

Contents	1.1-Introduction
	1.2-Significance of the Study
	1.3-Statement of the Problem
	1.4-Objectives of the Study
	1.5-Hypotheses
	1.6-Scope of the Study
	1.7-Materials and Methods
	1.8-Limitations of the Study
	1.9-Scheme of the Report

## 1.1-Introduction

Technology has made a revolution in every walks of human activity. The present technological environment is a challenge to provide multiple and innovative contemporary services to the customers. How technology is going to shape the world is a matter to be seen. Impact of technology and increase in global literacy levels has set up the expectations of the customers. Increased use of modern technology has further enhanced reach and accessibility. The key to success of a bank lies in adopting state-of-the-art technology and continuously accelerating business processes. The adoption of technology in service industries is becoming a strong trend as the service providers are now being urged by industry bodies to invest in technology as a way of securing their future in the electronic age.

Liberalization has brought several changes in the banking service sector in India. Competitive pressures also have forced the banks to reconsider the way they do business. Thus, the traditional over-the-counter banking is being strongly challenged by self-service techniques. A combination of computer, telecommunications and internet technology has paved the way to making online banking service offerings a reality by offering bank customers a number of ways of accessing banking services. With the use of the online banking channel, banks are able to offer almost all their products and services online. This provides advantages not only to the customers, but also to the service providers. The rationale is to reduce their overheads and personnel costs and to gain closer access to customers by providing the services at reduced cost with greater

convenience, potential time saving and with faster response. Harnessing the power of technology for making the banking system more efficient, is a big opportunity and a bigger challenge for the banks. By keeping this in mind, banks have made heavy investment in developing online capabilities. In recent years, banks have made phenomenal advances in the use of IT in banking and have recognised the strategic competitive leverage that IT provides. Success stories around technological banking services have taken shape through a mix of innovation and experience.

For the past three decades, India's banking system has several outstanding achievements to its credit. Earlier, technology was primarily employed in banks to automate back-offices. This situation has been changed by a move of IT into the front office, enabling the banks to move the activities beyond branch level activities. ICT enabled the banks for a good beginning of an efficient management information systems. Thus, IT applications extended from back-office and front-office to other branches and even to other banks.

The entry of foreign banks into the arena of Indian banking opened a new lease of life for Indian banks and enlarged opportunity to benchmark against them in terms of quality and performance. The opening up of the Indian banking sector to private players acted as 'the tipping point' for a transformation. With the entry of private players into retail banking and with multi-nationals focusing on the individual customer in a big way, the banking system underwent a phenomenal change and the Indian banking industry learned tremendous lesson.

Introduction of Information Technology in banking industry enabled the banks to access, process, storage and dissemination of information electronically. To be able to survive and grow in the changing market environment, banks opted for the latest technologies. Thus, they are able to offer the best solution and provide the support required for customers to achieve maximum value from the product or service. This technological revolution in banking sector has lead to a sophisticated development in the payments and settlement systems. The most striking is its extensive reach. In India, ICT enabled services are no longer confined to metropolitans or cosmopolitans only, but also at the reach of rural people.

The evolution of ATM delivery channel was the first stage of empowerment of the customer for his own transactions. Multi-channel banking gained prominence. Bank customers got the choice of conducting transactions either the traditional way (through the bank branch), through ATMs, telephone or through internet and mobile phone. Thus, technology began to play a key role in providing a multi-service platform. The entry of private players and issuance of new RBI guidelines forced nationalised banks to redefine their core banking strategy. All the banks started revamping their retail delivery channels. Their core focus became serving maximum customers with cost. Thus, the technology waves are reshaping the banking landscape and the banking environment has become highly competitive today.

#### 1.1.1-Self Service Technology (SST)

SST refers to the application of a technology for a service in which the customer himself operate the system to avail a service. According to Bitner (2002), Self-Service Technologies (SSTs) are automated delivery systems which allow customers to produce a service independent of service employees. It is an effective source to reduce costs and to increase the number of customers for the firm. They are increasingly changing the way the customers interact with the firms to create service outcomes. Choosing, implementing and managing effective SST's is a challenging task for the firms. Success with SST is dependent upon customer-focused design.

