Chapter 3

Research Methodology
Chapter 3: Research Methodology

According to Cooper and Schindler (2003a), a useful way to design research study is as a two-stage design. a. Clearly defining research question b. developing research design.

3.A. Research question

Literature review in quantitative study helps deductively as the basis for advancing research question or hypothesis says Cresswell (2003). According to Cooper and Schindler (2003b), a research question is a basic statement of the dilemma that prompts research which further can progressively lead to original questions into more specific ones.

A good research question is described by the acronym FINER - Hulley & Cummings, (1998)

(F)easible (adequate subjects, technical expertise, time and money, and scope)

(I)nteresting to the investigator

(N)ovel (confirms or refutes previous findings, provides new findings)

(E)thical

(R)elevant (to scientific knowledge, future research directions)

Considering the above factors, the researcher identified the following research questions:

1. Whether satisfied customers provide a competitive advantage to Indian banks?

2. Whether there is any relationship between use of information technology for improving customer relationship management and customer satisfaction in Indian banks?
3. What are the factors that affect the deployment of e-CRM (Electronic customer relationship management) in Indian banks?

Metron (2007) identifies three principal components in the progressive formulation of a research question originating the question (What), rationale (why) and specify the question (problem answer). The research questions mentioned above encompass all three components.

3.B Objectives of the study

The purpose of the study sets the objectives, the intent and the major idea of a study-Cresswell (2003).

As e-CRM has emerged as a major business strategy for e-commerce, evaluating its effectiveness is very important. However, little research has been conducted to evaluate e-CRM effectiveness.

The effectiveness of e-CRM can be measured as a satisfaction level achieved by e-CRM activities. For banks to achieve ROI (return on investment) from e-CRM, investments in the application domains and technologies for CRM should contribute tangible business benefits to the enterprise, as well as intangible benefits. All the benefits cannot be measured in financial terms. Benefits like customer satisfaction, increased loyalty cannot be directly measured in monetary terms. But these can be indirectly assessed through increase in deposits and loans as well as operating profits and reduction in operating cost. Considering the above factors, major objectives of the study were designed as follows:
- To examine whether there is any relationship between the level of customer satisfaction and/or customer retention and extent of implementation of e-CRM in banks.
- To study the role of e-CRM vendors, e-CRM consultant/s and the implementation partners towards implementation of e-CRM in Indian banks.
- To study the impact of e-CRM related training towards effective deployment of e-CRM.
- To have comparative study of the status of e-CRM projects in private sector, public sector and cooperative banks.
- To identify/study CSFs, milestones and bottlenecks in the implementation of e-CRM projects.
- To study appropriateness of information technology (hardware, software and different customer communication channels) for e-CRM projects.

3.C. Geographical scope of the study

As per the 2010 census of India estimate, the population of the Pune urban agglomeration is pegged around 5,518,688. This includes the twin-towns of Khadki, Pimpri-Chinchwad and Dehu. Growth in the software and education sectors in Pune has led to an influx of skilled labour from across India. The population of the urban agglomeration was estimated to be around 4,485,000 in 2005. The migrating population rose from 43,900 in 2001 to 88,200 in 2005. Being one of the largest cities in India, and as a result of its many colleges and universities, Pune is emerging as a prominent location for IT and manufacturing companies to expand. Pune has the sixth largest metropolitan economy.
and the second highest per capita income in the country. Also, Pune is a host to branches of almost all major Indian as well as foreign banks. Further, Pune-Pimpri-Chinchwad is known to be Asia’s largest industrial belt whereas Pune city by itself is an educational hub as well as fastest growing software city. Further, Pune, being the hometown of the researcher, got preference for geographical scope.

Mumbai is the ‘economic capital’ of the country and most of banks in India have their data centers in Mumbai. Mumbai is India’s largest city and is the financial and commercial capital of the country as it generates 6.16% of the total GDP. It serves as an economic hub of India, contributing 10% of factory employment, 25% of industrial output, 33% of income tax collections, 60% of customs duty collections, 20% of central excise tax collections, 40% of India’s foreign trade and ₹40 billion (US$ 910 million) in corporate taxes.

A combination of Pune and Mumbai together had a potential for good representative sample with cultural variety as well as a robust educational background to provide the views about e-CRM in banks. Considering above reasons, researchers has considered Pune and Mumbai as the geographical scope for the study.

3.D. Nature of research

The study attempts to identify different people, process and technology related factors that affect the deployment of IT-enabled customer relationship management practices in banks.

