Chapter-01

INTRODUCTION

1.0. Background

1.1. Information and Communication Technology (ICT) and Banking

1.2. Need for the Study

1.3. Statement of the Problem

1.4. Objectives of the Study

1.5. Hypotheses

1.6. Scope and Limitations of the Study

1.7. Research Design
   1.7.1 Quantitative and Qualitative Phase
   1.7.2 Exploratory Phase
   1.7.3 Descriptive phase
   1.7.4 Cross-sectional Phase

1.8. Sources of Data
   1.8.1 Universe/population of the study
   1.8.2 Sampling Design
   1.8.3 Sampling Procedure
   1.8.4 Sample Size

1.9. Research Instrument
   1.9.1 General Information of the Interview Schedules

1.10. Statistical Techniques Used

1.11. Organisation of the Study
Chapter-01

INTRODUCTION

1.0 Background

Economic development favours the expansion of financial intermediaries like banks in their early stages of development while, later on, a mature and consolidated banking system enhances more efficient investment decisions and faster economic development. Although banks create no new wealth, they play an important role in mobilising the nation’s savings and in channelising them into high investment priorities and in the better utilisation of available resources in the attainment of macro economic objectives of an economy. A bank, as a matter of fact, is just like the matter of heart in the economic structure and the capital provided by it is like the blood in it.

It is a universally acknowledged fact that a sound banking system is a prerequisite for achieving accelerated economic development. The banking system, by offering attractive saving schemes and ensuring safety of deposits, brings about desired changes in economic development by acting as a bridge between those who require funds and those who have surplus funds, who may be unable to make an effective use of such funds. Therefore, the borrowing, lending and other related activities of the banking system facilitate the process of production, consumption, exchange and distribution of wealth in the real sector. Modern trade and commerce is almost impossible without a suitable banking system in place. The whole economic structure may collapse in the absence of banking services.
Hence, banking can better be described as the king pin of the chariot of economic progress. In fact it may be difficult to imagine how an economic system could function smoothly without any of the banking services.

1.1 Information and Communication Technology (ICT) and Banking

ICT is a combination of information technology and communication technology. Information technology deals with collection, storage, manipulation and transfer of information using electronic means. Communication technology refers to the physical devices and software that link various computer hardware components and transfer data from one physical location to another. Financial system, all over the world has been rapidly undergoing technological change in the past two-three decades. Computer and Telecommunication facilities are the vehicles of this change as Financial Institutions are highly information intensive. They are the hardware components that make change possible. Thus technology has emerged as the principal driving force for long term economic growth. The advancement in ICT, especially internet and information technology, has provided an altogether new way of interacting and providing banking service to bank customers. ICT based banking services offer value to customers by providing them with anywhere and anytime banking. These technologies have cut down time, working simultaneously on different issues and increasing efficiency.

Though providing technology based banking products and services have been pioneered in India by the foreign banks and new private sector banks, the old generation private and public sector banks didn’t lag behind. The momentum to the adoption of ICT in the Indian banking sector was provided by the
recommendations of the successive committees separately headed by C. Rangarajan (1983 and 1989), Saraf (1993) and A. Vasudevan (1999). The introduction of ICT enabled banking service delivery started with Hongkong and Shanghai Banking Corporation (HSBC Bank) introducing Automated Teller Machine (ATM) for the first time in India way back in 1987. The Bank of India was the first nationalised bank to render ATM facilities to its customers in Mumbai. The new private sector banks have started their operations laying great emphasis on the ICT as it was used as a primary competitive tool to trounce the limitations of less number of branches and their compulsion to compete with the old generation private sector and public sector banks.

The banks in India have been effectively deploying ICT in the post-liberalisation era as a strategic means to achieve speed, efficiency, cost reduction, customer service and competitive advantage and provide best services to their customers. These services provide the customers with anytime and anywhere access to their accounts. The thrust on automation and computerisation has led to massive investments in the banking sector and the entire banking system is now more or less fully computerised. The E-banking services such as ATMs, Mobile Banking, Credit Cards, Smart Cards, Electronic Funds Transfers (EFTs) and Electronic Clearing Services (ECS), Core Banking Solutions (CBS), Internet Banking (IB) and online bill collection and payments are all the outcomes of ICT adoption. The focus of this study has been on ICT adoption which the banks


provide, employees use and the customers' benefit. The ICT based delivery channels (E-banking)\(^3\) have a great potential to benefit both the banks and their customers.