#### 1.1.2-Self Service Banking Technology (SSBT)

Technological applications in banking sector are classified into two viz, SSBT (Self Service Banking Technology) and Non-SSBT. MICR, Cheque truncation, Fake note detector etc. are considered as Non-SSBTs. The channels for delivering banking services such as ATM, Internet Banking and Mobile Banking are grouped under SSBT. For availing SSBT services, customers are expected to perform some operations, for which a basic awareness of operation is required.

From customers' perspective, SSBT is the realization of their anywhere, anytime and anyway banking dream. For the banks, technology has not only emerged as a strategic resource for achieving higher efficiency, control operations, productivity and profitability, but also means of survival. Banks have been compelled to embrace

technology, recognizing that it will enable them to meet the increasing customer expectation and also equip them to gain a firm stand in the highly competitive banking environment.

The study of Nakata (2003) shows that “about half of the time, customers recall failure rather than success while using SSTs. And in nearly all cases (96%), customers blame companies and their technologies, not themselves, for these dissatisfying experiences”. Therefore, before introducing SST by a firm to their product/service line, it is to be ensured that the firm is fully competent and equipped to provide such a service according to the changing expectations of their customers. Adequate customer research is the only way to achieve this.

## 1.2-Significance of the Study

Gone are the days when customers were happy to deal with a bank which issues a credit card in addition to the ordinary business of accepting deposits and lending loans. But the growth of technology altered the traditional delivery channel of banking services to their customers. SSBT is a great enabler and provides huge opportunities for bank to make banking more efficient and more inclusive. The objective of technology adoption is to ensure faster and easier customer service and more useful information, instantly, economically and easily to all those who need it.

The tremendous development in technology and the aggressive blend of IT have brought about a phenomenal shift in banking operations all over the world. The banking sector in India has also experienced explosive growth by transforming the traditional practices in banking. The technology has changed not only in the internal organizational processes, but also influence on the way in which financial institutions interrelate with their customers.

The dependency on technology has brought banks with additional responsibilities and challenges in managing, maintaining and optimizing performance of retail banking networks. It is equally important that banks should maintain security to the advance level to keep the faith of the customer. Here, the famous quote by Bill Gates is relevant. “*Banking is vital to a healthy economy, but banks themselves are not*”. This indicates the

influence of electronic forces which influence the functioning of banks in the new globalised technological environment.

Self Service Banking Technology is one way to reduce costs, but poorly implemented SSBT may increase costs and alienate customers. There are several factors which contribute to or detract from customer adoption rates and customer satisfaction. Important among them are quality of the service, cost of the service, presentation of the services, design of the SSBT, the SSBT's ability for rectification of mistake (even if caused by the customer), the way the banks promote/advertise the SSBT, the way the banks manage and prevent SSBT failures, alternate choices for the same service (offered by the firm or competitors), the firm's ability for timely updation and continuous improvement in SSBT.

The foreign and large private sector banks in India have been using self service channels for long as a convenient and differentiating factor. Later, public sector banks also followed suit. All banks in India have invested heavily in their IT infrastructure for the development of their payment system. The development of the payments system is not just a matter of technology. It requires reliable communication network, the integration of work processes, and delivery systems. Moreover, it should incorporate the basic likes and dislikes of customers and hence banks are striving to find out more on the desirability of self-service delivery alternatives to customers at large.

Despite the massive investment in technology and introduction of value-added services, the success lies in the customer acceptance and adoption. An extensive exploration of existing literature spells numerous studies, which have been conducted on technology-based banking in relation to adoption and customer satisfaction. But a comprehensive research delving into rationale, extent of use, adoption, non-adoption, satisfaction and problem of all the three delivery channels such as ATM, IB and MB has not been attempted by previous studies in our country especially in the State of Kerala. The proposed study is intended to bridge the gap in literature which eventually helps providers to project future customer behaviour.

