CHAPTER-IV

RESSEARCH METHODOLOGY

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4.1 INTRODUCTION

This chapter presents an overview of the methodological perspective of the research. Research refers to a search for knowledge; it is a scientific and systematic search for pertinent information on a specific topic. It is an art of scientific investigation.

Research is thus an original contribution to the existing stock of knowledge making for its advancement. It is the pursue of truth with the help of study, observation, comparison and experiment, In short, it is the search of knowledge through objective and systematic method of finding solution to problem in research.

Research methodology is a way to systematically solve the research problem. It may be understood as a science of studying how research is done scientifically. It is necessary for the researcher to know not only the research methods or techniques but also methodology, researchers not only need to know how to develop certain indices or tests, how to calculate the mean the mode the median or the standard deviation or chi-square, how to apply particular research techniques, but they also need to know which of these methods or techniques are relevant and which are not, and what would they mean and indicate and why. (C.R. Kothari, 2004)[1] In research methodology we also consider the logic behind the methods and explain why we are using a particular method or technique and why we are not using others so that research results are capable of being evaluated either by the researcher himself or by others.

In this chapter on Research Methodology will describe different research methods and explain the chosen methods used in this study. It will further describe the research purpose, research approach, research strategy and data collection methods and analysis approach. This chapter describes the chosen sampling technique, the way the data for the study has been collected and techniques used to analyze the data. Section 4.4 describes the research design based on the research questions and theoretical models hypothesized in this study. Section 4.5 discussed research approach. Section 4.6 presents the research strategy of a questionnaire survey. In addition, the issue of the reliability and validity of the presented study is discussed.

4.2 OVERVIEW OF THE MODEL

Before describing the various components of the model in detail, it is useful to provide a first overview of the model that can be used as an executive summary to get a quick idea of its structure and content, in addition it is useful to get a first overview of the model without being forced to read a much longer and detailed explanation.

AS postulated by Uma Sekaran, (2000)[2] theoretical framework is a conceptual model of how one theorizes or making logical sense of the relationships among the several factors that have been identified as important to the problem. It is also discuss the interrelationships among variables that are deemed to be integral to the dynamics of the situation being investigated. It consists of two variables, which are dependent variables and independents variables. There are five basic features that should be incorporated in any theoretical framework:

I. The variables considered relevant to the study should be clearly identified and labeled in the discussions.

II. The discussion should state how two or more variables are related to one another. This should be done for the important relationships that are theorized to exits among the variables.

III. If the nature and direction of the relationships can be theorized on the basis of the findings from previous research, then there should be an indication in the discussions as to whether the relationships would be positive or negative.

IV. There should be a clear explanation of why we would expect these relationships to exist. The arguments could be drawn from the previous research find in.

V. A schematic diagram of the theoretical framework should be given so that the reader can see and easily comprehend the theorized relationships.

- **Dependent Variables**

The dependent variable is the variable of primary interest to the researcher. The researcher's goal is to understand and describe the dependent variable, or to explain its variability or predict it. In other words, it is the main variable that lends itself as a viable factor for investigation. Through analysis of the dependent variable, it is possible to find solutions to the problem (Cavana, 2001)[3]. In this research the Dependent Variable is "Cost and Profit", "Customer Satisfaction".

- **Independent Variables**

An independent variable is one that influences the dependent variable in either a positive or negative way that is, when the independent variable is present, the dependent variable is also present, and with each unit of increase in the independent variable, there is an increase or decrease in the dependent variable also. In other words, the variance in the dependent variable is accounted for by the independent variable (Cavana, 2001)[4]. In this study the Independent Variables are "Effective Communication".

4.2.1 The Research Model

In the research model there are two kinds of variables independent variables and dependent variables. They are represented by a circle in this model.

The purpose of this model is to find out how effective communication in MIS affect customer satisfaction further how effective communication in MIS affect cost and profit and finally to study how customer satisfaction affect cost and profit.