1.2 Need for the Study

Persuading the customers' to use technology based products is generally more challenging than making employees' use new technologies as far as banks are concerned. In the delivery of services since technology can replace a bank's employees, the use of technology is immensely beneficial to them as it can improve service delivery, reduce labour costs and expand the options for provisioning of services. On the other hand, investment in ICT could be a waste of resources if not widely accepted by customers. Thus it is essential that we find out the best ways to design, manage and promote new technologies in order to have the best chance of wider acceptance of E-banking services by the customers.

Review of the available published works points out that even though some studies were conducted in other countries about ICT, the studies done in India are limited. Hence there is a gap in the understanding of how the bank customers in India and the employees' perceive about the services delivered through ICT channels and their level of satisfaction. Despite huge investments made by the banks in providing the services through these electronic channels and the consequent benefits they offer, it has been found that except for ATMs, the acceptance and continued use of a product or service of other E-banking channels like net banking, mobile banking, Tele-banking and EFT services are yet to pickup

---

\(^3\) It is a generic term for delivery of banking services and products through the ICT.
in a big way among the bank customers'. The earlier studies in other countries and a few studies made in India have shown various reasons for the apathy of the bank customers towards these services such as security concerns, lack of confidence in using them and lack of user-friendliness and so on and so forth. Meanwhile there is evidence in literature and other sources that certain segments of the bank customers, especially those belonging to the educated, young and relatively well off group and the one residing in urban areas take to Internet Banking and other forms of remote banking services.

There is a need to understand the factors contributing to the acceptance of ICT delivery channels, their level or degree of adoption, the reasons for preferring their service, the extent of usage of each type of E-banking channel and the satisfaction of the respondents. Even the few published studies done in India deal with only aspects pertaining to any one of the technology enabled banking services such as ATMs or Internet Banking. As the customers tend to use various services of the different banking channels in a complementary manner, the research confined to aspects pertaining to only one channel is deemed incomplete to capture the customer and employee behaviour in totality. In this context the present study assumes great significance.

1.3 Statement of the Problem

All over the world, the way in which banks deliver services has undergone a paradigm shift with the banks increasingly going in for electronic provisioning of services through various ICT channels. In India too this trend is clearly visible, though competition among banks and increasing customer expectations have
forced the commercial banks to provide banking services through ATMs, internet, mobile devices, Smart/Credit Cards and so forth.

The focus of this research has been on the ICT which enables the customers to avail banking facilities with or without the assistance of the employees. The services through these channels offer tremendous advantages to the banks and their customers as well as employees. For the banks the advantages are reduced transaction cost, higher profitability, lesser crowding in their branches and increased businesses per employee. For the customers these channels offer the convenience of availing banking services from the place of their choice and conducting them any time of the day they wish and want. For the employees the advantages are reduced work pressure, accurate data availability and reduced risk. The technology based products for analysis covered under this study include: ATMs, Credit and Smart Cards, Mobile Banking, Tele-Banking, Internet Banking, Electronic Funds Transfer (EFT) System, Magnetic Ink Character Recognition (MICR) clearing and Cheque Truncation System (CTS).

With the above focus, this study attempted to address the following pertinent issues.

1. The extent of the use of ICT in the banking industry.
2. Satisfaction of the customers in the post reforms period.
3. Assessment of the satisfaction of the employees with the introduction of ICT in the banking system.
4. Analysis of the problems in the application of ICT in the banking industry.
5. Review of the possible prospects of the banking industry with the application of ICT have been dealt with in the study.
1.4 Objectives of the Study

The major objective of this study has been an analysis of the application of the ICT in the banking sector in Dakshina Kannada (DK) district of Karnataka state. However, the specific objectives of the study have been:

1. To trace the evolution of ICT in the banking sector in India.
2. To analyse the present status of the application of ICT in the select public and private sector banks in DK district.
3. To analyse the perceived level of customer satisfaction and its implications on the development of the banking sector in the district.
4. To analyse the perceived level of satisfaction of the employees with the introduction of ICT in the banking sector in the study area.
5. To study the viability of branchless banking model adopted in Dakshina Kannada.

1.5 Hypotheses

In order to achieve the objectives this study has set the following hypotheses for testing/verification.