### 1.3-Statement of the Problem

Banking business has undergone drastic changes and the adoption of most modern technology is intended to cater to the diverse requirements of customers more economically and effectively. The shift from traditional banking to e-banking has changed customer's expectations significantly. With the rapid growth in the services industry across the economy, customers have been exposed to higher standards of service and customer orientation.

Innovation has always been an important area of focus for all industries, not just for Banks. All the introduced technological services are not fully accepted by the customers and hence, product innovation continues to be a major challenge. The long term success of any bank cannot be achieved without the development of new business ideas, product innovations and services and focus on retention of customers. Therefore, product innovation backed by superior service is vital for the existence of a bank tomorrow. A lot of effort and innovation from banks are required to make their product the preferred choice of the customer. This needs to be backed by a powerful and customised loyalty program for customers to be continuously encouraged to keep using their service. Here, the words of Peter Drucker in his book *Management Challenges for the 21<sup>st</sup> Century* is relevant. "Innovation that is not in tune with strategic realities will not work." Therefore, it is crucial to understand the difference between novelty and innovation.

Continuous innovation on the product offerings by banks is paramount to ensure that their products stand out from the crowd. Technology, on the one hand, can simplify customers' understanding of exchange, but on the other hand, it can make customers' understanding more difficult (Mick and Fournier 1998). This may be the reason why most of the bank customers are inactive or rarely use. Most of the SSBT users are mainly focusing on verification tasks by avoiding more complex transactions.

The adoption or rejection of a technology-enabled service is based on several factors. A pre-requisite for the success of delivering superior service is the understanding of customer expectations. Banks must have a good understanding of retail customer needs, in order to derive the most out of such services. Therefore, after the

launch of new innovations, it is important to evaluate how the innovation has been diffused and what kind of value the new innovation adds to users. In the present study, the following research questions are squarely addressed.

- What is the profile of bank customers using the technological services provided?
- What are the actual motives behind the use of new service system?
- What are the factors which motivate the adoption of SSBT services?
- What are the factors which limit the use on SSBT services?
- What is the level of satisfaction on SSBT services?
- What are the problems faced by the customers while using SSBT?

The present study is an attempt to answer such questions in the environment of newly introduced technology enabled banking services in Kerala. Relatively, little empirical research has been carried out in India in relation to Self Service Banking Technology (SSBT), to examine the extent of utilization, reasons for the adoption and non-adoption, level of satisfaction, problems faced by the customers etc. Though, there are few studies conducted in the field of e-banking in India, most of them are sector-specific or region-specific. No significant research studies have been attempted by previous researchers exclusively on SSBT and there are no such research works documented on the preferences of the bank customers in Kerala. Therefore, the researcher felt that there is a dare need to have a holistic study from the angle of bank customers using SSBT services. Therefore, the present study is a pioneering one and is intended to bridge this gap to some extent.

#### 1.4-Objectives of the Study

The present study is primarily intended to unearth the customers' perceptions in using Self Service Banking Technology (SSBT) services by the bank customers in Kerala. The study is conducted with the following specific objectives:

- 1) To understand the purposes for which SSBT services are used
- 2) To study the extent of use of SSBT services in Kerala
- 3) To identify the factors influencing the adoption of SSBT Services
- 4) To identify the *pull factors* which limit the use of SSBT Services
- 5) To study the level of customer satisfaction on SSBT services

- 6) To delve into the problems confronted by the customers in using SSBT Services

## 1.5-Hypotheses

To have a disciplined direction to the enquiry, the following hypotheses are formulated and tested.