In the view of Karimi et al.(2001), the current classification of CRM applications identifies three groupings :(1) Operational CRM products for improving customer...
service, online marketing, automating salesforce, etc. (2) Analytical CRM products for building datawarehouses, improving relationships, analysing data, etc. and (3) Collaborative CRM products for building online communities, developing business-to-business customer exchanges, personalising services, etc. The study explored collaborative CRM and part of operational CRM in Indian banks in a sectoral (private, public and cooperative) comparative manner.

To achieve the objectives of the study, the researcher has explored a mix of quantitative and qualitative (triangulated) approaches.

According to Cooper and Schindler (2003c), there are 2 major types of research designs. They are: Exploratory and Conclusive.

The purpose of exploratory studies is to formulate a problem for a more precise investigation or to develop hypotheses.

However, an exploratory study can also be conducted to enhance the familiarity of the researcher with the phenomena; he / she wishes to study some time later in a more scientific way.

Conclusive research is typically more formal and structured than exploratory research. It is based on large, representative samples, and the data obtained are subjected to quantitative analysis. The findings from such a research are considered to be conclusive in nature in that they are used as input into managerial decision making. Conclusive research is further divided into descriptive and causal research. Descriptive research studies are generally concerned with determining the frequency with which something occurs or the relationship between two variables.
The descriptive research studies are typically guided by an initial hypothesis. When a problem that is already known and has a description of it, one may like to know why things are the way they are. The purpose of causal research is to explain "why". In causal research, the researcher goes beyond focusing on a topic or portraying it. He or she looks for causes and their effects and their relationships. A causal research is concerned with determining cause-effect relationships and such studies typically take the form of experiments, because experiments are best suited to determine cause-effect relationships. Cooper and Schindler (2003d) mention in their book on business research methodology that the area of investigation may be so new or so vague that the researcher needs to do exploration. On the other hand, causal approach helps in finding cause-effect relationship in the area of the problem.

Considering the definition of exploratory research by Krishnaswami (1997a), two levels of exploratory research include discovery of significant variables in the situation in level one and discovery of relationship between them at level two. The current study can be considered as a combination of exploratory and causal in nature which further employs both quantitative as well as qualitative techniques, which are discussed in details in the sections to come.

3.E. Hypotheses

A large part of e-CRM involves technology; however, viewing e-CRM as a technology-only solution is likely to fail - Chen and Popovich (2003); Greenberg (2000) and Zablah, (2004). Prior studies suggest that both e-service and people-service play an important role in the e-CRM process. The services literature suggests that personal interaction plays a
key part in creating satisfied customers - Crosby and Stephens (1987), Parasuraman, Zeithaml, and Berry (1985). Satisfaction and trust in e-CRM have been identified as important measures of relationship quality - Crosby, Evans and Cowles (1990) because a good buyer-seller relationship enables reductions in uncertainties caused by service failure and negative outcomes - Roloff and Miller (1987), Zeithaml (1981). Organisations should enhance e-service quality for increasing people-service quality to meet the customer’s expectations (satisfaction) and interests (trust) in each service interaction toward e-CRM performance that will help measure performance. Theoretically it is expected that there should be a positive relationship between and among e- and people-service quality, satisfaction with and trust in e-CRM, and e-CRM performance.

E-CRM techniques are important for enabling institutions to respond to complex marketing changes, at least in service interaction marketing. Zablah et al. (2004) have suggested the development of conceptual models and the extension of their measurement to enable a better understanding of the natural e-CRM process. Their suggestion leads the researcher to define e-CRM success as an institution’s capability to build a “profit-maximizing portfolio” of customer relationships. Their research suggested that the relationship quality is one effective way to reduce the uncertainty resulting from service failure and negative outcomes - Roloff and Miller (1987), Zeithaml (1981), and enable organizations to continue reaching their customer’s expectations (satisfaction) and interests (trust). Also, some studies have concluded that a successful buyer-seller interaction relationship raised levels of customer satisfaction. Thus, it is very important for this study to discover whether satisfaction and trust mediates the relationship between and among the independent variables of people- and e-service quality and dependent

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variable of e-CRM performance. In other words, the researcher wishes to discover when adding the mediating roles of satisfaction and trust into the e-CRM performance process, whether these roles will enhance the relationship between and among people- and e-service quality and e-performance.

Considering the above references, the researcher has designed three hypotheses for the study.

HI: The successful implementation of e-CRM projects in Indian banks is a result of optimum combination of information technology and management of internal customer related business processes.

Findings of the paper by Kimiloglu H. and Zarali H. (2009), indicate that Companies with higher levels of perceived e-CRM success claimed significantly higher levels of improvements in customer satisfaction. According to Liu, Zhou and Chen (2006), despite the agreement that e-CRM has direct or indirect influence on customer satisfaction, the significance and the determinants of e-CRM in influencing customer satisfaction have not been well researched.