1. The level of application of ICT differs between the old generation banks and the new generation banks.
2. The application of the ICT in the banking sector is urban biased.
3. Customers are satisfied with ICT adoption.
4. The employees in the banks are satisfied with the ICT adoption in the banks.
1.6 Scope and Limitations of the Study

The study required the inputs from users and non-users of ICT based banking services. The study has been extended to rural and semi-urban areas besides urban areas. Since the study has been planned to cover the perception of the ICT based banking products in urban, semi-urban and rural areas, samples of the customers and employees have been drawn from all the three types of centers.

This study is restricted to ICT enabled banking services such as ATMs, Credit/Smart Cards, Mobile Banking, Tele Banking, Internet Banking, Electronic Funds Transfer services and CTS/MICR systems. The study is confined to retail banking customers of select scheduled commercial banks and the employees in the banks and the geographical area is confined to Dakshina Kannada District in Karnataka State. The customer and employee respondents from the Corporation Bank, the Karnataka Bank Ltd and the Axis Bank Ltd., chosen at random have been interviewed aiming at gathering primary information.

1.7 Research Design

Research design that has been followed in the present study includes:

1.7.1 Quantitative and Qualitative Phase

Even though the main stay of this study is qualitative approach, quantitative method is also being used. The qualitative method is used during the exploration phase of the study, problem formulation and research instrument development. Quantitative method is used in the data analysis phase.
1.7.2 Exploratory Phase

The present study has an exploratory phase in which a fairly elaborate review of the literature on the studies done in similar areas is made. It covers the studies made in India and elsewhere, in banking and ICT based services in banking. In addition to this, experience survey was done during the problem development stage by way of interviewing and discussing the issues covering the areas of study with about ten practicing bankers and customers. Academicians and researchers who had prior experience in doing research in the banking related services were also consulted. Additional insights were also gained in the exploration phase through regular users and beneficiaries of the ICT enabled banking services. The input so obtained during the exploration phase through literature survey was used in research instrument (interview schedule) development.

1.7.3 Descriptive Phase

The dominant methodology used in this work has been descriptive research. Descriptive research includes surveys and fact finding enquiries of different kinds\(^4\). The characteristic of this method is that it contains hypotheses that are formulated during the exploration phase which are to be tested. The current study has been done by using survey method, employing structured interview schedules containing hypotheses that are formulated for verification.

1.7.4 Cross-sectional Phase

The present study has a cross-sectional time horizon which involved the collection of information from the sample of population elements only once, with the responses collected on the spot, making the study cross-sectional or a one shot study.

1.8 Sources of Data

The two major sources of data of this study have been 'people' and 'paper'. The responses to pointed questions put to people (the respondents) constitute the primary source of data for analysis. This source (people) is labelled as primary source of data. A large amount of data is already available in the form of paper sources. The paper sources include valued volumes, journals, manuals, reports, and statistical records, websites etc which are commonly known as secondary sources of data. The present study depended both on the primary and secondary sources of data.

The secondary sources of data primarily consisted of the following:

- Published studies in various international and national journals and conference proceedings, those studies which deal with the adoption of E-banking services, studies on customer satisfaction and service quality perceptions of these channels.
- Articles related to the above areas/topics published in periodicals and valued volumes and journals.
- Information contained in websites such as those of the RBI, the banks and so forth.
- Unpublished studies pertaining to the above topics.
The primary data were gathered through a field survey, using structured pre-tested Interview Schedules, from the bank customers and the employees residing in the study area of DK district. The descriptive part of the study was carried out using a survey research method which involves structured interview schedules used for eliciting information regarding the customers' awareness, usage and satisfaction, service quality perception pertaining to E-banking products and employee perception and satisfaction with the aim of treating the data to assess current conditions or practices or to make plans to improve them. Personal contact method was used so that the respondents could be selected for survey depending on the usage of the services of the sample banks. A brief introduction was given regarding the purpose of the interview in addition to assurance of anonymity and confidentiality. The data for the study were gathered during June-September 2013. The information has also been gathered from the executives of the sample banks to have an in-depth knowledge of the E-banking facilities provided by the banks to the customers.

1.8.1 Universe/Population of the Study

C.R. Kothari defines the universe as the total of the items or units in any field of enquiry, while the term population refers to the total of items about which the information is desired. In this research the investigation is about customer and employee perceptions and satisfaction about the services offered through technology and the study is confined to DK district. Accordingly, universe in this research could be taken as the set of all bank customers and employees in the district, while the population for the study can be defined as all the bank customers and employees of the select banks in the study area.
1.8.2 Sampling Design

A multi-stage sampling design has been followed in the study in which the geographical location was fixed, and then the banks identified. The branches of the sample banks have been selected on lottery method and finally the random sample of the respondents was prepared.