- 1) There is no variation in the extent of use between *informational* and *transactional* purposes of SSBT services.
- 2) The extent of use of SSBT services is not influenced by the *sector, user demographics, level of knowledge* and *experience* of bank customers.
- 3) Adoption factors such as *Perceived Usefulness (PU)*, *Perceived Ease of Use (PEOU)*, *Privacy & security*, *Reliability & Trust*, *Efficiency*, *Economic aspect* and *Demonstrability & Trialability* have no influence on the adoption of SSBT'.
- 4) *Perceived Ease of Use (PEOU)* has no relationship with *Perceived Usefulness (PU)*.
- 5) Motivational factors for the adoption of SSBT do not vary across *sector, user demographics, level of computer knowledge* and *experience of bank customers*'.
- 6) Factors which limit the full-fledged use of SSBT services are independent of *sector, user demographics, level of knowledge* and *experience* of customers.
- 7) Extent of use of SSBT is not influenced by the satisfaction variables such as *Information provided by the bank*, *Website of the bank*, *Competency of the bank*, *Efficiency of the bank*, *Economical aspects*, *Supporting factors*, *Customer Education* and *CRM*.
- 8) Customer satisfaction in SSBT is independent of *sector, region, user demographics, level of computer knowledge* and *experience* of customers.
- 9) Degree of SSBT-related problems is independent of the *sector, region, user demographics, level of knowledge* and *experience* of customers.

## 1.6-Scope of the Study

The present study is a customer-centric study related to Self Service Banking Technology (SSBT) Services, which consists of ATM, Internet Banking (IB) and Mobile Banking (MB). The scope of the study is restricted to *retail bank customers in Kerala*

who use *at least two SSBT Services* provided by the *Public Sector Banks (PSB), Old Private Sector Banks (OPB) and New Generation Banks (NGB)*.

The rationale for selecting the State of Kerala is due to the existence of good banking habits, high literacy rate, surge for e-literacy and passion for technology among people and also due to the existence of a good e-platform and large network of banks.

Now a days, ATM is common among the people in Kerala and hence, customers who use only a single SSBT service have purposefully been excluded in this study. The customers of *Corporate banking* are not considered due to the fact that the banking operations are based on the systems and procedure followed in the concerned business organization. Similarly, the respondents from Foreign banks, which have a different banking culture and approach have also been excluded from the study.

## 1.7-Materials and Methods

The researcher employed a quantitative data collection method and survey approach to obtain data concerning the usage of SSBT services by intended users. From the literature review, consisting diverse studies on various theories and models in technology acceptance, it was possible to identify different factors which enable to conduct the present study in connection with the adoption of technology-based bank delivery channels.

The questionnaire used for this study was developed partly on the basis of existing literature and partly from the opinion of experts in the field by keeping in mind the scope and objectives of the study. Whenever possible, items selected for the constructs were mainly adapted from prior studies with minor changes to fit to the context of the present study. The questionnaire, created on the basis of previously validated scales and survey instruments, was fairly comprehensive, consisting of variables associated with a wide range of issues relating to banks customers in the adoption of technology based banking services in Kerala. The overall objective of the questionnaire is to obtain a better understanding of customers awareness, problems faced, and the attitudes towards the adoption of technology-based bank delivery channels in Kerala

Respondents were asked questions regarding their *main bank* and how they interact with their main banker. The main bank was defined as the bank that respondents would use for most of their transactions for each of the three SSBT services. This was deemed necessary to ensure valid responses from respondents, as respondents are more likely to have a strong impression of their main bank when compared to a bank they did much less of business.

The wording of questionnaire items included in the survey to measure constructs of the proposed model, was adapted as necessary from the previous published literature to fit within the context of this study. A cross-sectional study employing a survey method was carried out for collecting the data.

The survey method was used because it is designed to deal more directly with the respondents' thoughts, feeling and opinions, especially when collecting information regarding attitudes and beliefs is concerned (Yin, 1994; Zikmund, 2003). In addition, survey method offers more accurate means of evaluating information about the sample and enables the researcher to draw conclusions about generalizing the findings from a sample to the population (Creswell, 1994).