Hypothesis H1 was based on the above findings which interlinks successful e-CRM implementation to improved customer satisfaction and further significant determinants that influence the customer satisfaction.

Customer satisfaction, in the study was considered as a measure of how services provided by the banking organisation meet the expectations of the customers. In all 14 factors were identified (Question 36 from questionnaire for customers), which comprised of the factors related to extent of IT based CRM services and customer related internal business...
processes. Researcher tested the relationship between the impact of quality of IT-based services on overall customer satisfaction.

H2: Information Technology helps in improving trust amongst bank customers in India.

A successful e-CRM implementation is expected to improve the customer satisfaction and in-turn result into trust in banking organisations. A major portion of customers in Indian banks is in the form of corporate customers and retail customers. Assets and liabilities of banks were considered as indicators of trust. Total deposit amounts along with Loans and Advances were measured to quantify the trust factor in banks. The relation between deposit, loans and advances amounts and expenses on IT resources was tested.

H3: The higher the e-CRM competencies and implementation, higher is the organisations’ ability to generate profits.

Organisations’ performance in the study was considered as an output against investments in IT related resources. Operating profits were considered as an indicator of the benefits achieved by banks against expenses on IT resources.

Expenses on IT resources comprised of expenses on respective software, hardware and networking expenses.

3. E.1. Dependent variables and Independent variable in the study

Dependent variable is the factor whose variables are compared across different treatment conditions during the study. The value of the dependent variable depend on the value of other variables; the independent variables. The researcher is interested in determining if the value of the dependent variable varies when the independent variable is varied.

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other words, does a change or variation in the independent variable cause or effect a change in the dependent variable. The variable that is manipulated in order to determine if it has an effect on the dependent variable is called as an independent variable.

Considering the above definition of dependent and independent variables mentioned by Sekeran (2009), following items were identified as dependent variables in the study:

1. Customer satisfaction: The study was focused on the quality of the IT based CRM capabilities of banking organizations that have impact on the customer satisfaction.
2. Organizational performance: Technology is expected to improve operational profits per employee and per branch, which is considered as an indicator of IT-based improvement in the performance of the organizations. Further, total deposits, loans and advances were considered as indicative of customers’ trust in the banks. Study has also observed total deposits and loans and advances as the indicators of banks performance in financial terms.

The following were identified as independent variables in the study:

1. Perceptions of customers about quality of Information Technology based services provided by banks (e.g. Call centres, net-banking and ATM services) were considered as independent variables.
2. People and Process related details in deployment of e-CRM (customer related processes like trainings provided, quality and frequency of feedbacks, modes and channels for feedback, role of consultants and top management) were considered as another set of independent variables in the study.
The results of a survey conducted by Database Group (2006) suggest that 65% of the organizations, in-spite of well defined CRM strategy in place, suffered from failed or delayed implementations of IT-based CRM. The researcher has considered 2 theoretical models while framing the conceptual model. Taking the clue from this, the researcher has attempted to take a deeper view of People, Process and Technology aspects of e-CRM deployment in banks. People and process aspects are clubbed to form internal business processes and another driver in the study was Information Technology.

e-CRM capabilities of banking organizations (specific to retails) are the services provided by the banks supported through the Information Technology as the medium. The study has taken into consideration three major services by banks i.e. Call centres, Net-banking and ATMs to assess the e-CRM capabilities of the banks. (Refer to the e-CRM functional architecture in figure 1.2, part of operational and collaborative CRM was considered for the customer satisfaction survey whereas for interaction with bankers, all the three components i.e. operational, analytical and collaborative CRM were considered.)
In the figure 3.1 which represents the conceptual model for the study, the customer satisfaction was the dependent variable which was evaluated through parameters like perceived quality of call centres, net-banking and ATMs, efficiency of complaint resolving system, quality of services provided by bank, savings in time due to implementation of e-CRM and system for informing product updates to customers.

Organizational performance of the banks through financial indicators like its operating profit per branch, saving deposits in banks was tracked for last 9 financial years (2001-2009, both inclusive).

3.G. Data collection techniques

During the study, the researcher explored the e-CRM scenario in Indian banks from five different perspectives: direct interactions to understand Customers’ perspective, bankers’ perspective, Vendors’ perspective, consultants’ perspective and secondary data about financial performance of banks.