The Research Model

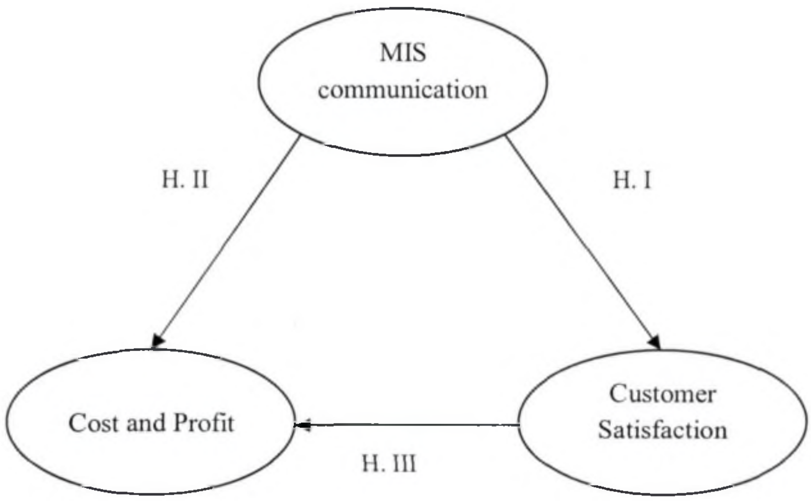

Fig: 4.1. The Interrelationship among variables

As one can see this model consists of one independent variable (effective communication) and two dependents variables (customer satisfaction and cost & profit). Customer satisfaction later becomes independent variable in subsequent relationship.

Figure 1.3 shows a dependence relationship between independent variables (effective communication) and dependents variables (customer satisfaction and cost and profit).

4.3 Research process

The procedure used the survey methods to answer the research questions and analyze the concept of MIS from science. It is appropriate to present a brief overview of the research process to carry out the research. The chart shown in figure 4.1 illustrates a research process. According to Durrheim, (2002)[5] research design may be viewed as a process consisting of four stages as follows:

- Stage 1 Defining the research questions
- Stage 2 Designing the research
- Stage3 Implementing or executing the research including data collection and analysis
- Stage 4 writing up the research report

Flowchart Research Process

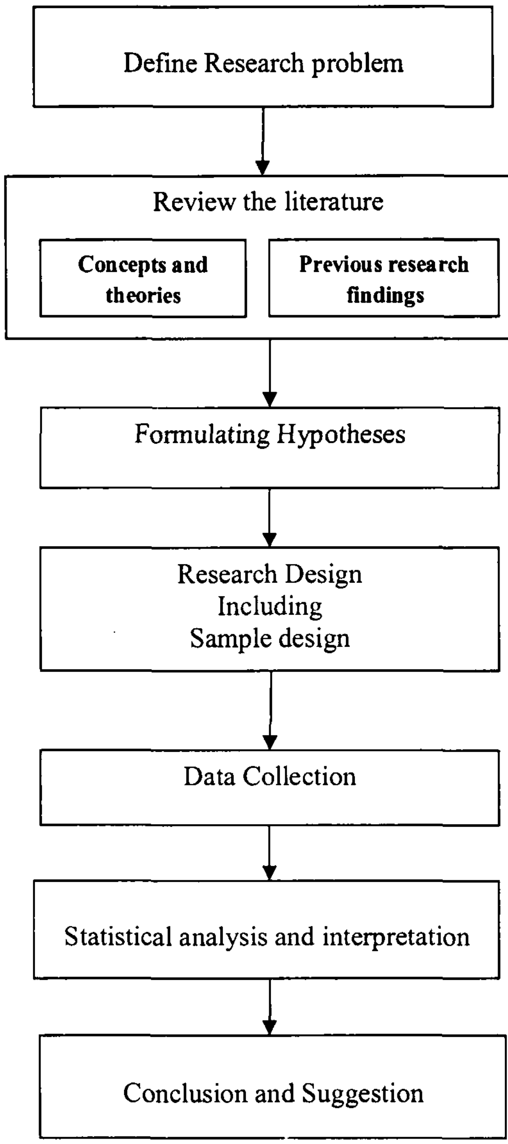

Fig: 4.2 Procedure of study

4.4 Research Design

The research design and method refer to the type of study that will be conducted to address the research problem as well as to which design will produce the evidence or data needed to answer the research question (Babbie and Mouton, 2004)[6].

Mouton (2004)[7] presents a typology of research designs that illustrates two major types of study, namely empirical study and non-empirical study. Empirical studies are observational or experimental rather than theoretical whereas non-empirical studies are based on theory. The role of research design is to connect the questions to data. Showing how the research questions will be connected to the data, and the tools and procedures to use in answering them. The design is the basic plan for a piece of empirical research, and includes main ideas such as strategy, sample and the tools and procedures to be used for collecting and analyzing empirical data (Punch, 2000).[8] In this section the research strategies, general research approach, data collection procedures and sampling are described.