#### 1.7.1-Pilot Study

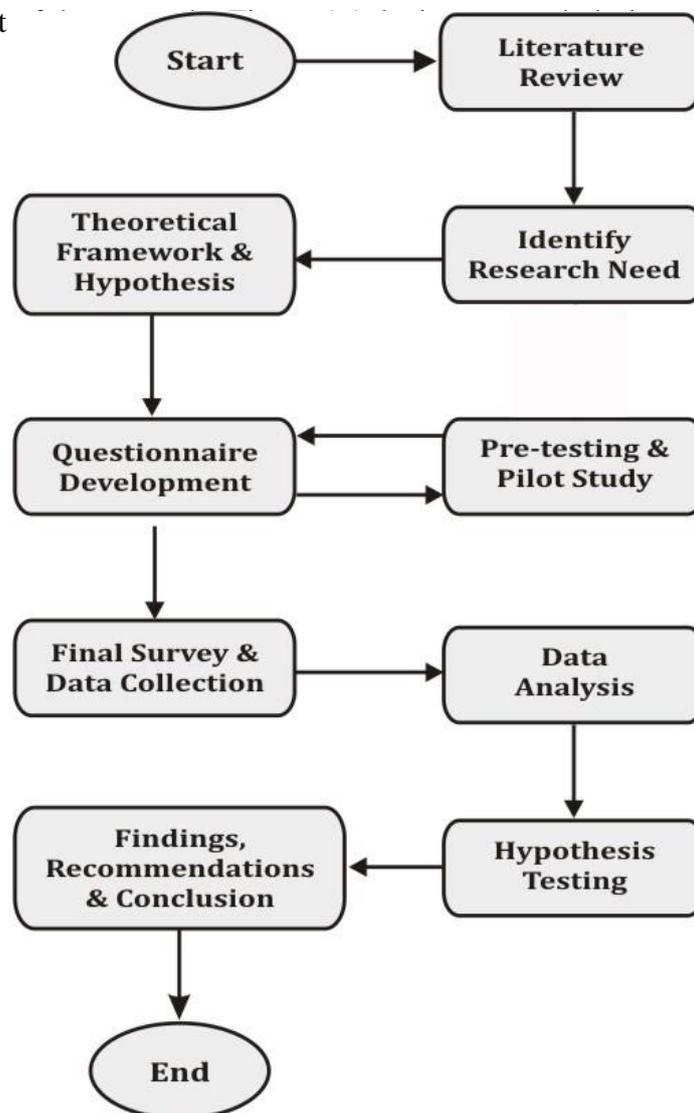
Pre-test and pilot study are both essential parts of questionnaire survey design and according to Sekaran (2003), they must be conducted prior to the initial data collection phase or main survey in order to validate instrument and to ensure that the survey questionnaire is free from errors and ambiguities.

In this study, prior to the actual data collection, a pilot study was conducted using the structured questionnaire among 40 bank customers of different banks randomly from central part of Kerala who use at least two of the SSBT services. The purpose of pilot study was to avoid participants' confusions and misinterpretations as well as to identify/detect any errors, ambiguities and also to correct any issues related to language and response options.

Cronbach's alpha is the most common measure of internal consistency (*reliability*), which is most commonly used for multiple Likert questions in a survey/questionnaire. In the present study, Cronbach's  $\alpha$  (alpha) is used because, the

questionnaire of this study includes multiple Likert questions, that form a scale. Cronbach's alpha values for all question items from this pre-test were above 0.80, suggesting adequate reliability of the questionnaire (Nunnally, 1978). Moreover, a five-point Likert were used to assess responses.

For the purpose of a pilot study, a sample of 100 would require a minimum of 5 respondents (Alison (1960) and Fink (1995)). The number of respondents used for the pilot study was therefore sufficient. Feedback from the pilot study was useful to modify the wordings and structure of questionnaire so as to suit to the customers without much knowledge in the technological aspects. The data from the pilot study was not included in the final report of the study.



### 1.7.2-Sample

The assessment of all members of the chosen population is not possible due to an extensive amount of hard work, time and money involved (Gay and Airasian, 2000). The assessment of all the SSBT users was not possible in this study due to two reasons viz. (1) A customer may depend on separate banks for each and every SSBT services or may depend on several banks for availing a single SSBT service. (2) There is no reliable data available about the bank customers using SSBT services in Kerala.