1.8.3 Sampling Procedure

The units of analysis or sampling elements were the bank customers and the bank employees of three select banks in the region satisfying the condition that they should be the customers or the employees of the select banks. Of the three banks whose customers and employees have been sampled one bank is from the public sector (Corporation Bank) one is from the old generation private sector (Karnataka Bank Ltd.) and one is from the new generation private sector (AXIS Bank).

The rationale behind selecting the banks has been the geographical coverage, number of ATMs and the area of origin of the banks. Among the public sector banks the Corporation Bank has been selected as it has the largest number of ATMs next to SBI group and its headquarters is situated in Mangalore and also it has its origin in the district. The Karnataka Bank Ltd has been selected as it is the only private sector bank born in this part of the state and is still continuing and its headquarters is in the district centre (Mangalore). The Axis Bank has been selected as it has a considerable number of ATMs among the new generation banks functioning in the district and it is the only bank having semi-urban presence. It was presumed that through the selection of these banks a representative sample is derived.

The sampling design is presented in Figure 1.1.
Figure 1.1
Sampling Design of the Study

DAKSHINA KANNADA DISTRICT

- Corporation Bank - Total Branches (45)
  - Rural Branches (12)
    - Sample Branches (2)
      - Customers (21)
      - Employees (9)
    - Employees (19)
  - Semi-urban Branches (16)
    - Sample Branches (2)
      - Customers (27)
      - Employees (17)
  - Urban Branches (17)
    - Sample Branches (3)
      - Customers (106)
      - Employees (19)
- Karnataka Bank Ltd. - Total Branches (36)
  - Rural Branches (10)
    - Sample Branches (2)
      - Customers (33)
      - Employees (13)
  - Semi-urban Branches (7)
    - Sample Branches (1)
      - Customers (27)
      - Employees (4)
  - Urban Branches (19)
    - Sample Branches (3)
      - Customers (89)
      - Employees (25)
- Axis Bank Ltd. - Total Branches (6)
  - Semi-urban Branches (2)
    - Sample Branches (1)
      - Customers (16)
      - Employees (7)
  - Urban Branches (4)
    - Sample Branches (2)
      - Customers (86)
      - Employees (16)

Note: Respondents are selected from sixteen branches which are selected at random through lottery method.
1.8.4 Sample Size

The sample size of this study has been determined on the basis of aspects such as

- Budgetary constraint
- Time limitation
- Adequacy of numbers from all sub samples in the population under consideration
- Sample size taken in similar studies.

Robert V. Krejcie and Daryle W. Morgan\(^5\) have given a formula for determining the sample size. The formula is-

\[
s = \frac{X^2 NP (1-P)}{d^2 (N-1)} + X^2 P (1-P)
\]

where, \(s\) = required sample size

- \(X^2\) = the table value of chi-square for 1 degree of freedom at the desired confidence level (3.841)
- \(N\) = the population size
- \(P\) = the population proportion (assumed to be 0.5 since this would provide the maximum sample size)
- \(d\) = the degree of accuracy expressed as a proportion (0.05)

They have also given a table in which no calculations are needed to determine the sample size. According to the table the sample size required for a population of 75000 to 10 lakh is 382 to 384.

The suggestion of Sudman (1976) cited by Thonton and White (2001)^6 regarding the sample size was used as a guideline for determining the sample size of different categories. The suggestion states that the sample size should be large enough so that each majority category of breakdowns should have 100 units or more and minor categories of breakdowns should have 20-50 units.

The major categories of breakdowns for this study have been:

a. The three types of banks.

b. The customers of the three sample banks.

c. The employees of the three sample banks.

The minor categories of breakdowns in this study are the different locations and the employees of the different sample banks.