There are several techniques which could be used to carry out the research based on research problem area.

- Exploratory
- Explanatory
- Descriptive

Babbie and Mouton (2004)[9] mention that descriptive research gives a thick description which is a lengthy description that captures the sense of actions as they occur. Our research purpose and research question reveal that this study is mainly Descriptive and analytical statistic. It is because the data has been collected through questionnaires and conducted empirical survey to describe and analyze application of MIS for improving communication effectiveness, customer satisfaction and revenue.

The research purpose and research questions of this thesis indicate that this study is more descriptive and little bit exploratory. And also our inters is to describe the area of research and later we would begin to explain analyze the collected data in order to find out the impact of IT on commercial banks in Pune, as well as customers attention towards IT. Therefore descriptive and analytical statistic research is suitable for this study.

4.5 Research approach

There are two types of research approaches, qualitative and quantitative. In the quantitative approach, results are based on numbers and statistics that are presented in figures. A quantitative approach implies the search for knowledge that will measure, describe, and explain the phenomena of our reality. It is often formalized and well-structured and data is quantitative and is usually associated with science mode of research, which is obtained from samples and observations seeking for relationship and patterns that can be expressed in numbers rather than words (Yin, 1994).[10] Whereas in the qualitative approach where focus lies on describing an event with the use of wards. The qualitative methods focuses on acquiring profound knowledge and understanding of the studied objects, and to further investigate, interpret, and understand the phenomena by means of an inside perspective. From the above discussion qualitative as well as quantitative approach will mostly suitable for this research. These two methods have their strengths and weaknesses. In order to avoid their respective disadvantages, one important way to strengthen a research design is to use both qualitative and quantitative methods.

4.6 Research strategy

Research strategy is a general plan which shows that how this research will go on, and how research will answers the question that has been set by the researcher.

Depending upon the type of research questions, strategy should be selected and basically there are five types of research according to (Yin, 1994)[11] such as experiments, survey, observations, pilot study and case studies. As we have chosen qualitative and quantitative approach, therefore we are going to get the information through empirical survey. The research has chosen to follow survey research strategy.

The kinds of research strategies adopted in a study should be based on the research questions proposed in this study, the research strategies of a literature review, a questionnaire survey, were adopted in this research. The explanations for adopting such research strategies are presented in the following subsections.

4.6.1 Literature Review

For answering research questions, a literature review approach was one of the best strategies. The literature review helped to provide a detailed understanding of the state of MIS today in terms of its research and its application within industries. The literature review on all aspects of overall business performance identified the effects of MIS implementation on organizational overall business performance. Literature review is a common practice in social science areas that have traditionally emphasized quantitative research. Such a study starts with a theory, deduces hypotheses from it, and proceeds to test these hypotheses. In the first part of the thesis I have completed a summary of Indian and international referential literature. Based on an extensive review of literature, the study uses empirical research to test the hypotheses of the study as well as to analyses and examine the application of MIS in banking sector.

4.6.2 Survey

A number of research strategies are available for conducting social sciences: Experiments, surveys, histories, case studies, and the analysis of archival information.

Survey is a research technique in which information is collecting by interviews with a large number of respondents using a pre-designed questionnaire (Zikmund, 1994). [12] Survey research is a quantitative method, requiring standardized information.

Most important condition for selecting research strategy is to identify the type of research question being asked. Based on the research question "what" that I set for this research; I have chosen to follow descriptive and survey research strategy, because this research is not dependent on a single critical, extreme, unique or revelatory case. The questionnaire survey was the most appropriate strategy to answer the research questions. The greatest advantage of a questionnaire survey is its lower cost compared to other methods. Mail questionnaires also have sample-related advantages: Geographic coverage, larger samples, and wider coverage within a sample population. A questionnaire survey can be used only when the objective of the study is clear and not complex (Bourque and Fielder, 1995)[13]. Generally, questionnaires were used to obtain a large database of information with a low level of details. In this study, the questionnaire survey was used to obtain information about IT implementation and overall business performance from 6 Indian commercial banks' managers and their customers.

4.7 Data collection procedures and Sample

Data collection methods are an integral part of research design. There are two data collections methods, the qualitative and quantitative method. In this study, researcher has chosen qualitative as well as quantitative methods. According to Sekaran, (2003) [14] qualitative data refers to information gathered in the narrative form through observation, interview and questionnaire.