3.G.a. Primary data

The study investigates the e-CRM in banks from four different perspectives, those of the customers, the bankers, the CRM consultants and the e-CRM vendors.

i) Survey

The study uses the survey technique considering its advantages such as versatility, generalization, flexibility, sensitization to unknown problems and helps in verifying theories- Krishnaswami (1997b).
Another advantage of the survey design is that it provides a quantitative or numeric description of trends, attitude or opinions of population by studying a sample of that population.

The study involved a survey of customers. The questionnaire was administered by the researcher as the tool for data collection. Six hundred and thirty five questionnaires were floated personally as well as through GoogleDocs. Five hundred and eighteen questionnaires were returned to the researcher. Out of which 403 completely and properly filled questionnaires were considered for further analysis. The response rate in this case was approximately 64%.

ii) Structured interviews

In its simplest form, a structured interview involves one person asking another person a list of predetermined questions about a carefully-selected topic. The person asking the questions ("the interviewer") is allowed to explain things to the interviewee (or "respondent" - the person responding to the questions) if he / she does not understand or finds confusing. The interactions with bankers and e-CRM consultants were in the form of structured interviews supported with open end discussions. Furthermore, it enabled the researcher to examine the level of understanding, the respondents had about a particular topic - usually in slightly more depth than with a questionnaire.

A structured interview is sometimes also called as standardized interview. The same questions are asked to all respondents. Corbetta (2003), states that the structured interviews are, "... interviews in which all the respondents are asked the same questions with the same wording and in the same sequence." It would be ideal if questions can be
read out in the same tone of voice so that the respondents would not be influenced by the tone of the interviewer-Gray (2004).

Bryman (2001) explains that the structured interview entails: "... the administration of an interview schedule by an interviewer. The aim is for all interviewees to be given exactly the same context of questioning. This means that each respondent receives exactly the same interview stimulus as any other. The goal of this style of interview is to ensure that interviewees' replies can be aggregated ... Questions are usually very specific and very often the respondents have a fixed range of answers (this type of question is often called closed, closed ended, pre-coded, or fixed choice).

This technique of structured interviews was used by the researcher to explore the insights about the e-CRM activity in the banks.

iii) Unstructured Interviews

This type of interview is non-directed and is a flexible method. It is more casual than the aforementioned interviews. There is no need to follow a detailed interview guide. Each interview is different from the other. The respondents are encouraged to speak openly, frankly and give as much detail as possible. The strengths of unstructured interviews lie in the fact that no restrictions are placed on questions. This method is useful when little or no knowledge exists about a topic and help to collect background data. Unstructured interviews are flexible and the researcher is able to investigate underlying motives. The e-CRM vendors (2 in number) were interviewed with open ended questions to gain insights about technology appropriateness, level of customization, problems encountered in deployment of e-CRM software and future trends in IT-enabled CRM in banks. These
interviews helped the researcher to understand the long-term plans of the vendors and future trends in the area of e-CRM in financial institutions.

3.G.b. Secondary data

Secondary data, in the view of Krishnaswami (1997c), serves as the basis for specific information for the study that can be used as benchmark and is available at cheaper cost with wider geographical area and longer reference period. The researcher gathered secondary data for 54 Indian banks for financial years 2001-2009. Details of these data are available in the annexure.

Following were the sources of the secondary data collected for the study.

- Business today (banking special issues for last 9 years)
- CMIE-Prowess database
- Reserve Bank of India website (www.rbi.org)
- Journals and books (List available in bibliography)
- Respective bank websites
- Websites of Indian Banking Association, Institute of Research and development in Banking Technology

3.H. Sample frame

A well thought out sampling (partial representative of population, body of people or objects which is of interest to the researcher) not only reduces the time and cost of the research but also provides faster results. - Belton (2005).
A good sample 1) Saves the time of the researcher 2) Reduces the cost of the research 3) Saves labour 4) Improved quality of the study 5) Provides better and quicker results.

The study explored different sampling techniques for choosing right sample representing different respondents and banks under study.

3.H.1. Sample

Sample is a sub-group of population (elements or subjects) selected for participation in the study. The researcher applied different sampling techniques for different sets of respondents. They were as follows:

• Sample for customers was selected using Non-probabilistic, disproportionate, judgmental technique. Non-probabilistic technique ensured that a number of sub-groups in the field of study were well-covered. Further, it helped to compare results across sub-groups. In the study, there was a wide variation in the studied characteristic within groups.

Judgmental sampling technique gave an opportunity to the user to judge while selecting items which she considered as representative of the population. Judgment sampling is used quite frequently in qualitative research where the desire happens to be to develop hypotheses rather than to generalize to larger populations.

