Chapter 1

Introductory Background and Framework of the Study
CHAPTER 1
INTRODUCTORY BACKGROUND AND FRAMEWORK OF THE STUDY
(SECTION A)

1.1 Introductory Background

Banking industry in India has undergone tremendous changes since LPG (Liberalization, Privatization, Globalization) has taken place in India (Uppal, R. K. 2008), i.e. post 1991 economics reforms. Introduction of information technology in banking sector has led to imperative changes which boost banking industry in India in general and also aid in further development of branches of the bank. In recent years, banking industry in India is introducing information technology that has innovative methods for performing their various day to day business operations.

According to the Information Technology Association of America (ITAA.2008), “Information Technology deals with the use of electronic computers and computer software to securely convert, store, protect, process, transmit, input, output, and retrieve information”.

Information technology includes three main components: computers, databases and communication. In addition to these
components, various other devices are also included like voice mail systems, fax machines and other electronic devices. In simple words, IT can simply be defined as, "any electronic device which stores and communicate the data". Nowadays information technology (IT) is playing vital role in banking industry. New services are being provided to the customers of bank because of introduction of information technology. Banks are now using IT to transfer information from one branch to another, to receive instruction and also to perform their respective day to day transaction. The impact of Information Technology on the banking industry is huge. Now, banks rely on information technology for each and every operation and transaction.

Total dependence on Information Technology for delivering its services in a cost effective manner has made Information Technology an integral part of banking operations. Speed and efficiency of banking operations has enormously increased due to Information Technology particularly in routine transactions. Flexibility provided by IT has helped the banking industry's new services to further enhance quality of the current services provided by them to their respective customers. Information Technology also facilitates the introduction of new delivery channels like Automated Teller Machines (ATM), Net banking, Mobile banking, Phone banking etc.
However, it must be noted that Information Technology has not been totally good to the banking industry. Entry of foreign and private players has increased the competition for public sector banks to invest in information technology equipments. Further, Information Technology growth in banking industry has created tension for technically skilled staff, and led to cyber frauds/crimes, online thefts etc.

(SECTION B)

1.2 Framework of the Study

This part of chapter deals with the Statement of Problems regarding role of information technology in banking industry, especially in State Bank of India followed by Review of Literature in the subject matter, Research Gap, Scope of the study, Objectives of the study, Research methodology, Layout of the chapters, Utility and limitation of the study.

1.2.1 Statement of Problems

The major problem in the course of this study was the large sample size to be considered owing to the ever increasing customer database of State Bank of India in Aligarh. Next major problem was the dynamic Information technology sector which is synonymous with change. New channel of delivery services
everyday is a norm now in banks owing to frequent IT developments worldwide. Thirdly, the variety of respondents was another major issue since banking services are mostly utilized by all sections of society irrespective of status, education etc. Not all customers are well educated and possess technological know-how. It was difficult to obtain responses from such a large variety of respondents available as sample. Since the city of Aligarh itself has fourteen customer dealing branches and an ever expanding customer database along with employee data base of 275. More than the customers, it was a colossal task to get responses from employees of SBI, Aligarh owing to their hectic work schedules since SBI is a popular public sector bank having innumerable variety of accounts.

1.2.2 Review of Literature

1. Chowdhury, M.S.A. and Marufullah, M. ,(2013), in their research paper entitled “Usage of Information Technology by the Commercial Banks Operating in Bangladesh-Current Situation and Its Future” describe that the positive impact of Information Technology on productivity of banks is difficult to determine in net profit and asset (predominantly loans) increases. However, banks can enhance productivity by increased spendings on IT and better management of IT resources. That would lead to
increase in their competitiveness through differentiation and customer service improvement, reduced costs, better risk avoidance and maintaining the stability of their customer base and market share.

2. Sreelatha, T. and Sekhar, C.C. (2012), in their research paper "Role of Technology in Indian Banking Sector" conclude that Information Technology promises to change the pace of banking in the next few years. Mobile banking and internet banking are going to be indoors in the banking sector in future. Even though IT systems are complex and sophisticated but they are "energy guzzlers".

3. Jain, M. and Popli, G. S. (2012), in their research paper "Role of Information Technology in the development of Banking Sector in India" describe that the developments in the field of information technology strongly supports the growth and inclusiveness of the banking sector by facilitating inclusive economic growth. Information Technology improves the front end operations with back end operations and helps in bringing down the transaction costs for the customers.

4. Sharma, N. (2011), in her article "Application of Information technology in banking sector" opines that Information Technology offers enormous potential and provided various
opportunities to the banking sector. It provides cost-effective, rapid and systematic provision of services to the customers. Applications of IT in banks enables sophisticated product development, reliable techniques for risk management, brings transparency to the system and helps banking sector reach geographically distant and diversified markets. IT and communication networking system have crucial impact on money, capital and foreign exchange market. However, extensive adoption of IT techniques may excavate the conventional banking risks.

5. Chitra., (2010), in her article entitled, “IT emergence: recent trends in banking industry of India” states that penetration of Information technology in rural areas and outsourcing of Information technology operation are major concerns of Information technology uses in banking operation. Further, there is motivation to customers for increased use of information technology while transacting with banks. There is more need for strategic thinking by smaller banks while investing in information technology.

6. Arora, A., (2010), in his article entitled “New age banking in India” states that the main reason why private and foreign banks are penetrating in Indian market is because of their latest and
modern technology and further they provide convenient banking services to their customers as compared to public sector banks.

7. Gupta, D.K. and Gupta, P. (2010), in an article, "Mother Tongue Friendly E-Delivery Banking Channels In India: Ultimate solution for its popular usage" opine that increase in rural internet usage can only be successful if the products and services will be provided to rural public in their mother tongue and further security concern of the villagers have to be tackled by good publicity by RBI and concerned banks to give the feeling that the system they are going for is user-friendly and secure.

8. Mehta, A. P. (2010), in his article "Banking - Any Time, Any Where" opines that the main reason why new private sector banks and multinational banks have been able to survive and compete is because of early adoption of information technology. Majority of banks are leveraging on low cost channels such as ATM's and internet banking. With the help of these channels, banks can reduce the traffic from branches.

9. Knap, F., (2010), in his article, "The Importance Of Financial Service Technology And Banking Softwares" emphasizes that banking software should address the clerical aspects of any business, funds disbursement, collateral maintenance and management. Software should be in place to regulate trading,
securities, lending, interest rates and changes that are constantly
taking place. Further, it should also have application for
customers, staff and management.

10. Chayamishra and Deepesh, M., (2009), in their article “Future
Banking System” opine that because of technology, the reach of
banks has broadened. Further, it has contributed in the
effectiveness and efficiency of operations. With the introduction
of information technology in future, there will not be any branch
of the banks but only computers, mobiles and internet along with
the ATM’s. These will run govern and manage the business.

“Modern Banking-Theory And Practice” states that computerized
banking immediately responds to the requests from customers for
statement of accounts, balance and other account activity enquiry.
Further, with signature and image verification system, time taken
to offer services has been reduced. Information technology
investment by banks includes IT infrastructure in hardware,
software and networking (LAN, WAN and internet).

12. Pirakatheshwari, P., (2009), in his article "Changing Trends In
Indian Banking" opines that adopt, adjust and change is the
message that technology has sent to the modern banks, as
technology ingrains itself in all aspects of bank functionings. The
challenges lies in exploiting the potential for profiting from investment made in technology.

13. Gopinath, S., (2009), at the CII Banking Tech Summit said that earlier banks were focusing their investment just on customer services and products. But now banks are investing on internal audit, back office and other internal operations which are helping them on internal governance and control. With more and more spending on IT, there is marked improvement in services like fund transfer, settlements including RTGS, NFT, ATM's etc.

14. Bramlet, T., (2009), in his article entitled, “Would you bank with your bank?”, states that improvement in information technology is the key since it provides an inexpensive mechanism for disseminating information and facilitating comparison. IT service providers have expanded their solution for cash management service to address many new challenges.

15. Subbaiah, A. and Jayakumar, S., (2009), in an article “Customer Service Of Commercial Banks With Special Reference to ATM” opine that customer service is a series of activities designed to enhance the level of customer satisfaction i.e. the feeling that a product or service has met the customer expectation. The banks strongly believe that customer service will be the most important factor in maintaining, improving its leadership in India’s banking
industry. ATM’s are important in the customer service so as to enhance market share and business growth.

16. Farooqi, S. and Syed, A. (2008), in their article entitled “Branchless Banking ‘BB’- A New Dimension Of Financial Inclusion” opine that some of the characteristics of e-banking risks such as unprecedented speed of change related to technological and customer service innovation, the ubiquitous and global nature of open electronic network, integration of e-banking application with legacy computer system and increasing dependence of banks on third parties that provide the necessary information technology.

17. Diwanji, A and Arora, D. (2008), in their article entitled “Banking Sector In India 2009 And Beyond” describe that banks in India will need capital to upgrade their technological level so as to achieve targets in a most cost efficient manner and thereby to enhance profits. Further banks will need to spend on risk management system owing to the issues arising out of the use of technology. The main reason why banks will need additional capital to grow and ultimately require for expansion in future are technology upgradation and security.

technology is the area where foreign and new generation private banks are scoring over public sector banks and old private banks. The larger size of manpower makes the cost of technology and related training costs very expensive and challenging for public sector banks.

19. Tandon, L., (2008), in her article entitled “Globalization: Impact On Indian Banking” conveys that though technology has brought strategic transformation in working of private banks but their technology operating expense is very less in proportion to that of their globalized competitors. Impact of technology in banks' back office has led to huge improvement in the efficiency of financial service industry both on cost and quality.

20. Bharthi, G., Vijaya, Reddy, P. M., Saritha, P., (2008), in their article entitled “Consumer In Banking Sector: Some Issues” opine that adoption of modern technology such as computerization of branches by different banks is for achieving a clear goal and for significant improvement in customer service and internal accounting. Introduction of computers for front office banking at some of the large banking centre will result in improvement of customer service and time required for encashing of cheques or other instrument will be reduced.

Banking describes that electronic fund transfer mechanism has been started by many banks and shared payment network system has been installed in cities like Mumbai. Technology has brought about an improvement in customer satisfaction. Customer is now techno-friendly. Preventive and detective control should be there, a check on cyber crimes and other cyber thefts should be taken care off. Speedy adoption of technology in banking sector otherwise may prove to be a flash in the pan.

22. Thiagarajan, T.S ,(2008), in his article entitled “Training Needs Of Banking Personnel” states that due to advent of technological development, there was hardly any need for customers to go to the branch as a result of introduction of ATM, phone banking, internet banking, mobile banking. Even for availing credit, the borrower need not have to a visit the branch.

23. Vinagamoorthy, A. ,(2008), in his article entitled “Globalization And Recent Trends In Banking” has aptly remarked that success and technology are two sides of the same coin in the present business scenario of post-liberalization and globalization. The internet and other IT infrastructure have brought strong winds of change in the current working methodology of banks in India which although are comforting for customers but pose a threat to banks. As the future is full of challenges, the banks that use the
suitable and effective technology will be on the path of success and bright future.

24. Uppal, R.K., (2008), in his book, "Indian Banking In The Globalised World" emphasises on the upgradation of technology by public sector if they want to remain competitive in the market. With the introduction of technology, these banks can enhance their capacity in handling more and more customer demands without losing much time.

25. Uppal, R.K., (2008), in his book entitled "Banking With Technology" opines that India's banking sector has made rapid strides in reforming and aligning itself to the new competitive business environment. Indian banking industry is in a midst of an information technology revolution. Technological infrastructure has become an indispensable part of the reform process in banking system. With the gradual development of sophisticated instrument and innovation in market practice, RBI has taken interest in developing appropriate technological infrastructure to facilitate market development such as payment and settlement system, delivery versus payment and electronic fund transfer.

26. Shekhar, K. C. and Shekhar, L., (2008), in their book entitled "Banking Theory And Practice" describe that investment in technological infrastructure can only be made when it is viable
and feasible. Further, the pace of technology needs to be upgraded to attain international standards. Information technology has immense untapped potential in banking. For improving asset liability management, it is essential to strengthen the information technology in banks.

27. Akash, S.B. (2007), in his article entitled “Information Technology In Banking Industry” states that information technology is must for meeting day to day requirement in the functioning of banks in order to attain competitive edge and generation of new financial products. Also information technology aids in institutional survival by increasing speed of work and lowering transaction time.

28. Manoharan, B. (2007), in his article entitled “Role of Debit and Credit Cards in Indian Banking Industry” states that the advent of information technology has paved the way for a radical change in the nature and mode of banking operation. With the rapid deregulation, customers today have a range of products like infinity banking, mobile banking, ATM banking etc. Globalization and information technology revolution has raised customer expectation.

29. Sridevi, S., (2007), in her article entitled “Computerization In Banking Industry” states that early adopters of technology
acquire significant competitive advantage. On account of changing need of organization and introduction of technology, banks should recruit fresh talent with attractive pay perquisite. Managing technology is therefore a key challenge for Indian banking system. Wide disparities exist between various banks as far as technological capabilities are concerned. The sector as a whole needs to make significant programme for the whole industry.

30. Mittal, R.K. and Dhingra, S. ,(2007), in their article "Assessing The Impact Of Computerisation On Productivity And Profitability Of Indian Banks" have described that information technology (IT) innovation in the last few years has changed the landscape of banks. IT seems to be the prime mover of all banking transactions. Anywhere banking, telebanking, mobile banking, net banking, automated teller machine(ATM), credit cards, debit cards, smart cards, call centre, data warehousing have totally transformed the banking industry.

31. Rangaran, C. , (2007), in a memorial lecture on "The Indian Banking System- Challenges Ahead" had said that with introduction of technology, there is significant improvement in customer growth. The technology has enabled the banks to reduce the time taken for various services rendered such as
transmission of funds. ATM provide easy access to cash. Further, he stated that it is not clear whether the customers as depositors or users are fully satisfied or not.

32. Ackermann, J., Yeung, M.A. and Bonnel, E.V. (2007), in their article “Better IT management by banks”, emphasize on investment in information technology by banks. Sometimes banks do not get good output on their investment as they spend too much on running the daily operation and too little on innovation. Leading information technology performers do a better job of applying their technological investment to create new business value rather spend less on daily operation.

33. Shroff, F.T., (2007), in his book entitled “Modern banking technology” emphasizes on investment on information technology by various banks. Those banks which invest in right information technology infrastructure will be leaders of banking industry. Information technology has changed back office activities as well as automation. Hundreds of ledgers and thousands of papers need to be avoided with automations and extra efforts.

reduces cost by replacing paper based labour intensive method with automated processes. Second reason is that it may modify the ways in which consumer have access to banks services and products.

35. Reddy, S.V. et al, (2007), in an article “Profitability and Productivity in Indian Public Sector Banks: An Analysis” described that bank must try to increase productivity through development of men, material and resources. Public sector banks should reduce the percentage of their NPA’s(Non performing assets) to improve profitability. Asset liability management, risk management manpower planning, diversification, adoption of information technology are the key areas which should be concentrated to improve productivity and profitability in public sector banks.

36. Khan, M. M,(2006), in his article entitled “Challenges For Indian Banking In the New Millennium” emphasizes that there is a need to establish an apex body that can develop, disseminate and deregulate technology for inter bank network and payment system to enable the banks in India to reach global standards. Rural branches of banks did not use the same technology as their counterparts in urban branches use.

37. Veeraiah, P and Rathnakar, G., (2006), in their article entitled
"Changing Scenario in Banking Sector in India" state that information technology revolution has made it possible to provide flexibility in operation to customers. Due to exposure to global trend after information explosion led by internet, customers, both individual and corporate are demanding better service with more products from their banks. With the introduction of internet, products and services can be delivered at any point of time.

38. Singh, R. K., (2006), in his book entitled "Indian Banking And Financial Sector Reforms, Realising Global Aspiration" has described that banking sector has undergone rapid changes, followed by a series of fundamental development. Most significant among them is the advancement of information technology as well as communication system. This has changed the very concept of traditional activities that have been instrumental behind broadening the dissemination of financial activities. Information technology and communication networking system have revolutionarised the functioning of banks. In highly industrialized countries, access to financial entities is on an online basis majorly.

the last one and half decade have radically transformed the operational environment of banking sector. The information technology revolution has not only changed the way banking business is done but also widened the range of products offered by banks. The growing competition amongst banks is forcing the nationalized banks to provide prompt and reliable customer service and offer a variety of hi-tech banking products and services.

40. Bhasin, N., (2006), in her book entitled “Banking Development In India 1947 To 2007 Growth Reforms And Outlook” describes that information technology has transformed the functioning of business all over the world. Information technology enables better decision making, latest and accurate information, reduced cost and overall improvement in efficiency. In India, banking sector has been a major beneficiary from inroads made by IT. Reserve bank of India has played a proactive role in the implementation of information technology in the banking sector. Information technology based initiatives would focus on meeting three pronged objectives of better house keeping, improved customer service and overall systematic efficiency.

opine that information technology revolution has changed the way banking business is done and has considerably widened the range of products. Further, it has increased the expected demand of customer.


43. Uppal, R.K and Kaur, R., (2006), in their book entitled “Banking sector reforms in India, A review of post 1991 Development”, suggested that in the highly competitive environment, Indian Banking Industry should manage each and every activity through cost effective IT. Public sector banks need to speed up work of upgradation even in semi urban and rural banking. Now, it is a compulsion to adopt latest IT techniques. In addition to cost effectiveness, IT must be customer driven and implementable.

44. Kalavathy, S., (2005), in her article entitled “Technology In Indian Banks” opines that banks in India are going through technology transformation phase. They are now setting aside huge amount for technological upgradation. Technology helps in improving customer experience, enhanced product delivery, product
innovation, better cross selling of product, reducing the transaction cost, better risk management, control etc. Technological investment will not only require onetime investment but also recurring expenses.

45. Iqbal, S. M. A. , (2005), in his article entitled, “Information Technology In Indian Banks: A Building Block For Economy In the New Millennium” opines that information technology is being used by banking industry from mid 20th century. New concept of banking such as e-banking, online banking, ATM, telephone banking, virtual banking, electronic fund transfer (EFT), investment banks are being developed by banking industry with the introduction of information technology.

46. Kumar, N. and Kumar, M. , (2005), in their article entitled “Computer Audit In Banks” describe that computer abuses/frauds caused by outsiders or employees may lead to serious trouble in banks. Computer frauds may prove very costly and loss of confidential data attract claims for compensation. Therefore, there is an urgent need for banks to have a competent electronic data processing (EDP) system with proper audit/control over such a system.

47. Kumar, N. and Kumar, M. , (2005), in their article entitled, “What Do Computers Do In Banks?” emphasize that technology has
resulted in development of semi-conductor technology, which results in expansion of automation, computing and telecommunication. Technology helps in paperless transaction in addition to storing of large amount of data and can be retrieved and updated at a very fast pace. Computers in banks can be used for single window system, anytime banking, shared payment network system (SPNS), telebanking, home banking, electronic fund transfer and plastic cards as medium for payment, intra-bank, inter-bank transactions.

48. Kumar, N. and Kumar, M. ,(2005), in their article entitled, “Bank Computerization And Customer Service-A Study” state that that the business of banking and finance has become information based. Technology introduction in banks will make the customer’s convenient. Technology advancement has led to the development of new products and services. Customers are now more tech-friendly as they are demanding more convenience. Further, computerization increases the efficiency of banks and also reduces time for various services.

49. Reddy, R. and Sudarasana, R.G. ,(2005), in their article entitled “Banking Service Through E-Banking” state that when foreign banks enter Indian market, they lay emphasis on high quality and efficient services, along with technological advantage like satellite
banking and telebanking, skeletal staff and lesser number of branches. Importance of technology for improving customer service, productivity and operational efficiency of banks is well recognized. This also enables wide range of products and services being available to retail and wholesale customers.

50. Nelson, J.A., (2005), in his article entitled, “Information security risk in financial institution” states that technology will continue to change and hackers will continue to hack. Since banks adopt technology based products/services, they must also adopt new protective technologies. If banks do not adopt defensive technology, they will increase their risk of defaults, because hackers will use latest technologies to their advantage.

51. Deva, V., (2005), in his book entitled, “E Banking” states that banks are now adopting Information Technology in all of their branches. Banks have to adopt information technology to offer best and efficient banking services. Banks can use IT as a tool to gain competitive edge over their competitors in addition to reduction of cost and improvement in service delivery.

52. Reddy, B. R. and Reddy, Y., (2005), in an article “Financial Performance of SBI: An Analysis” explains that in the changing banking scenario, SBI is one of the leading public sector banks which welcome the radical change and make the organization fit
for changes without much difficulty. The bank has invited the task assigned both at the time of post liberalisation and post reforms era. The performance highlights of the bank exposed that it had achieved the tasks and target from time to time and continuously retained top position in financial strength and created a record in the use of information technology by providing anywhere, anytime banking facilities and computerization of its branched rapidly.

53. Ramachandra, R.B., (2004), in his article entitled "Some Aspects Of E-Banking" opines, as technology is changing every now and then, commercial and financial transaction are becoming easier, cheaper, and speedier through access to online global market which does not have any geographical boundaries in the paperless world of transaction. Application of right technology would help in achieving the desired objectives at optimum cost. Though Indian consumers at large are not tech-friendly but younger generation is tech-friendly who would be the consumer of tomorrow.

54. Malyadri, P., (2004), in his article entitled, "Information Technology Management In Banks: Some Strategies" described that the development of information technology has increased the expectation of customers for newer products and alternative
delivery channels. Due to technological advancement, banks are now under pressure to develop product and services of tomorrow. Merely introduction of information technology in not enough, it is the people who have to play a crucial role while handling hardware, software, and networking tools.

55. Sanjeevaiah, B.C. and Venugopal. (2004), in their paper "Paradigm Shift In Banks" have stated that banking has now become a highly competitive business, the business of risk taking and risk management. Information technology in banking becomes inevitable because developing customer base, speed and accuracy and risk management are vitally important in this area. Information technology will facilitate transparency and accountability in establishing frame for continuous quality improvement, for increasing production and reduction in cost, in achieving uniformity of records, verification and micro-level monitoring, reducing transaction cost and for better management of bank funds and risks.

56. Mohan, R. (2004), in his key note address on "Indian banking and e-security" states that with the expansion of information technology application in Indian banking sector there is increase in concern relating to e-security. Information technology is not limited to accounting and back office job in banks. Information
technology now facilitates new delivery of channels such as ATM, net banking, mobile banking.

57. John, S. M., (2003), in his book, "Information Technology: its application on SSI sector" advocates that with the help of information technology, banks provide services to customers such as access to their account, 24x7 downloading account opening form, balance enquiries, payment of bill, buying and selling of shares, transfer of funds between bank accounts. However, there are certain limitations such as low PC penetration, internet connectivity, security personnel relationship and sometimes mindset of peoples may play a crucial role in successful implementation of information technology in banks.

58. Gup, B.E., (2003), in his book entitled, "The Future of Banking" describes that digital technology has reduced the cost of compiling, processing and distributing information. Information and communication technology not just creates certainty in information, it also makes the information more symmetric. Information Technology has enabled banks to innovate in range of areas, including products distributing channels, organizational structures, internal process and customer relationship management.

59. Kamesam, (2001), in an article "Development in the Indian
Banking Industry and Challenges" observed that the banking sector in India poised to meet the changing global environment. The future of banks will largely depends on excellent customer service by keeping in pace with changing technology and transparent operation.

60. Srinivasan, R., (2000), in an article “Computerization in Indian Banks” stressed on accelerating the pace of the process of computerization of banks branches to enhance the profitability, operating efficiency, service quality and to diversify the earning base.

61. Kumar, G., (2000), in an article entitled, “Centralized Funds Management System”, critically examined basic functions of RBI for centralized Fund Management System by the new technology. According to him, a technological revolution in respect of the payment and settlement systems in our country needs intermediate service facility for the funds and treasury managers in commercial banks. The author has given an account for an excellent instrument of information technology for managing the funds and efficient payment mechanism through electronic funds transfer.

62. Murty, G.R.K. , (2000), in an article entitled “Banking in the 'Dotcom' World: A Preview”, has shown growth of information
technology with increasing size of service providers and e-commerce companies to be tied up with banks enabling them for improvement in technology to deliver innovative services. In an economic terminology, the author expressed that mechanical interposition between the banks and clients must make cheap services for the clients by improved World Wide Web (www) platform and its related technology. Murthy emphasized internet as an instrument to widen, to improve the function of technology at reasonable cost in banking industry. He suggested for bank trade unions to have "professionalism" against "protectionism" to the employees for electronic governance in the banking industry.

63. Raghavendra, L. (1999), in an article entitled "Collective vs. Individual Approach to Software Development in Banks" examined induction of new software and their development in banks. He has looked into operational side to develop software by the bank. For this, he has suggested collective approach by number of banks remaining together as a group effort to develop new software suited to the technological change in Indian banking industry.

64. Hajri, S. A., in his article entitled, "The adoption of e-banking: The case of Omani banks", opines that the emergence of e-
banking had made many banks rethink their Information Technology (IT) strategies in competitive markets. Those banks which fail to respond timely in the market are likely to lose customers and further the cost of offering e-banking services is less than the cost of keeping branch banking.

Available literature on role of information technology in banking industry deals with pros and cons of it, how introduction of information technology has affected banks financial position whether in a positive or negative way.

1.2.3 Research Gap

After going through various books, articles, journals, magazines, project reports, annual reports and Ph.D theses related to the "Role of information technology in banking industry", the researcher came to the conclusion that there are major and minor issues related to the "Role of information technology in banking industry: A case study of State bank of India in Aligarh city".

On the basis of literature review and past studies the following research gap was established:

Studies directed towards banking and information technology have mainly focused on pros and cons, benefits and losses incurred due to information technology in banking services. A need was therefore felt to gauge the effect of information technology on customers/employees
of different age-groups, their needs and preferences regarding introduction of information technology in banking services. Keeping this in mind the hypotheses were formulated.

### 1.2.4 Significance of the Study

The proximity between IT and banking industry is indisputable today. Banking, being a people's industry worldwide and in India too has a sea of information related to it on various aspects. Effects of IT are visible on all industries today and banks in India are not far behind. SBI in India stands in close competition with other leading foreign and private sector banks like ICICI, HSBC, HDFC, YES, Standard Chartered, Citibank etc. Hence to compete with these giants, largest and most popular public sector bank in India i.e. SBI, needs high-quality quantifiable researches to point out the existing loopholes in the technical systems being practiced so that further researches are conducted to find adequate ways of bringing SBI at the top of list of leading banks in India.

### 1.2.5 Objectives of the Study

In the present study, an endeavor has been made to assess and evaluate the role of information technology in banking industry with special reference to employees and customers of State Bank of India in Aligarh city. The objectives of the study were therefore set as follows:
1. To study the role played by Information Technology in banking industry in India

2. To study the role played by Information Technology in development of State Bank of India.

3. To highlight the prominent Information Technology related services being offered by State Bank of India in the country.

4. To study the challenges posed during the implementation of Information Technology at State Bank of India in the country.

5. To assess the impact of Information Technology on different age group of customers of State Bank of India, Aligarh City.

6. To offer valuable suggestions for effective and widest possible implementation of Information Technology at State Bank of India countrywide.

1.2.6 Hypotheses

In the light of research gap, objectives of the study and further to judge the role of information technology in banking industry, the following hypotheses were formulated:

1. H1 Significance difference is observed between the approaches of the two sample groups of customers (below forty years, above forty years) regarding security concern as the basic hindrance in using information technology related services of State Bank of India at Aligarh city.
2. H2 Significance difference is observed between the approaches of the two sample groups of customers (below forty years, above forty years) regarding using online financial transactions of State Bank of India at Aligarh city.

3. H3 Significance difference is observed between the approaches of the two sample groups of customers (below forty years, above forty years) regarding using e-banking services as status symbol by not visiting the branches of State Bank of India at Aligarh city.

4. H4 Significance difference is observed between the approaches of the two sample groups of employees (below forty years, above forty years) regarding finding their work easier and more interesting due to introduction of information technology at State Bank of India at Aligarh city.

1.2.7 Research Methodology

The study is concerned with banking industry in India. To achieve the noted objectives the study is based on primary and secondary data. This study is primarily based on employees and customer satisfaction of State Bank of India with the introduction of information technology equipments. Therefore, primary data has been collected through questionnaires and interviews. Questionnaires were distributed in various government offices, various residential colonies, Jawaharlal
Nehru Medical College, Aligarh Muslim University along with other departments of the Aligarh Muslim University, and various branches of State Bank of India in Aligarh city. Secondary data has been collected from various reports published by RBI and Government agencies, periodical, books, journals, magazines, newspapers, theses, dissertation, training reports, memorial lectures, banking summits, key note addresses and various websites etc for making an analysis and interpretation of data.

A. Sources of Information

i. Primary source

The data have also been collected through interviews and through the questionnaires distributed to employees and customers of State Bank of India in Aligarh city in order to know the varied dimensions of role of information technology in bank and implementation of information technology related services in their branches. Thus, an analysis has been made with the use of relevant statistical tools on the responses received from the employees and customers on five point Likert scale (as given in the questionnaires in the annexure) of State bank of India from Aligarh city.
ii. Statistical tools used

For measuring the role of information technology in banking industry with special reference to State Bank of India in Aligarh city, various statistical tools have been used according to the requirement and suitability. The statistical tools are Mean, Standard Deviation and t-test.

a. Mean

It is single value, which represents the entire data available.

b. Standard Deviation

The Standard Deviation measures the absolute dispersion or variability of a distribution. It shows the deviation from the mean.

c. Reliability

Reliability refers to the extent to which a scale produces consistent results if repeated measurements are made (Thompson, 2002; Sinha, 2000). Reliability is the consistency of measurement or the degree to which an instrument measures the same way each time it is used under the same condition with the same subjects. In short, it is repeatability of measurements. A measure is considered reliable if a person’s score on same test given twice is similar. It is important to remember reliability is not measured, it is estimated. For a
measure to be acceptable coefficient alpha should be above 0.7 (Nunnally, 1978; Lindquist et.al. 2001). The reliability of item in different variables and statement was assessed by computing the coefficient alpha (Cronbach, 1951).

d. Independent T-Test

Independent T-test involves examination of the significant differences on one factor or dimension between means of two independent groups or two experimental groups. T-Test have been calculated with the help of Statistical Package for Social Science (SPSS).

iii. Secondary source

The data have been mainly collected from various books on the relevant subject matter. The journals and periodicals have been thoroughly scanned to collect material on role of information technology in banking industry, e-banking services. Annual reports of concerned ministries, reports of Reserve Bank of India, reports of State Bank of India have been consulted for requisite numerical and non-numerical data. Some unpublished theses and dissertation have also been studied to analyse the problems, issues and challenges in successful implementation of information technology related services in State Bank of India. The articles, write-ups and abstract of the prominent reports on
banking industry appearing in leading business dailies have been consulted to examine the role of information technology in banking industry related problems and issues critically. The various informative websites have provided substance and valuable support to the framework of this thesis. Brochures of various financial organizations and souvenirs of conferences organized on related topics gave new dimensions to this study and made it possible to proceed in the right direction to arrive at suitable findings and recommendations for all round successful implementation of information technology related services in banking industry with special reference to State Bank of India.

1.2.8 Layout of the Chapters

The thesis consists of five chapters along with a comprehensive bibliography and annexure. First chapter gives an introductory background and framework of the study. It also provides review of literature on the subject matter besides statement of problems, objectives of study, research methodology, significance and limitations of the study. The second chapter throws light on the inter-relationship between information technology and banking industry. It gives an overview about the e-banking services and the different facilities that are being provided by banks to the customers has been discussed.
Third chapter presents the history of State Bank of India and implementation of information technology related services there and various e-banking products and services provided by State Bank of India.

The fourth chapter analyses the role of information technology in banking industry with special reference to State Bank of India in Aligarh city by testing of hypotheses based on percentage analysis and application of relevant and pertinent statistical tools, such as mean, standard deviation and T-test to arrive at the finding of the study. Fifth and the final chapter of thesis gives a summary of findings, conclusions and suitable suggestions to evolve meaningful, relevant and effective implementation method of information technology related services in State Bank of India in order to provide efficient e-banking services to their valuable customers.

1.2.9 Limitations of the study

The field of information technology in banking industry is clearly maturing. Researches have mainly focused on the importance of information technology in banking industry’s, pros and cons of information technology in banking industry. Security concern of customers in indulging in financial transaction through e-banking services or information technology related services has not been focused
properly. Owing to these facts, researches have also been minimal in this area.

The relative immaturity of information technology in banking industry, as mentioned earlier, means that in research terms, there are still many gaps in the body of knowledge that need to be plugged. Without research, availability of data is limited and without data, the quality information required to develop theories and models is also scarce.

1.3 Conclusion

India is showing remarkable progress in the sphere of information technology in banking industry in India and also in e-banking services. In other words, Indian banking industry is fast shaping the destiny for cashless transaction and branchless banking. The cost and time effectiveness of e-banking has attracted the attention of customers and bankers alike. Indian banking industry has the promise for tomorrow in terms of delivering e-banking services. Further, it will help the banks in reducing the cost in long run. The next chapter entitled, "E-Banking In India An Overview" deals with the inter-relationship between information technology and banking industry in India. Discussion about various e-banking products available in Indian banking industry have been made. An account is
presented with regard to enhancing significance of information technology in banking industry in the 21st century. Various facilities provided by e-banking services have also been discussed.
1.4 References


Introductory Background and Framework of the Study