4.7.1 Primary Data

For this study, the primary data will be form distribution of questionnaire. A questionnaire was used as the main form of data collection in this research. The questionnaire was distributed to the banks' managers of selected banks in Pune and their customers.

4.7.2 Secondary Data

Secondary data is data gathered through such existing sources. According to Zikmund (2003) [15] secondary data are data gathered and recorded by someone else prior to (and for purpose other than) the current needs of the researcher. There are usually historical, already assembled, and do not require access to respondents or subjects. For this study the researcher gathered the secondary data from sources such as books, journal, Internet, articles, External data also can be collected such as from any related information from Internet, textbooks, journals, magazines, articles, and etc. The advantage of seeking secondary data sources is saving in time and costs of acquiring information. However, secondary data as the sole source of information has the drawback of do not meeting the specific needs of the particular situation or setting. Hence, it is important to refer to sources that offer current and up to date information.

4.7.3 Data Collection Methods

Data collection in banks was very challenging because of the legal requirements forbidding banks from sharing information. Researchers are confronted with several challenges when undertaking surveys in banking especially in undertaking primary data collection. Under the pretext of having no interest in such a topic many people refused to participate to this research such situations are difficult to avoid.

Various data collection methods were used to gather the necessary relevant data for the present study. Starting with directly observing the existing system of these banks, reading their ads on the board at branches premises, and collecting their brochures (booklet) to get first hand information and overview of their services and products, followed by searching for relevant published resources in their libraries, and surfing on their website . This was supplemented by face-to-face interviews.

In order to improve the content validity of the questionnaire, the researcher also did a preliminary interview with some experts consisting of tow academics and four practitioners. The first set of interview was used to refine the question list for the subsequent interviews with a number of one academician and one practicing. By way of a pilot of the question, the researcher met with BOM manager at Pune university branches to discuss question list to determine whether the list of question were convenient to reach the purpose of the study and the number of question were reasonable.

4.7.4 Population and sampling Technique

The population of a study refers to the people about whom the researcher wants to draw conclusions (Babbie and Mouton, 2004). [16]

- **Population of the present study**

The participants in the study were banks managers and the customers of these banks in each sample. Thus there are two population groups for this research. One is the managers of selected banks and the other is the customers of these banks. The purpose for choosing this population is to collect supporting evidence from both sides' management perspective who directly participate in decision making process and customer perspective who benefit from e-banking, to get better understanding of the rule of e-banking to improve services and accordingly increase customers' satisfaction.