The present study uses a self-completion questionnaire. Samples used for this study are the retail bank customers in Kerala using at least two SSBT services. Customers were contacted during the period from October 2012 to February 2013 conveniently at banks, ATM counters, shopping malls, town centers, bus stops, railway stations. After giving a brief invitation and introduction about the present study, customers, using at least two SSBT services, were identified as participants. If they were willing to co-operate for the study and accepted the invitation, a copy of the questionnaire would be delivered with a request to return it, duly completed, either by post or in person at the time of subsequent visit, before a specified deadline. Those who were ready to post it were given a self addressed stamped envelope also. A brief introductory note was included along with the questionnaire stating the purpose of the study and giving assurance of confidentiality and anonymity as recommended in the literature (Bryman and Bell, 2003). For the purpose of follow-up, his/her mobile number and/or e-mail address was/were collected.

A total of 522 questionnaires were collected out of about 1,250 questionnaires, distributed to sample respondents. Of these 480 questionnaires were used for the analysis and 42 questionnaires had to be rejected due to incomplete answers or late receipts. The effective response rate was 38.40%, which is ideal in a survey research.

The respondents consisted of approximately 78% males and 22% females, with an average age of 36.25 years old. Of the total respondents, 59.1% were classified into PSB group; whereas 14.3% into OPB group and the remaining 26.6% respondents NGB group based on the main banker of the respondents.

### 1.7.3-Collection of Data

The data required for the study are collected from both primary and secondary sources. The study mainly consider primary data, which were collected during the period from October 2012 to March 2013.from the respondents through a structured and pre-tested questionnaire. The secondary data were sourced from RBI reports, books, periodicals, journals and websites.

### 1.7.4-Tools of Analysis

For the purpose of analysis, statistical tools like Mean % Scores, Averages, Percentages,  $X^2$  test, Z test, Independent Sample T test, ANOVA, Tukey Multiple Comparison Test, Correlation, and Multiple Regression are used.

### 1.7.5-Conceptual and Operational Definitions

**Adoption of Technology:** Adoption is the process that begins with awareness of the technology and progresses through a series of steps that end in appropriate and effective usage. The technology adoption lifecycle model describes the adoption or acceptance of a new product or innovation, according to the demographic and psychological characteristics of defined adopter groups. (Rogers, 1983) generalized the use of it, describing how new ideas and technologies spread in different cultures.

**Brick-and-mortar:** *Being a traditional business serving customers in a building as contrasted to an online business.* In the present study, it is referred to as *Traditional Branch Banking.*

**Click And Mortar:** A type of business model that includes both online and offline operations, which typically include a website and a physical store. A click-and-mortar company can offer customers the benefits of fast online transactions or traditional face-to-face service.

**Compatibility:** *The consistency between an innovation and the experiences, values, as well as needs of potential adopters* (Rogers, 1995). *Compatibility is the extent to which a new product or service is consistent and compatible with customers' needs, beliefs, values, experiences, and habits.* (Tornatzky & Klein, 1982).

**Demonstrability:** Capability of being demonstrated or logically proved. An innovation which is more visible will drive communication among the individual's peers and personal networks and in turn create more positive or negative reactions.

**Extent of Utilisation:** Also referred to as *Extent of use* of SSBT Services. Adoption of technology does not mean that there is extensive use of service. Extent of use is evaluated on the basis of the frequency and volume of use.

**Inaccessibility:** Customers, especially who live in remote area, may not be in a position to use ATM, Internet banking, Mobile banking etc. due to the lack of efficient networking and hardware systems.

**Inertia:** In the present study, it refers to Customer Inertia. There are customers who are technologically competent but are not bothered as they are not being sufficiently motivated.

**Observability:** *The degree to which a service can be observed being successfully used.* (Rogers 1983). An innovation which is more visible will drive communication among the individual's peers and personal networks and will in turn create more positive or negative reactions.