Disproportionate sample is one in which certain groups are over-sampled in relation to their actual representation within a population. This ensures that enough members of that group to allow for statistical analyses of their opinions.
It was practically impossible to identify the list of bank customers in Pune and Mumbai. Hence, it was not possible to use the Kessie Morgan’s formula for determining the sample size. The researcher referred to some of the international research papers, based on the e-CRM studies conducted across the globe to decide the sample size. Duh, Chow and Chen (2004) conducted a study in which sample size was finalised as 284 for banks in Taiwan, to understand implications of IT on CRM and performance of the firms. A study was conducted by Raap, Trainor and Agnihotri (2009) with the objective of investigating the role of CRM technology in CRM orientation and performance implication of customer linking capabilities, the sample size was finalized as 215. A research paper titled ‘Customer-focused technology and performance in small and large banks’ by Luneborg and Nielsen (2003) based on the research work in Denmark, Finland and Norway, the sample size of 278 was considered. Zineldin (2005), in a research paper entitled ‘Quality and Customer relationship management (CRM) as competitive strategy in the Swedish banking industry’, which examined the competitive advantages offered by e-CRM as a strategy, fixed sample size as 300 that comprised of randomly selected names from a telephone directory. Further, a paper published in the journal, ‘Abhigyan’ by Dharmendra Singh (2008) studied Consumers’ perspective about the factors affecting internet banking in India which was an empirical study, considered sample size of 268 for Lucknow city in Uttar Pradesh.

Taking a clue from above research papers in the area of e-CRM, sample size for the study was finalized as 400.
• The sample for the banks was derived using Probabilistic, disproportionate stratified, judgmental technique. Probabilistic sample selection technique selects a sample in a way that each population item has a known probability of being included in the sample and the sample is randomly selected. Stratified sampling is the process of dividing a population into subpopulations that have similar characteristics. Strata must be defined so that each sampling unit can only be in one stratum. Disproportionate Sampling is one in which elements were selected from strata in different proportions from those that appear in the population. Belton (2005), in his book on data management mentions that judgmental sampling in which investigator selects the objects of study on the basis of their ability to contribute. This technique is more appropriate for in-depth study when the population is small.

A sample size of 30 branches of 10 different Indian banks with their branches in Pune and Mumbai was finalised for the structured interviews. CRM managers / Branch managers / CRM officers or IT heads in respective banks were targeted for getting the details about e-CRM projects in their banks. During the data collection phase, the researcher could interact with 34 branches of 11 Indian banks which exceeded the sample size. Out of these 11 banks, 5 were public sector banks, 4 were private sector banks and 2 were cooperative banks.

• The sample for e-CRM consultants was designed using non-probabilistic snowball technique in which further references are drawn from existing respondents. The 'snowball' effect occurs as referrals multiply at each step. Snowball sampling can be applied for two primary purposes. Firstly, and most
easily, as an ‘informal’ method to reach a target population. If the aim of a study is primarily explorative, qualitative and descriptive, then snowball sampling offers practical advantages - Hendricks, Blanken and Adriaans (1992). Snowball sampling is used most frequently to conduct qualitative research, primarily through interviews. Secondly, snowball sampling may be applied as a more formal methodology for making inferences about a population of individuals who have been difficult to enumerate through the use of descending methods such as household surveys- Snijders (1992), Faugier and Sergeant (1997). The main value of snowball sampling is as a method for obtaining respondents where they are few in number or where some degree of trust is required to initiate contact. Under these circumstances, techniques of ‘chain referral’ may imbue the researcher with characteristics associated with being an insider or group member and this can aid entry to settings where conventional approaches it would find difficult to succeed. This technique yields maximum benefits when it is difficult to have access to sufficient people with the characteristics that are sought.

The researcher interacted with 8 e-CRM consultants from different IT industries as well as independent consultants through structured interviews.

- The sample for e-CRM vendors was derived using non-probabilistic and judgmental way. Representatives from two major players in e-CRM development i.e. Infosys and i-Flex were interviewed.

- Lists of 54 banks that were considered for secondary data collection, 11 banks considered for primary data collection and 8 e-CRM consultants are available as a part of the annexure.

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A questionnaire is a set of pre-formulated questions for gathering information from individuals. One can administer questionnaires by mail, telephone, using face-to-face interviews, as handouts, or electronically (i.e., by e-mail or through Web-based questionnaires). There are basically two types of questionnaires: Structure and semi-structured. Structured questionnaires allow for the exploration of the patterns and the trends which help to describe what is happening in and around and provide a measure of respondents’ opinions, attitudes, feelings, and perceptions about issues of particular concern to the evaluator. They also help to identify patterns and trends that merit further exploration using qualitative methods.