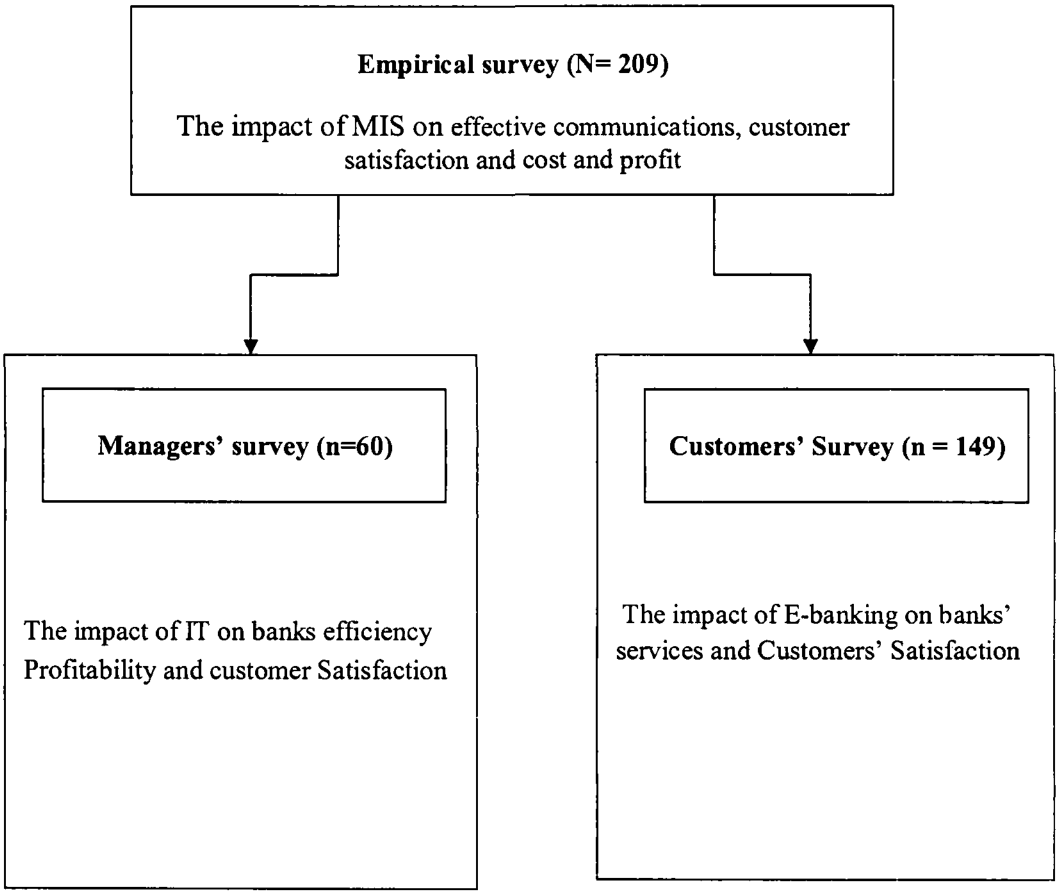

Figure: 4.3 Classification of primary researches

As it can be seen from the figure this study was customer-driven as well as manager-driven; therefore, the researcher has two population groups for this research. One is the managers of the selected banks and the other is the customers of these banks. The entire sample is composed of 209 respondents. Many people refused to participate to this research under the pretext of having no interest in such a topic.

The purpose for choosing this population is that researcher believes that the empirical data should be collected from banks management perspective to collect supporting evidence from officials who directly participate in decision making process, as well as customer's perspective to get better understanding of the rule of e-banking to enhance customer service and examine if these developments in services provided by banks have benefited customers and accordingly satisfy them.

- **Sample of the present study**

The researcher made use of a non-probability, purposive sampling technique to select the participants for the study. According to Brink (2006)[17] a purposive sample is selected on the basis of your own knowledge of the population, its elements, and the nature of your research aims: in short, based on your judgment and the purpose of the study.

For the present study data were collected from a sample of 6 Indian private and public sector banks randomly selected. These banks are State bank of India, Bank of Maharashtra, Bank of India, HDFC Bank, ICICI Bank, and Axis bank. The sample size could have been increased but the nature of problem seems to be similar in each case. So the chosen sample size is considered to be sufficient. Perhaps something more important than the number of subjects in qualitative research is the information that is received from the subjects (Patton, 1990)[18]. As mentioned by Wilkinson and Bhandarkar, (1998) [19] when small samples are used, it becomes possible to give more attention to each return that is received and to check their accuracy.

- **Questionnaires Format**

A questionnaire design is an integral part of the research project. There are two major types of question in a questionnaire. Firstly, the Open-ended question allows respondents to answer in any way they choose. In addition, open questions require more effort from respondents and more space on the questionnaire for responses. The respondents' effort required to complete open ended questions potentially leads to articulation bias, where attitudes and opinion are over or under emphasized due to the differing amount of detail given by respondents. Thus in some instances data yielded from open questioning can be irrelevant.

Secondly, closed questions offer several practical advantages that are well suited to the research problem and methodology. They are ideal because they are quick, require less effort for respondents to complete, and response categories can clarify the meaning of the question being answered, and less articulate respondents are not disadvantaged.

For conducting empirical research, there are two methods of data collection: Qualitative and quantitative. These two methods have their strengths and weaknesses. In order to avoid their respective disadvantages, one important way to strengthen a research design is to use both qualitative and quantitative methods.

The quantitative as well as the qualitative data constituting the empirical framework of this study was collected by means of questionnaires. The questionnaires were used to elicit data from banks managers and their customers. Considering the research model, a three-part questionnaire was developed for the first group of this research which designed for banks managers. First Part contains questions, which gives an idea about Cost and profit with regard to the use of IT to increase profitability and decrease cost. Second part gives an idea about IT and communication effectiveness. Third part contains questions about customer satisfaction and loyalty in regard to the relationship between bank and their customers. Using likert scale with responses recorded on a five point scale with 1 indicating "strongly disagree" and 5 indicating "strongly agree".