**Perceived Ease of Use (PEOU):** *The degree to which a person believes that using the system will be free of mental effort.* (Davis, 1989). If an innovative system can be used with less effort, it will be used to a great extent.

**Perceived Usefulness (PU):** *'The degree to which "a person believes that using the system will enhance his or her performance'* (Davis, 1989).

**Reliability and Trust:** **Reliability** is associated with the proper functioning of service at the desired time and involves consistency of performance and dependability. **Trust** is the *willingness to rely on an exchange partner in whom one has confidence* (Moorman 1993).

**Satisfiers:** The variables which influences the satisfaction level of customers.

**Self Service Banking Technolgy (SSBT):** The automated delivery systems which are meant for delivering banking services such as ATM, Internet Banking and Mobile Banking are grouped under SSBT.

Trialability: *The degree to which a service can be experimented with prior to making the decision whether to adopt.* (Rogers 1983). It allows the individuals to “test drive” an innovation before it is being adopted. If a user has a hard time using and trying an innovation, he will be less likely to adopt it.

Word-of-mouth (WOM) *An informal type of communication between private parties concerning the evaluation of goods and services* (Dichter, 1966). A loyal customer will disclose to others of good assessments and encourage them to avail the service of the same company or to buy the same brand.

## 1.8-Limitations of the Study

The study suffers from the following limitations:

- 1) The study is confined to *retail banking customers* in Kerala. The respondents of Corporate Banking are not taken due to the fact the banking operations are based on the systems and procedures followed in the concerned business organization.
- 2) The samples for the present study were collected from customers who avail at least two SSBT services. The perceptions and problems of those who use only a single SSBT service have purposefully been excluded in this study.
- 3) Only the respondents from the Public Sector Banks (PSB), Old Private Sector Banks (OPB) and New Generation Banks (NGB) are considered for the study and the respondents from Foreign banks, which have a different banking approach and culture, have been kept outside the ambits of the study.
- 4) Since the subject matter of the study is banking and bank related information, it was found in many cases that the respondents viewed the process of such a survey with suspicious eyes, as they feared that the divulging of personal and financial matters would affect their privacy, security and financial freedom. Therefore, the study follows *Convenient Sampling*, which is practically possible in these types of survey research.
- 5) This study suffers from all the possible limitations of survey data used in social science research.

## 1.9-Scheme of the Report

The thesis is presented in the following manner and order.

Chapter 1: Introduction: First chapter includes brief introduction, significance of the study, statement of the problem, objectives of the study, hypotheses, methodology, tools of analysis, period of study, limitations of study etc.

Chapter 2: Review of Literature: It covers the research studies conducted in India and other countries, on technology in banking and allied areas.

Chapter 3: Technology in Banking Sector: This chapter covers the concept of banking technology, need and benefits of introducing technological services, evolution of technology in Indian banking sector, initiatives of RBI and the committees appointed for this purpose, security concerns, CRM and the challenges faced by the banks in the technological environment and different delivery channels of Self Service Banking Technology.

Chapter 4: Technology Adoption -Theories & Models: It covers the models related to the adoption of technological services and the *push/pull factors* driving customer satisfaction/dissatisfaction in the adoption of SSBT services.

Chapter 5: Data Analysis I - User Profile & Their Perception: This chapter is devoted to analyse the survey data relating to the perception and practices followed by the customers in relation to SSBT services.

Chapter 6: Data Analysis II - Adoption of SSBT Services: This chapter is devoted to analyse survey data relating to the purpose and extent of use, adoption factors, factors which limit the full-fledged use of SSBT Services etc.

Chapter 7: Data Analysis III - Customer Satisfaction & Problems in SSBT: In this chapter, level of customer satisfaction and problems confronted by the customers in using SSBT services are presented.

Chapter 8: Summary of Findings, Suggestions and Conclusion: The last chapter summarises the main findings, policy suggestions, and conclusion.