia (2011)** studied e-banking patronage in Nigeria: An exploratory study of gender difference. The aim of the study was to determine if gender difference exist in electronic banking patronage in Nigeria. The major attributes of electronic banking were used as measuring items using likert scale, which is subjected to factor and descriptive statistical analysis. The study included a survey on gender patronage of e-banking by individual customers in Abuja and Lagos, Nigeria conducted in December, 2008. The results of the study indicated gender differences in e-banking patronage and also customer satisfaction was found to be low in this respect which calls for improvement in service delivery in terms of timeliness and consistency in standards.

**Asif Khan Muhammad (2010)** studied an empirical study of automated teller machine service Quality and customer satisfaction in Pakistani banks. He investigated significant
dimensions of ATM (automated teller machine) service quality and its effect on customer satisfaction. Questionnaire was used to collect the data from a convenience sample of 500 customers of multinational and national banks. Regression results indicated that convenience, efficient operation, security and privacy, reliability and responsiveness are significant dimensions of ATM service quality and that ATM service quality positively and significantly contributes toward customer satisfaction. His study made a significant contribution to the quality management literature because few empirical studies are available dealing with this aspect of the banking sector in Pakistan.

Uppal R.K. (2010) studied the extent of mobile banking in Indian banking industry during 2000-2007. His study concluded that among all e-channels, ATM is the most effective while mobile banking does not hold a strong position in public and old private sector but in new private sector banks and foreign bank m-banking is good enough with nearly 50 PC average branches providing m-banking services. M-banking customers are also the highest in banks that have a positive impact on net profits and business per employee. Among all, foreign banks are in the top position followed by new private sector banks in providing banking services and their efficiency were also much higher as compared to other groups. The study also suggested some strategies to improve m-banking services.

Azouzi Dhekra (2009) aimed to check if the current and prompt technological revolution altered the whole world has crucial impact on the Tunisian banking sector. On the basis of empirical analysis, it was found that there were many factors affecting customer’s attitude toward e-banking. For instance; age, gender and educational qualifications seem to be important and they split up the group into electronic banking adopters and traditional banking defenders and so, they have significant influence on the customers’ adoption of e-banking. He also showed that despite the presidential incentives and in spite of being fully aware of the e-banking benefits, numerous respondents are still using the conventional banking. Fear of loss because of transactions errors or hackers plays a significant role in alienating Tunisian customers from online banking. Finally, his study highlighted the limitations and he suggested some research perspectives.
Aktan B., Teker E. and Erosy P. (2009) examined the usage of internet in Turkey to make a basic due-diligence investigation for the financial institutions, including banking, stock Trading, insurance and provision of financial information over the period 2005 and 2008. The findings showed that internet usage in Turkey with its young population has continued to grow dramatically in financial services in terms of customers and financial transactions of various Natures.

Hua G. (2009) investigated the online banking acceptance in China by conducting an experiment to investigate how users’ perception about online banking is affected by the perceived ease of use of website and the privacy policy provided by the online banking website. The 110 undergraduate students in Chinese University were involved in the investigation. The study found that both perceived ease of use and privacy policy have a significant impact on user’s adoption of online banking. The study also investigated relative importance of perceived ease of use, privacy, and security. Perceived ease of use is of less importance than privacy and security. Security is the most important factor influencing user’s adoption. The study also discusses the implications of these results and limitations.

Riquelme H.E., Mekkaoui K.A. and Rios R.E. (2009) identified which customer service and online attributes predict overall satisfaction. He determined that if satisfied customers use more online banking features than less satisfied customers and the characteristics of less satisfied customers. The sample of 185 customers was drawn from one of the main banks in Kuwait, the Middle East and multiple regression and discriminate analysis are used to analyze the data. Their findings suggested that satisfaction can be generated through improving courtesy, content, timeliness and product and services offered and the majority of the customers in the sample are satisfied or very satisfied with the service and online systems attributes. The study explored that companies that offer a wide product portfolio and relevant website content accompanied by prompt and courteous response create satisfaction online.
Rao N. and Tiwari S. (2009) studied the efficiency of 5 public sector banks selected on the basis of deposits size in 2005. They study concluded that all employee efficiency factors have insignificant influence on deposits, assets and advances, from branch efficiency, only operating profits per branch and from operating efficiency, cost of deposits have significant and positive impact. Liquidity influencing factors and ultimate profit factors do not influence deposits, assets and advances significantly although all profit factors have negative effect. The study also suggested some measures to improve efficiency.