On the other hand in order to examine customer attitude towards technology–based services, and also to get idea about customer's opinions in regards to ease of use and complexity of various transactions and products offered by banks, under Information Technology and about the quality of services provided by Indian banks. Therefore another design of questionnaire was developed for customers, the Second population group of this research to examine if these developments in services provided by their banks have benefited customers and accordingly satisfy them. List was design comprising three section of questionnaire. The first part captures information relating to customer attitude toward e-banking. Likert scale is used in order to identify the respondents' perceptions towards Internet banking adoption.

While In second section the respondents were asked about their degree of satisfaction in regard to banking services with responses recorded on a five point scale with "1" indicating "dissatisfy" and "5" indicating "highly satisfy".

4.8 Data Analysis and Processing Methods

Qualitative data analysis is a systematic process of selecting, categorizing, comparing, synthesizing and interpreting data to provide explanations of the single phenomenon of interest (White, 2003)[20]. Collected data through empirical survey analyzed and interpreted, and hypotheses formulated as a part of this research were tested using various statistical analyses.

Analysis: involves breaking up the data into manageable themes, patterns, trends and relationships (Mouton 2001)[21]. This is done in order to understand the various constitutive elements of data through an inspection of the relationships between concepts, construction or variables.

Interpretation: involves the synthesizing of data into larger coherent wholes (Mouton 2001)[22] It is about interpreting and explaining observations by formulating hypotheses or theories that account for observed patterns and trends in the data. There are two types of data analysis namely descriptive data analysis and inferential data analysis. Descriptive data analysis; describes data through the investigation and distribution of scores of each variable. It determines whether the scores of the different variables relate to each other.

Inferential data analysis; deals with empirical proof, enabling the researcher to make conclusions on populations from the sample data of empirical evidence. Bothe these approaches were employed in this research and they resulted in the presentation of tabulations, tables and the use of statistical graphs. Finally data reliability and validation procedures were carried out. Validation checks were applied that involved reliability analyses of questionnaires responses and item analyses. Reliability analysis has been ensured in this chapter as a result of outlining the research design and methodology in addition to measures. The data collected are then processed using the Statistical Package of Social Science (SPSS) computer software. The function of SPSS is to help researcher to analyze the result of the questionnaire and then to be interpreted the finding. The research instruments that the researcher intends to apply in this thesis are Reliability Analysis (Cronbach's Alpha), Frequency Distribution, Descriptive Statistics Analysis, Correlation and Regression analysis.

4.8.1 Reliability and validity of the study

The use of reliability and validity are common in quantitative research and now it is reconsidered in the qualitative research paradigm. The concepts reliability and validity, concern the degree to which the measuring instrument is free of measurement error. Reliability and validity are essential criteria for developing trustworthy information. Literatures also suggest that the best resolution to the problem of reliability and validity is to verify research findings by quantitative methods whenever possible (Runyon and Stewart 1987)[23].

- **Reliability Test**

Reliability refers to the degree to which a measure is free of variable error. In other words the less error the greater reliability. Reliability refers to the accuracy, consistency, stability over time, of a measurement instrument. As mentioned in some previous research the most common way to assess the reliability of the measurement instrument is to evaluate the internal consistency of items in a scale. Internal consistency is the degree of homogeneity among the items that constitute a measure. That is, the degree to which the items are interrelated and measure a single trait or entity.

The most common type of reliability measurement evaluates the internal consistency of items in a scale. In this dissertation, Cronbach's alpha is used to determine the reliability of the study. All the constructs were tested for the consistency reliability of the items within the constructs by using the Cronbach's Alpha reliability analysis. Cronbach's alpha is a reliability coefficient that indicates how well the items in a set are positively correlated to one another. In this research Cronbach's alpha is used to determine the reliability of the scales and results. According to Nunnally (1978)[24] common guideline, an acceptable range of alphas is between 0.50 and 0.90. Thus, the results can be considered as good or at least acceptable.

4.8.2 Testing of Hypothesis

Hypotheses formulated as a part of this research were tested using various statistical analyses. The first three hypotheses are aimed at the justification of the relationships between effective communication of MIS customer satisfaction and cost and profit. In this respect the additional value of this research comes from the fact that it also explores the level of IT implemented by the banks in Pune and presents correlation between the communication effectiveness and ways to expanding customer base through IT-based products and service and accordingly to enhance customer satisfaction (H4, H5&H6).

In order to examine the level of customer satisfaction regarding e-banking services and their interplay in different banks, various statistical techniques have been applied like frequency distribution, percentage, mean, standard deviation, chi-square T-Test and ANOVA.

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