The final sample size obtained has been from sixteen branches selected at random through lottery method. The respondents are selected at random and the final sample used for analysis in the study has been 405 customers and 110 employee respondents of sixteen branches of the select banks. The responses from the public sector banks were 154 customers and 45 employees, from old private sector banks 149 customers and 42 employees and from new private sector banks 102 customers and 23 employees. The approximate number of the customers as on 15.06.2013 was 7,78,140 of which the customers of the Corporation Bank were 4,41,500, that of the Karnataka Bank Ltd were 2, 86,440 and that of the Axis Bank were 50,200. The number of the employees as on 30.06.2013 was 1009 of which

---

the employees of the Corporation Bank were 539, of the Karnataka Bank Ltd. were 360 and of the Axis Bank were 110. The proportion of branches has been 18.4 percent of the total number of branches. The sample of customers has been 0.05 percent of total customers and that of employees has been 10.9 percent of employees. These were deemed sufficient and adequate for the study as per the above mentioned guidelines.

Incidentally this sample size is also higher than when calculated using the formula by C.R. Kothari (2004)\(^7\) for estimation of the sample size for infinite population

\[
n = (z^2 \cdot \sigma^2) / e^2
\]

where, \(n\) = size of the sample

\(z\) = standard variate at a given confidence level

\(\sigma\) = estimate of standard deviation of the population given the range.

\(e\) = acceptable error.

Given that most of the measures are using 5 point scales in the research instrument the range equals (5-1=4), so \(\sigma\) is 4/6=0.67, \(z=1.96\) as per table area under normal curve when confidence level is at 95 per cent, \(e=0.1\) assuming estimate to be within 10 per cent of the true value. The sample size obtained is 172.

1.9 Research Instrument

The survey/interview was designed and developed after research reviews and consultation with experts in the banking field. Pre-tested interview schedules were used for survey of the respondents. The interview schedules were prepared separately for customers of the banks and the employees and the executives in the banks.

1.9.1 General Information of the Interview Schedules

Personal information is collected to know the general background of the respondents and the region specific divergence in the provision of E-banking services. The term most frequented bank is used because the respondents might be having accounts in more number of banks, the usage pattern and perceptions are asked in the schedule with respect to the services of a single (frequently transacted) bank. The customers are asked about the techno-products offered by their most frequented bank as they would have maximum frequency of transactions with their primary bank. Hence the term most frequented bank is used. Moreover, inter-sectoral comparison of banks is done to know the service quality variations within the banking sector. A five point scale is used for measurement of electronic banking service quality and also customer and employee satisfaction.

1.10 Statistical Techniques Used

The primary data gathered were tabulated and analysed with the help of SPSS Ver-13. Descriptive statistics is used to learn about the characteristics of the
respondents. Kaiser-Meyer-Olkin (KMO) and Bartlett's Tests were used to measure sampling adequacy and factor analysis was made for the components of satisfaction in using ICT based banking products, reduction of customer visits to branches, and advantages and disadvantages of ICT banking products and services to reduce large number of variables into smaller number of factors. Chi-square Test, Fisher's Exact Test, Kruskal-Wallis Test and Mann-Whitney Test were applied to know the level of association or difference in the relation of the responses of the respondents within the bank groups. Appropriate figures are also used to make the presentation more discernible.

1.11 Organisation of the Study

The present study has been planned in six convenient chapters.

Being introductory, the first chapter provides the mandatory details of the study. The second chapter provides a fairly exhaustive review of the existing literature on the related subject. The chapter is presented in two parts. Part-I provides the review of the studies made in foreign countries and Part-II provides review of the studies made in India.

The third chapter provides an analysis of the Banking in India. The chapter has been presented in four parts. Part-I provides a brief history of Indian banking in the pre-nationalisation period, Part-II provides a brief history of Indian banking in the post-nationalisation period, Part-III provides a fairly exhaustive view of the post-1991 period and Part-IV provides the developments in technology and
techno-products in Indian banking. The fourth chapter presents a brief profile of banking in the Karnataka state in general and in DK district in particular.

The fifth chapter, the core one, is presented in three parts. Part-I presents the analysis of the managements' response on application of ICT gathered with the help of structured interview schedule and Part-II analyses the primary data gathered with the help of structured interview schedules prepared for the customers along with discussion and interpretation. Part-III provides an analysis of the research results of the primary data gathered with the help of structured interview schedules prepared for the employees in the banks along with discussion and interpretation.

At the end, in the sixth chapter the major findings of the study have been presented along with the suggestions based on the problems identified and also a formal conclusion.

Having presented the background of the study and the research procedure along with the need for the study, objectives of the study and research instrument the study proceeds further to present a brief review of the studies made in similar areas in India and elsewhere in the world. The review is expected to throw more light on the research topic and strengthening the research methodology.