Thulani D., Tofara C. and Langton R. (2009) explored the extent of adoption and usage of internet banking by commercial banks in Zimbabwe. Their study concluded that while the majority of the banks in Zimbabwe have adopted internet banking, usage levels have remained relatively low, as not many customers are using this innovation in Zimbabwe. Compatibility with existing legacy systems, cost of implementation and security concerns are the challenges faced by banks in the adoption of IB. The implications of the study are that banks in Zimbabwe should vigorously promote the usage of IB among customers while Government and the Reserve Bank of Zimbabwe should increase investments targeted at infrastructure development so as to encourage banks and individuals alike to adopt the innovation.

Hugar S.S., Vaz N.H. (2008) evaluated the customer orientation in public sector banks for 5 public sectors, 3 new private sector and 3 foreign banks were selected. The study concluded that new private sector banks have more ATMs at the end of March 2006 followed by SBI group where 77.5 pc branches are fully computerized and 18.2 pc are partially computerized. Business per employee and profits per employee are higher in foreign banks where SBI has received a number of complaints followed by ICICI. The study also suggested adopting CRM by public sector banks to stand strong in a competitive environment.

Migdadi Y.K.A. (2008) aimed to identify the quality of the internet banking service encounter of the retail banks in Jordan and to identify the quality dimensions that should
be improved or sustained. His study evaluated the banks' web sites by using the website quantitative evaluation method (QEM) in March 2008 for sixteen retail banks in Jordan. The results indicated that the banks in Jordan have significant positive quality of the internet banking service encounter, further the banks' websites are rich in their content and significance in the navigation, but the speed of home page download and web site accessibility should be developed in the future.

Murali R., Richard S., Nafis A. and Mudiarasan K. (2008) evaluated consumer perceptions on the quality of e-services and Internet banking adoption in Malaysia. The data were collected from 150 retail banking customers in the Klang Valley area. Results showed that Internet banking users and non-users have different expectations towards e-service quality preferences. Not all of the dimensions are preferred by the respondents. The study also discussed implications and recommendations to improve Internet banking service quality in Malaysia.

Qureshi T.M., Zafar M.K. and Khan M.B. (2008) evaluated the customer acceptance of online banking in Pakistan. The Study concluded that the majority of customers were accepting online banking culture because of many favorable factors, usefulness, security and privacy. The other factor was the amount of information that provided to the customers by different means like an advertisement through print and electronic media about online banking was useful in customer acceptance of online banking in Pakistan. These factors have a strong and positive effect on customers to accept the online banking system. Online banking system is getting appreciation in different parts of the country due to which almost 50 pc of the customers has shifted from traditional banking systems to the online banking system.

Mishra J.K. and Jain M. (2007) studied various dimensions of customer satisfaction in nationalized and private sector banks. Two-stage factor analysis is computed to arrive at the dimensions of customer satisfaction. The study analyzed ten factors and five dimensions of customer satisfaction for nationalized and private sector banks respectively. The study concluded that satisfaction of the customers is an invaluable asset
for the modern organizations, providing unmatched competitive edge; it helps in building long term relationship as well as brand equity. The best approach to customer retention is to deliver high level of customer satisfaction that result in, strong customer loyalty.

**Ahuja G. and Singh (2006)** studied the perceptions of 160 customers in Indore in respect of credit cards especially their growth in India. The study concluded that ICICI in India is the largest card issuer with a customer base of above 3 millions. But only 14 pc of Indians was using these cards are about 40 -50 years of age. There was about 2/3rd of males as compared to 1/3rd females and 89 PC customers possessing a higher education level whereas from the occupational point of view, the majority of card holders were businessmen or servicemen and 71 pc are using to make payments like hotel bills, club bills etc. 36 PC use at least twice a month. Overall, the study concludes that banks should give equal attention to female customers also with special rebates and other benefits, secondly ensures their safety from malpractices involved in its use.

**Akter S. and Ghosh S.K. (2006)** examined the gap between expectation and perception of customers in Dhaka city of Bangladesh regarding banking services with a special focus on SERVQUAL model. The study concluded that in four dimensions like reliability, empathy, tangibility, assurance, the gap between perception and expectation was significant except responsiveness where it is insignificant means banks do not extend that level of services that would satisfy the customers’ expectations. The study also suggested some recommendations to minimize this gap.