Semi-structured questionnaires allow for richer feedback that may provide insight into explanations for what is happening and participants’ opinions, attitudes, feelings, perceptions etc. They also allow for issues to emerge that are not necessarily foreseen by the evaluator.

Major benefits of using questionnaire are that

- Questionnaires can be used to collect data quite quickly.
- All participants can be given the opportunity to provide feedback.
- Feedback is generally anonymous, which encourages openness and honesty.
- Structured questionnaire data can be processed by software packages such as Excel and SPSS.

The present study has deployed questionnaires in the following areas:

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• Customer survey, being the largest part of the respondents for the study, questionnaire was administered by the investigator to get better understanding about the customers' perspective about IT-based customer relationship management efforts by banks.

The questionnaire included 5-point Likert scale for measuring the quality of e-Services provided by the banks.

The questionnaire for the customers also included the questions in which the respondents could provide the answers in the form of simple rating, multiple choices and paired comparison rating.

The questionnaire was tested for construct and content validity and reliability, details of which are mentioned in the section 3.L.1.

• Senior executives in banks, with the experience of more than 10 years, preferably branch heads, CRM managers and IT heads were interviewed for in-depth understanding about technology used by the banks for the CRM purpose, their perception about benefits of IT-enabled CRM to banks, strategy for implementation of CRM packages etc. The interview was supported by a questionnaire with close ended as well as open ended questions. Interactions with e-CRM consultants rendered experts opinions and views about deployment of CRM packages in banks. Interviews of consultants were supported by a questionnaire with open as well close ended questions.

Both the questionnaires, for bankers and consultants included questions where answers were requested using Likert scale, simple rating and paired comparison rating method.
• The e-CRM vendors, being very few in number, were interviewed thoroughly for understanding the range of technologies used for developing e-CRM packages, problems encountered during deployment of the packages and upcoming technological trends in e-CRM packages.

3.1. Reference period for the study

Cross-sectional study, according to Krishnaswami (1997d), is the most predominant design employed in survey research. It is an attempt to approximate the after-only control group design by using cross-sectional tabulation and statistical techniques.

Customer satisfaction survey was cross-sectional (snap-shot) in nature, where the total duration of the research was of three and half years, out of which primary data collection from different respondents was done within the period of 8 months. Secondary data about different financial indicators of banks in India was collected for the period of 2001-2009, which was longitudinal in nature.

Following were some of the reasons for considering the period of 2001-2009 for secondary data collection.

The last decade has experienced all ups and downs and technological advances in banking and financial sector in general. Over the past decade, domestic Indian banks have made huge investments in modernizing their systems. RBI estimates that from September 1999 to March 2009, public sector banks invested Rs. 18,168 crores in computerization and development of communication networks. Centralized core banking is now the norm rather than the exception and public sector banks have caught up, or in some cases even surpassed their private banking counterparts in their technological
efforts. The RBI estimates that by the end of March 2009 almost 80% of public sector
bank branches were already on core banking systems.

It was interesting to note that when the financial crisis hit the developed western world in
2008 and the shock waves spread to most other countries, Indian banking system could
withstand the shocks and remain stable. Indian banks have remained resilient even during
the height of the subprime crisis and the consequent financial turmoil. The financial
reforms processes undertaken since 1991 have made the banking sector healthy sound,
well capitalized and competitive.

The return on assets of scheduled commercial banks (SCBs) was 0.6% in 2000-01 and
increased to 1.1% by 2009-10. Gross non-performing assets to gross advances declined to
2.5% from 11.4%, reflecting improved asset quality. The capital strength, as measured by
the capital adequacy ratio, has also improved from 11.4% in 2000-01 to 14.6% in 2009-
10. During last decade, banks have added more than 14000 branches and 41000 ATMs to
their network in the last decade, besides broadening the scope of delivery channels to
internet banking, mobile banking and call centre. Banks have rolled out technology to the
advantage and benefit of the customers. The growth rate of Indian banks in the last
decade was much higher than in the preceding decade and there is no doubt that the
present decade would offer even more exciting opportunities.

Customers are shifting their transactions to electronic channels such as ATMs, touchtone
phone, internet and mobile phones. Banks have replaced long benches providing their
nominal-impression to the customers with private seats to chat about investment
products.

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Latest technological equipments have helped banks in despondent-cost, multi-channel, genuine-calculate transaction processing, thus rising operational efficiency, productivity and profitability. The decade also saw the entry of new yet grown-up Indian private-sector banks, which brought world class equipment, products and consumer benefit to the Indian markets.

With limited customer base and similar services to offer, the progression strategies of most of the banks in India gyrate around consumer relationships. This created a need provide exceptional broadcast skills and equipment which could give an additional proposition of struggle is that a swarm of new products are available to customers.

During the last decade, the advent of electronic payment modes has speeded up transaction processing and settlements. The NECS, with its centralized processing capability coupled with the implementation of Core Banking Solutions (CBS) has brought down the clearing and settlement cycle. Electronic Fund Transfer (EFT)/National EFT (NEFT) is another illustration, where better process reengineering coupled with CBS and strict adherence to NEFT procedural guidelines has made this product offer fund transfer service on a near real time basis to the customers. Apart from these retail payment systems, we have the Real Time Gross Settlement (RTGS) for large value transactions. Thus what technology has done is provided speedier clearing and settlement of transactions, i.e. it has helped us in achieving to traverse a portion of the existing path faster.

The significance and relevance of this study becomes more important and relevant because of the instructions by RBI to switch all the banks to Core banking solution before March 2011, and to increase the customer-centric approach.

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With the above scenario in the backdrop, it was imperative to examine and understand, whether the customers and the banks have experienced the desired benefits of this investments in the IT.

3.J. Pilot study

Taking the reference of Cornell technique of the views by Guttmann (1947), pre-testing of the questionnaire for customers was done in three steps: The Universe was defined as all the retail bank customers in Pune and Mumbai, a number of items were developed and pre-tested the statement for 30 respondents.

3.K. Validity and Reliability of the data

Krishnaswami (1997e) strongly believes that validity and reliability aspects of data are interrelated and an instrument that is valid is always reliable.

Validity refers to the accuracy, trustworthiness of instruments, data and findings in research - Harvey Russell Bernard (2000).


3.L Statistical measurement

Percentage difference, though, a very useful and a simple way of assessing association has its own limitations. Assessment of association between variables by percentage difference just gives us an understanding of association likely to exist in sample. It does not tell us if the inference drawn will hold good to the population from which the sample
is drawn. Which means the inference may be just a chance. Therefore, to know that the inference is not by chance one needs to compute some inferential statistical tests.

According to Krishnaswami (1997e), statistical analysis has some significant advantages, which are mapped to the study conducted and are as follows:

i. To summarize the large amount of data to understandable and meaningful form, this facilitates further analysis.

ii. To make exact description possible.

iii. To facilitates identification of causal factors underlying complex phenomenon.

iv. To draw reliable inference from observational data.

v. To make estimation or generalization from the results of sample survey.

vi. To assess the significance of specific sample results under assumed population condition.

Following were the statistical measure applied by the researcher to gain insights about the strengths of association amongst the different components of the research.

3.1.1. Validity

Cooper and Schindler (2003), Krishnaswami (1997) refer to construct, content, criterion and predictability validity of data.

Content validity for the questionnaire designed for customer satisfaction survey, the responses were tested using face validity. Opinions of the research guide and other experts working in banks in the capacity of CRM manager were sought during the process of testing the face validity. For fine-tuning the length of the questionnaire,
number, wording and sequence of the questions, the researcher sought the opinion of an expert in the area of psychology and behavioural science.

To maintain the construct validity, the questionnaire for customers was designed on the bases of two models for customer satisfaction measurement. In the SERVQUAL model, Parsuraman, Berry and Zeithaml (1988) suggest five major factors as reliability, assurance, responsiveness, empathy and tangibles which affect the overall satisfaction of customers. Another model by N. Kano et al. (1984) segregates the factors that can have positive impact on customer satisfaction into basic factors (must haves), excitement factors (attractive) and performance factors. Three more types of attributes mentioned by Kano are indifferent attributes, questionable attributes and reverse attributes.

The statistical testing of the content and the construct validity was done through regression test and Factor analysis.

3.1.1.a. Regression

A regression assesses whether predictors account for variability in a dependent variable. Regression analysis is used to predict the behaviour of the dependent variables, based on the set of independent variables. In regression analysis, dependent variables can be metric or non-metric and the independent variable can be metric, categorical, or a combination of both metric and categorical.

The researcher applied regression model to predict the impact of the items that measured quality of e-services on overall customer satisfaction.
3.L.1.b. Factor Analysis

Factor analysis is a technique that is used to reduce a large number of variables into fewer numbers of factors. Factor analysis extracts maximum common variance from all variables and puts them into a common score. Confirmatory factor analysis is used to determine the factor and factor loading of measured variables, and it is used to confirm what is expected from the basic or pre-established theory. Confirmatory factor analysis assumes that each factor is associated with a specified subset of measured variables. After confirmatory factor analysis, Principal component analysis was applied. This is the most commonly used method by the researchers. The principal component analysis starts extracting the maximum variance and puts them into the first factor. After that, it removes that variance explained by the first factors and then starts extracting maximum variance for the second factor. This process goes on till the last factor is identified.

Factor analysis was of great help to the researcher to group the items that could affect the level of customer satisfaction. Results of factor analysis were used for testing the hypothesis H1.

3.L.1.c. Reliability

The degree of reliability of a measure is indicated by the extent to which it contains variable error, i.e. differences in measuring results from object to object during any one measuring instance and differences between different measurements of the same object at different time by the same instrument –Krishnaswami (1997e).

To test the internal consistency of the data, Cronbach’s alpha value was referred. Another test that was applied by the researcher to measure the internal consistency was half-split
test. In the view of Kaplan & Saccuzzo (2001), a test given and divided into halves and are scored separately, then the score of first half of the test are compared to the score of the remaining half to determine the reliability.

Hypotheses in the study were tested using quantitative approach. Cresswell (2003) mentions that quantitative approach is one in which the investigator primarily uses post-positivist claims for developing knowledge (i.e. cause and effect thinking, reduction to specific variables and hypotheses and questions, use of measurement and observations and test of theories), employs strategy of inquiry such as experiments and surveys and collects the data on predetermined instrument that yields statistical data.

Cooper and Schindler (2003) opine that there are basically two approaches to hypotheses testing: the more established is the classical or sampling-theory approach and the second one is known as Bayesian approach. The first approach is totally dependent on the analysis of sample data collected. Bayesian approach is an extension of the classical approach where in addition to the analysis of sample data this includes subjective probability estimates stated in terms of degree of belief. These subjective estimates are based on general experience rather than on specific data collected. Such estimates are revised after sample information collected, are called posterior distributions. The researcher has applied classical approach based on the analysis of the sample, which did not involve ‘post-experiment questionnaires’ (PEQs) as in mentioned Bayesian approach.

3.1.2 Correlation

Correlation is a bivariate analysis that measures the strengths of association between two variables. In statistics, the value of the correlation coefficient varies between +1 and -1. When the value of the correlation coefficient lies around ± 1, then it is said to be a perfect
degree of association between the two variables. As the value goes towards 0, the relationship between the two variables will be weaker. Usually, in statistics, one measure three types of correlation: Pearson correlation, Kendall rank correlation and Spearman correlation.

Hypotheses H2 and H3 were tested using Pearson r correlation, referring the value of Pearson coefficient.

3.L.2.a. Pearson r correlation:

Person correlation is used in to describe the strength and direction of the relationship between two variables. Taking the reference of Pallant (2001), Pearson ‘r’ correlation is widely used in statistics to measure the degree of the relationship between the linear related variables. The researcher has applied Pearson correlation to test the hypotheses H2 and H3.

3.L.2.b. Spearman rank correlation

Spearman rank correlation is a non-parametric test that is used to measure the degree of association between the two variables. Spearman rank correlation test does not assume any assumptions about the distribution. Spearman rank correlation test is used when the Pearson test gives misleading results.

3.L.2.c. ANOVA

ANOVA is a statistical method that stands for analysis of variance. ANOVA is the extension of the T and the Z test. Before the use of ANOVA, the T-test and the Z-test were commonly used. But the problem with the T-test is that it cannot be applied for
more than two groups. In 1918, Ronald Fisher developed a test called the analysis of variance. This test is also called the Fisher analysis of variance, which is used to carry out the analysis of variance between and within the groups whenever the groups count to more than two.

3.L.2.d. Content analysis

One of the objectives of the study was to identify a list of critical success factors for e-CRM projects in banks. On the website of Sage Publications (accessed on 10/12/2009), Content analysis is a widely used qualitative research technique. Content analysis show three distinct approaches: conventional, directed, or summative. All three approaches are used to interpret meaning from the content of text data and, hence, adhere to the naturalistic paradigm. The major differences among the approaches are coding schemes, origins of codes, and threats to trustworthiness. In conventional content analysis, coding categories are derived directly from the text data. With a directed approach, analysis starts with a theory or relevant research findings as guidance for initial codes. A summative content analysis involves counting and comparisons, usually of keywords or content, followed by the interpretation of the underlying context.

To identify people, process and technology related critical success factors, pre-requisites and metrics for e-CRM projects; the researcher applied directed content analysis for open end interactions with bankers, e-CRM consultants and e-CRM vendors.

3.M. References


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