**Banknet India (2006)** conducted an online survey of 316 ATM users during the month of August-September, 2006 and the survey was limited to India to get insight into users’ perceptions. It was concluded from the survey that the most use (56 PC) of ATM services was for bill payments and pre-paid mobile recharge where 64 PC respondents feel comfortable with depositing cash/checks through ATM but they have to wait in long queues and find no money left in the machine. Most of the respondents (81 pc) claimed to know about fee charged at other bank ATMs and 20 pc demand more privacy. Overall,
ATMs are preferred over branch banking by majority (95 pc) respondents show the increasing popularity of e-banking among the public.

**Chopra V.K. (2006)** highlighted the importance of IT and business re-engineering in achieving the objectives of banks. He concluded that PSBs and old private sector banks are slow in imbibing technology in their operations, whereas new private sector banks and foreign banks are early adopters of the technology and increasing the competition. He emphasized that IT along with the business process re-engineering would provide ideal technology environment catering to the stated business objectives.

**Consumer Voice (2006)** conducted a survey to study the customer satisfaction level of 3100 serving banks, credit and debit card holders, who were covered during the period September 2005 to November 2005. The survey was conducted in eight cities, where the maximum numbers of respondents come from SBI (17.10 pc) followed by ICICI Bank (8.80 pc) and the maximum surveyed customers belong to the age group of 26-34 years. The study revealed that Citibank has the most dissatisfied customers and most of the customers were shifting from public sector banks to private sector banks, mainly due to convenient availability and due to restricted functioning hours of public sector banks. Overall, only 6 pc of the respondents used internet banking and most of them (16.3 pc) were registered with HSBC followed by ICICI Bank (12.6 pc). Overall, the study concluded that Standard Chartered Bank, Vijaya Bank and Syndicate Bank steal the march, the little known the United Western Bank performed impressively and Citibank was the most over-rated bank.

**Garg and Jham (2006)** investigated factors that influence Indian customers to adopt ATMs by using factor analysis and focused on the influence of demographic and psychological variables of 296 customers of six selected banks such as SBI, PNB, ICICI, HDFC, ABN and IDBI. They examined that most of the respondents were under the age of 35 years and the users with lesser experience face more problems in comparison to another and they look for reliability of information. The problem was of dim vision of screen and they used ATMs maximum for withdrawals and rarely for deposits.
Jham Vimi and Garg P. (2006) examined the factors that enhance satisfaction with internet-banking services with the help of factor analysis. The study concluded that customers do not prefer to use internet for many transactions, therefore least satisfied for foreign exchange requirements, credit card payments but privacy and trust play an important role in the usage of internet but satisfaction was very low. Customers are highly satisfied with buying and selling of stocks and the internet was used maximum for applying loans and Indian customers’ satisfaction depend on reliability, efficiency. The study suggested the banks to satisfy customer needs on priority basis.

Kasman and Kasman (2006) studied the impact of technical change on the costs as well as environmental factors of banking firms operating in 11 Central European Countries by using Fourier-flexible cost function specification for the period 1995-2002. They concluded that technical progress, on an average, reduced banks’ total cost in five countries that ranges between 0.48 pc and -0.25 pc. The decline in technical change during 2000-02, indicated that the introduction of new technology has been fully utilized starting from 2000. The study again concluded that larger banks were benefited significantly more from cost savings than smaller banks, suggested consolidation of smaller banks to get more benefits of cost reduction due to technical change.

Krishnaveni R. and Prabha D.D. (2006) recognized the need to develop long term relationship with customers to prosper in competitive environment. Banks have realized the need to adopt a people oriented approach as compared to solely the profit oriented approach towards improving customer service. He studied a sample of 27 banks and it was selected at random from the list of 49 public and private sector banks. The study revealed that among the different internal service quality dimensions taken up for the study, offering the right information and facilities to the employees would improve internal service quality perceptions better than the other dimensions.

Kukkudi and Deene (2006) studied the impact of ATMs on customer satisfaction with special reference to SBH in Gulbarga district with sample size of 100 respondents. They concluded that ATMs were used mostly by the age group of 25-35 years comprising
more male members. 79 respondents used ATMs weekly where 85 respondents were aware about the restrictions concerning ATMs usage and the numbers of ATMs are sufficient to meet current needs. They suggested popularizing ATMs among the maximum customers.

Phitkariwala D.K. (2006) studied the issues related to cheque truncation system to improve customer services in banks. As the number of cheques issued are continuously rising and the cost of banks and business for producing, issuing and maintaining cheque payment system is ever increasing but the cheque transaction system helps to handle this problem very easily. The study suggested that when it would be implemented to the whole country, it is certain to revolutionize the payment mechanism giving a big jump towards the efforts of providing better technology based customer services.

Sakkthivel A.M. (2006) aimed at providing a specific focus on the impact of demographics in influencing Indian Internet users in consuming different services online. The survey was conducted on 570 internet users of Bangalore. The study revealed that age and occupation have significant impact on consuming different categories of services online. The study also showed the significance of demographics influence on online consumption of services in the growing Indian market. There were enormous opportunities present for online marketers to tap the potential of rapidly increasingly online market space in India. The understanding and mapping of online consumers through demographics could enable their focus better.

Tiwari B. and Herstatt (2006) examined the installation of mobile banking and mobile financial services provided in Germany and other countries. 50 banks worldwide have been selected, half of them from Germany during May/June, 2005. From Indian banks, Bank of Punjab, HDFC, ICIC are dominating, providing mobile-financial services to their customers. The study explained different ways/methods to provide mobile-services that contain technical part with some case studies. The study concluded that mobile banking applications are gaining popularity amongst banks and suggests mobile banking to take the route of online banking.
3.3.4. Employee perception to banking system & services

Sharma Dr. Himani (2011) studied banker’s perspectives on e-banking. She aimed to investigate bankers’ views regarding e-banking. Her study covered bankers’ perspectives on e-banking activities of respondents, impact of e-banking and promotional measures used by banks to promote e-banking. The survey data used in this research are collected through a questionnaire in Northern region of India by administering to 192 bankers. Her study revealed that customers generally use e-Banking services on persuasion of bankers. User-ship is mostly concentrated on professionals, business class and males belonging to middle age. The bankers are convinced that e-banking helps in improving the relationship between bankers and customers and that it will bring patent improvement in the overall performance of banks. So far as promotional avenues are concerned, print media is at the top.

Abukhzam Mohammad, Lee Angela (2010) studied the factors affecting bank staff attitude towards e-banking adoption in Libya. The study aimed to bridge this gap by investigating the key factors affecting bank staff’s attitude towards e-banking technology. Their study draw existing literature on technological developments in the banking industry and the findings from semi–structured interviews with key bank staff of a leading commercial bank in Libya. A number of factors of e-banking technology adoption were identified that affect adoption. Finally, they identified lessons that can guide future e-banking implementation projects in Libyan banks.

Kaleem A.,Ahmad S. (2008) aimed to collect bank employees’ perceptions of the potential benefits and risks associated with electronic banking in Pakistan. The study showed that public bank employees who have professional degrees consider ‘minimizing transaction costs’ and ‘reduction in HR requirements’ as the most and the least important benefits of electronic banking respectively. Private bank employees having a masters or bachelor degrees, and less than 10 years experience, perceive ‘time saving and minimizing inconvenience’ as the major benefits of electronic banking. Branch managers
viewed ‘facilitates quick response’ as the most important benefit of electronic banking. Bankers in all segments consider ‘government access to data’ as the biggest risk associated with electronic banking. The empirical analysis suggested that bankers in Pakistan perceive electronic banking as a tool for minimizing inconvenience, reducing transaction costs and saving time.

**Srivastava C. (2006)** studied the role of CRM in marketing of services in selected six banks, three from each public and private sector banks. The study concluded that 76 pc of the respondents are males and majority of them are government employees, only 56 pc respondents feel employee’s behavior friendly towards them and 91 pc from the private sector banks are very happy with the way the bank employees treat them while dealing with the banks. Overall, it is concluded that the concept of CRM in the banking sector has a long way to go in creating sustainable competitive advantage, which is being successfully implemented by most of the private sector banks but public sector banks are still in wait for something else.

**3.3.5. Future scope of banking system and services**

**S S Kohli (CMD, Punjab National Bank):** Technology is unsettling the earlier business process and the customer’s behavior is undergoing a change. These have enhanced the forces of competition. To survive under these conditions, the public sector banks will have to undertake business process reengineering, redefine their strategy and HR strategies to the overall business strategy. The technology will become a key driver of a financial business.

**P S Shenoy (CMD, Bank of Baroda):** In the new business environment, banks have to be flexible enough to accommodate changes and at the same time have the necessary stability to retain the core competencies to deal with change. Electronic banking services have spread quickly in recent years. The threat of new entrants has lead many banks to offer e-finance ranging from basic to fully integrated internet services. The banks need to develop robust internal control systems, management information systems, and early
warning triggers. Four trends are fundamentally altering the banking industry: consolidation, globalization of operations, and development of new technologies and universalisation of banking.

**Ranjana Kumar (CMD, Indian Bank):** On account of introduction of certain advanced technology, there would also be a strong case for recruiting fresh talent with attractive pay and requisites. However, an organization cannot afford to go on inducting talent without reviewing its existing manpower and how worthwhile it is to continue with some of them in the changed scenario. Even after equipping people with the latest knowledge, the results will not start flowing unless they are empowered to deliver the vision of the organization. The vision of the organization should be exciting to the employees and a source to unleash their potential.

**R M Nayak (MD and CEO, Lord Krishna Bank):** Some of the challenges that banks are facing today are: changing needs of the customers, coping with regulatory reforms, thinning spread, maintaining high quality assets, management of impaired assets, keeping pace with technology up-gradations, sustaining healthy bottom lines and increasing shareholder value.

**P T Kuppuswamy (Chairman and CEO, The Karur Vysysa Bank):** The Indian banking sector is faced with multiple and concurrent challenges such as increased competition, rising customer expectations and diminishing customer loyalty. The expectations from the consumers have been growing. Broadly, these expectations are swift service with minimal response time, efficient service delivery, tailor-made and value added products to suit specific needs, hassle free procedures and minimum transaction costs, and pleasant and personalized service.

**S S Kohli (CMD, Punjab National Bank):** With gradual deregulations, banks are now exposed to different types of risks. In view of the dynamic nature of the financial market, banks face various market risks like interest rate risk, liquidity risk, exchange risk, etc. In respect of lending, they face credit risk which includes default risk and portfolio risk.
Besides, banks also face other risks like reputational risk and operational risk. Therefore, a robust risk management system is necessary.

The study conducted by Kunkalienkar Manoj presented that though technology is a revolutionary agent, it will not be a cure for all inefficiencies. The main area of awareness for banks is going to be the re-skilling of the workforce, both in technology and non-technology areas. One of the major areas where re-skilling is needed is in the area of customer service and customer focus; how to manage customer expectation, his feedback; how to attract new profitable customers; how to package products and services to meet customer needs, create a hygienic branch environment and other contact points. Another major need is to ensure consistent customer experience, irrespective of the channel used for interaction with him. Added to this is the security across all channels and distribution points for customer information and transactions. While technology may not be a cure-all, it is definitely an enabler. The tool has to be used efficiently and effectively to originate maximum benefits. This will definitely be a differentiator to offer products and services.

Mr Suheim Sheikh, Managing Director, SDG Software Technologies: Money Laundering and Fraud is increasingly becoming a matter of concern for financial institutions including banks and investment houses all over the world, given the severe penalties imposed by the regulatory authorities for non-compliance of Anti-Money Laundering (AML) reporting requirements. With several co-operative banks and financial institutions collapsing due to mismanagement and fraudulent activities, a solution is needed that can serve as an early warning system which will help to initiate the necessary preventive steps and ensure that a mechanism is in place to address these issues. The banks as well as customers have a serious concern about the security of Internet access to client account which is the biggest challenge. Banking through the Internet is increasingly becoming necessary rather than innovative tool and with consumer demand banks have to upgrade and constantly think of new innovative customized packages and services to remain competitive.
3.4. Conclusion

The above studies conclude that IT has appreciable positive effects on bank productivity, cashiers’ work, banking transaction, bank patronage, bank services delivery, customers’ services and bank services. IT is playing vital role in development of banking system and services. No doubt, studies have been conducted in various aspects and its impact on banks. Many studies are conducted in Indian as well as with foreign context. Despite, research papers articles, committee reports have been written on some aspects of information technology, banking system & services, customer adoption factors and employees perception to banking technology.

Hence, it is a need of the hour to explore the related aspects of technology, its impact on Indian banks and further opportunities and challenges to better manage transformation with IT. The present study is devoted to how role of technology is taking place in Indian banks, role of e-channels in banks’ efficiency and what the customers and banks employees observe about eservices of the banks. On the basis of empirical analysis, study travels around the problems of banks in managing IT and suggests some possible measures to manage the problems in a better way.

References

Books: