Chapter Overview

This chapter starts with identification of problem in the CRM practices of Public & Private Indian Insurance sector followed by the methodology of research which begins by stating the objectives of the study, research design and instrument administered, sampling procedure, the profile of the respondents the stating of the hypotheses, method of analysis and limitations of the study.

3.1 Introduction

Research methodology refers to the research process, the procedural framework within which the research is conducted. This methodology as defined by Leedey and cited by Remenyi et al., (1998) is 'an operational framework within which the facts are placed so that their meaning may be seen more clearly'.

Some methods provide data, which are quantitative and some that are qualitative. This study is mainly based on quantitative research methods. Quantitative methods are those, which focus on numbers and frequencies rather than on meaning and experience. Quantitative methods (e.g. experiments, questionnaires and psychometric tests) provide information, which is easy to analyze statistically and fairly reliable. Quantitative methods are associated with the scientific and experimental approach and are criticized for not providing an in depth description.

Qualitative methods are ways of collecting data, which are concerned with describing meaning, rather than with drawing statistical inferences. What qualitative methods (e.g. case studies and interviews) lose on reliability, they gain in terms of validity. They provide a more in depth and rich description.
3.2. Need for Study

3.2.1 The Problem in Implementation of CRM practices in public & private Indian Insurance Companies

In recent years, many organizations have identified the need to become more customers facing with increased global competition and insurance sector is no exception. Therefore, Customer Relationship Management (CRM) has risen to the agenda of many organizational strategies. It is clear that there is still a need for further empirical studies of CRM however, only a few are available. The availability ranges from the study of (Abselon & Blaisdell, 2000) to that of IBM (Ciborra & Failla, 2000) and (Crook, 2002; Hewson, 2003; Van Delm, 2003 & Evan Schmith, 2006). It is against this background that this study offers a comparative study of the implementation of CRM practices in public and private insurance firms.

In the next section, the paper considers the concept of CRM and how CRM systems in insurance are reported upon in the literature. The data is used as a basis for an analysis of the reported thinking in the literature in an attempt to identify similarities and disparities between the CRM practices among public and private insurance firms. This leads into the conclusions of the study and recommendations for further research.

Whilst definitions are widespread, they tend to offer a narrow insight into the goals or basic characteristics of CRM. According to Light (2001), CRM evolved from business processes such as relationship marketing and the increased emphasis on improved customer retention through the effective management of customer relationships. Sandoe et al., (2001) argue that advances in database technologies such as data warehousing and data mining, are crucial to the functionality and effectiveness of CRM systems. CRM is a highly fragmented environment and has come to mean different things to different people (McKie, 2000). One view of CRM is the utilization of customer related information or knowledge to deliver relevant products or services to customers (Levine, 2000). Furthermore, Peppard (2000) suggests that technological advances in global networks, convergence and improved interactivity, are key to explaining the growth of E-Business and CRM. The increasing use of digital technologies by customers, particularly the Internet, is changing what is possible and what is expected in terms of customer management (Tamminga & O’Halloran, 2000). The appropriate use, for instance, of automation
technologies, such as interactive voice response systems and web-based frequently asked question pages, could be popular with customers and highly cost effective (Petrissans, 2000).

In insurance, CRM can be employed to develop an ongoing dialogue with the customers, integrated across all contact points. CRM allows integrating customer-interaction channels and providing consistency to their interactions with customers, generating better customer intelligence, customizing their offerings and communications to customers, managing customer interactions and relations more effectively and managing the customer portfolio by assessing the lifetime value of customers (Clemons, 2001).

CRM normally involves business process change and the introduction of new information technology, consequently effective leadership is important (Galbreath & Rogers, 1999). Because leaders monitor the external environments of an organization they are often, the best placed to set the vision or strategic direction for CRM projects. As CRM reaches into many parts of the business it has been suggested that insurance companies should adopt a holistic approach (Girishankar, 2000). For others, it goes further to constitute operational, analytical and collaborative elements (Trepper, 2000). Holistic approaches to CRM help organizations coordinate and effectively maintain the growth of disparate customer contact points or channels of communication. However, problems of channel conflict have been identified where by customer experiences differ depending on the sales channel (Peppard, 2000).

Another implementation issue is that of sourcing. Many insurance organizations have few alternatives but to outsource a significant proportion of their CRM solution as they lack the resources to develop CRM software. According to (Mac Sweeney, 2000), 60 per cent of in house CRM systems fail. Timing is also important as developing CRM software in house can be a lengthy process and there are rewards to those that can respond rapidly and appropriately (Howle, 2000). CRM is invaluable for identifying existing transactional customers and helping organizations to jettison them immediately. This has the double benefit of improving the prospects for one organization's profitability whilst potentially offloading burdens onto competitors.
CRM is a useful tool in terms of identifying the right customer groups and for helping to decide which customers to jettison (Newell, 2000). Jettisoning customers is necessary because of the high-maintenance, high cost involved in maintaining such relationships and the subsequent drain on an organization’s profitability. There may be a tenfold differences between the most profitable customers and the average. The idea that you cannot have a profitable relationship with all customers and the practice of targeting customers with a differentiated product or service is already widespread. Transaction customers are highly volatile and have little loyalty, other than that related to obtaining the best price. Relationship customers have far more potential for loyalty as they are often prepared to pay a premium price for a range of reliable goods or services (Newell, 2000).

There is a need to compare the similarities and differences in CRM practices among public and private insurance firms within insurance industry as both have been exposed to a pool of different dynamic conditions of business. Effective CRM implementation requires a front-line information system that shares relevant customer information across all interface units (Celly et al., 2004). Rational databases, data warehousing and data mining tools are thus very valuable for CRM systems and solutions. The challenge is to develop an integrated CRM application platform that collects relevant data input at each customer interface and simultaneously provides knowledge output about the strategy and tactics suitable to win customer business and loyalty (Seybold & Patricia, 1998).

Public and private insurance firms are facing increasing global competition resulting in the loss of some key customers. They have to be more proactive and proficient in their operating market and that its front office operations were in need of re-engineering. The best solution would be to explore the case for adopting CRM. The other major issue for both the sectors is the lack of knowledge pertaining to the concept of CRM. In reality, there is a problem in the selection process and lack of initial communication in CRM practices (IDC & AMR Research, 2001). The consequences of failing to engage key sponsors resulted the initial stages of the CRM project being impeded. Problems occur at the operational and analytical level. The public and private sector companies fail to fully appreciate and recognize the significance of using CRM to effectively target customers. Targeting profitable customers via CRM was only identified as an issue after the selection and
implementation process. No consideration was given to ensuring this function could be facilitated and the chosen software failed to identify customer profit zones (Girishankar, 2000).

CRM is needed to retain and offer the best possible services in public and private insurance sector in order to avoid them defecting to hungry competitors. CRM should be used to identify the best customer relationship practices and seriously consider the response required. Transactional customers contribute either nothing or have an adverse effect on profitability (Kabiraj & Sajal, 2001). The consensus therefore is that CRM is invaluable for identifying existing transactional customers and helping both the sectors of insurance to jettison them immediately. This has the double benefit of improving the prospects for one organization's profitability whilst potentially offloading burdens onto competitors.

CRM tools are meant to supplement a company's strategy and excellent implementation & appropriate strategy are both needed for obtaining successful results. It is important to consider CRM process framework in totality for public as well as private insurance companies. The lack of a CRM strategy or programme would leave the front-line people without any knowledge of what they should be doing with additional customer information that they now have access to (Ernst & Young, 2001).

Another dimension is the ability to deliver the strategy successfully. CRM strategies are only effective if they deliver positive outcomes. It is no longer good enough just to say that you are customer focused, but it matters, what you do. The consensus appears to be that the fundamental goal of CRM is to improve organizational profitability through efficient and effective customer relations (Berry, 1998). If the CRM strategy is struggling to influence profitability, after a reasonable period, then the organization is clearly failing. Thus, public and private insurance firms in this position should immediately consider changing direction and adopt alternative strategies. The position for those organizations that have failed may result in a series of circumstances that are hard to recover from (Chandrasekhar, 1999).

The domain of CRM extends into many areas of marketing and strategic decisions. If the phenomenon of cooperation and collaboration with customers become the dominant paradigm of marketing practice and research, CRM has the potential to
emerge as a predominant perspective (Mitchell & Alan, 2000). Thus from insurance CRM implementation point of view, CRM should be misunderstood to simply mean a software solutions implementation project. The central research question for this study was: What are implications of the CRM practices implementation and use of CRM systems in public and private insurance firms. This research was conducted because of the relative lack of CRM empirical studies, particularly within the insurance sector making comparison between private and public sectors. This modest contribution has identified and analyzed some of the approaches and theories relating to CRM and CRM practices. The study confirms that CRM is a complex and holistic concept requiring appropriate business processes and integrated systems.

In addition, the study demonstrates the relevance of the need for effective leadership, sourcing, targeting and evaluation within CRM practices in insurance firms. It is an interesting example of the affect of CRM and how it is forcing insurance companies to change. Despite a decade of developments in respect of business process change, systems integration and information sourcing, it is only now with the threat of CRM centric competition, targeting customers effectively, that are exposed by their indifference to change in such areas (Caruso, 2000). The impact of CRM is real and the failure to implement it effectively seems to be typical. This is a disturbing scenario because of the accumulation of factors that now need to be tackled, the lack of expertise to resolve them and the lack of time in which to respond appropriately. Thus, there is a great need for research within CRM practices in public and private insurance companies to identify the extent of such issues, the state of organizational effectiveness and for further or new insights. This particular research was designed to develop and expand upon the issues raised by conducting studies that are more empirical.

The use of CRM in the public and private sectors is similar in two ways. Both use CRM to help improve customer care and ensure improved performance. The big difference between both sectors can often lie in the way in which each regards the customer. In the private sector, the level of service given to each customer is sometimes seen to be based upon his or her current or perceived future value to the organization (Drucker, 2000). This often means that CRM is used by some organizations to ensure that high value customers get a high level of service, while
as many transactions as possible, are automated, when it comes to low value customers.

In the private sector, CRM is used to manage a large number of customers, using a small number of processes, to maximize a small number of products and services. In the public sector, each customer is valued equally. The sector's goal is to provide each customer with a service tailored to his or her needs. CRM can ensure that dealing with a customer is simple, that the customer's needs are understood and that they are given the correct services to address their needs. (Shainesh & Ramneesh, 2000).

In the public sector, CRM is used to serve a large number of citizens, using a small number of processes, to maximize a large number of products and services.

Thus, the need of study can be summarized as:

➢ Not much of the studies on CRM in public and private Insurance have been done. Few studies have been conducted in Indian context and that too focusing on the Insurance sector as a whole and not mainly on public and private sector CRM Initiatives. Thus, through this study, an attempt has been made to explore the dynamics of CRM in public and private insurance companies.

➢ In the private sector, competitive pressure and the demand for shareholder returns lead to a focus on optimizing customer value often for short-term profits. In the public sector, the pressures are different, and usually much more complex, for several different reasons. There is a need to explore these differences for maximum return on CRM.

➢ There is a need to understand the underlying CRM technology and principles, and use these principles to help improve customer care. This will help in determining the effective use of CRM in the public and private sector.

➢ The big challenge between both sectors can often lie in the way in which each regards the customer. It is necessary to explore the differences to serve the customers more effectively.

➢ In the public sector, each customer is valued equally. The sector's goal is to provide each customer with a service tailored to his or her needs. There is a need
to explore the CRM initiative preferences from the point of view of customer inputs for both the sectors to ensure successful CRM Implementation.

➢ There is a need for public sector organizations to understand that CRM philosophy involves not just technology but also changes to the proposition, the way service is delivered, integration of access and delivery channels, improved data, different measurement systems and a new way of managing people. This study attempts to map these transitions.

➢ Public sector organizations should also learn from private sector mistakes. The CRM journey should start with a senior management review of what CRM can and should do the desired state, what the current state is and what gaps need to be filled. The study attempts to provide an insight into the similarities and differences between them to concentrate on.

3.3 Objectives

This study aims to explore the similarities and differences in CRM practices of private and public sector insurance firms.

3.3.1 Broad Objectives

The study attempts to empirically explore the following broad objectives:

To study the dimensions of CRM practices in the public and private sector insurance companies with reference to major CRM constructs.

3.3.2 Specific Objectives

The study attempts to empirically explore the following specific objectives:

Category I: Developing a valid and reliable instrument for exploring variables of interest vis-à-vis CRM practices in the context of public and private sector insurance industry

The CRM comparison variables are the factors which are responsible for proper CRM implementation initiatives in the insurance sector. These dimensions were identified with the help of literature survey and focus group discussions with customers of the banks and pilot survey among practitioners of the banks.
Category II: To identify the factors related to CRM initiatives and their importance

It was thought necessary to identify factors related to CRM initiatives and their importance in relationship building in the insurance sector. Factor analysis was employed to identify key CRM initiative factors separately for public and private sectors.

Category III: Explore the differences in CRM initiatives in the public and private sector insurance companies

Exploring the differences in CRM practices among public and private sector was expected to provide vital inputs related to the CRM implementation issues in the public and private insurance sector. Independent samples T-test was employed for meeting the objectives.

3.4 Hypotheses

The rationale for hypotheses considered for the present study stems from the extant literature on the subject, outcome of previous studies, from reasoning and the objectives of the study. This study will address the following research hypothesis:

Category I

H1: The CRM initiatives construct scales developed for public and private sector insurance companies are valid and reliable.

Category III

H2: Significant differences do not exist in CRM goals of public and private sector insurance firms.

H3: Significant differences do not exist in CRM principles of public and private sector insurance firms.

H4: Significant differences do not exist in CRM technology considerations of public and private sector insurance firms.

H5: Significant differences do not exist in CRM implementation effects of public and private sector insurance firms.
H6: Significant differences do not exist in customer satisfaction of public and private sector insurance firms.

H7: Significant differences do not exist in customer communication of public and private sector insurance firms.

H8: Significant differences do not exist in CRM benefits of public and private sector insurance firms.

H9: Significant differences do not exist in before and after CRM Implementation of public and private sector insurance firms.

H10: Significant differences do not exist in value prepositions of public and private sector insurance firms.

3.5 Research Design

The study broadly follows a descriptive research design. It is descriptive as it provides description of comparison of contemporary CRM practices in the Indian insurance sector.

3.6 Instrument Development

The research instrument (Appendix IV & V) consisted of structured questionnaire and the respondents were required to indicate their responses with the help of the interviewer. The survey instrument, questionnaire contained items under broad head of 9 factors such as CRM Goals, CRM Principles, Technology Considerations, Technology Implementation effects, Customer Satisfaction, Customer Communication, CRM Benefits, Customer Base, Before and After CRM Implementation and Value Proposition. The instrument employed for the study consisted of questions on demographics and a 5-point Likert scale with 5 denoting strongly disagree and 1 denoting Never. The research instrument was developed in three stages:

Stage 1: Identification of measures/constructs and development of draft questionnaire

Stage 2: Pilot testing

Stage 3: Modification of questionnaire
Survey questionnaires were used to investigate whether there is a difference in CRM constructs of private and public sector insurance firms. So this study was based on questionnaire investigation. A questionnaire is essentially a data capture instrument. It lists all the questions to which the researcher wants the respondents to answer, and it records the response of the interviewee. We recognize two main purposes of questionnaires:

- To draw accurate information from the respondent.
- The questionnaire is to provide a standard format on which facts, comments and attitudes can be recorded.

The research instrument consisted of structured questionnaire and the respondents were required to indicate their responses with the help of the interviewer. Questionnaire survey has been widely acknowledged as an efficient tool for assessing the perceptions of individuals / organizations on a particular subject. Pilot testing of the measurement instrument was necessary to validate the items and the whole scale. This is because some of the measurement items were developed or modified for the purpose of this research and because the questions in the instrument were newly compiled to form a new questionnaire (Vellis, 1991).

The pilot testing was conducted in a series of steps. Before the final survey instrument was set up, a preliminary questionnaire was developed and tested to validate the scale items to be used in the study. Pilot testing of the measurement instrument was necessary to validate the items and the whole scale. This is because some of the measurement items were developed or modified for the purposes of this research and because the questions in the instrument were newly compiled to form a new questionnaire.

The pilot testing was conducted in a series of steps. Before the final survey instrument was set up, a preliminary questionnaire was developed and tested to validate the scale items to be used in the study. The development of the measurement scales for this research followed the procedures recommended by (Churchill, 1979) and (Vellis, 1991) for developing a standardized survey instrument. The initial task in developing the scale was to devise the item pool from previous studies. Then, the preliminary survey questionnaire was distributed to managers and experts from public and private insurance firms and CRM insurance
consultants from HCL, Wipro & Accenture to gain their feedback regarding the content, layout, wording and ease of understanding the measurement items. They were also asked to offer suggestions for improving the proposed scale and to edit the items to enhance clarity, readability, and content adequacy. The feedback was taken into account in revising the questionnaire.

The questionnaire was designed finally with the help literature (prescriptive, conceptual, empirical and practitioner) based on pilot survey among practitioners which consisted of two executives middle and senior management) from each of the insurance firms and focus group discussions with Insurance CRM consultants. Three focus group discussions were held. Care was taken to see that all the three groups had equal representation from all the Public and Private insurance firms. The discussion points were noted down. The discussion was moderated by a moderator and later on interpreted. The result of the discussion was used in development of the questionnaire. The instrument has been refined several times based on the pilot findings and on the comments and suggestions of the experts. The insurance sector has been chosen because satisfaction with service plays a significant role in high involvement (high interaction between the customers and service providers) industries like insurance (Levesque & McDougall, 1996; Angur et al., 1999). The questionnaire was modified where necessary to suit the context of Indian insurance sector.

Questionnaires are a useful research tool when a large samples or even a population need to be surveyed. This is because each person was asked to respond to the same set of questions, this provides an efficient way of collecting responses from a large sample. Other advantages of questionnaires are that they require less skill and sensitivity to administer than interviews and they reduce the possibility of interviewer bias.

Open format questions are those that ask for unprompted opinions. In other words, there is no predetermined set of responses, and the participant is free to answer however, he chooses. Open format questions are good for soliciting subjective data or when the range of responses is not tightly defined. An obvious advantage is that the variety of responses should be wider and more truly reflect the opinions of the respondents. This increases the likelihood of receiving unexpected and insightful suggestions, for it is impossible to predict the full range of opinion. It is common for
a questionnaire to end with and open format question asking the respondent for ideas for changes or improvements. This type of questionnaire provides qualitative data.

Closed questions, are also known as fixed response. This type of questions force the respondent to choose one or more responses from a number of possible replies provided in the question. These types of questions provide quantitative data. There are two broad groups of closed questions they are dichotomous and multiple choice.

Dichotomous questions allow only two possible answers, for example, yes/no, true/false etc. This is the simplest of all closed questions. Multiple-choice questions present a list of possible responses from which the respondent may choose. Multiple-choice questions must be designed carefully to incorporate all possible answers. By offering an "other, please specify" category, that can be collected, that was not originally conceived, or responses that do not fit neatly into the imposed structure.

The type of questions that was used in this investigation was closed questions. All of the questions were closed ended questions as they offer many advantages in both time and money. By restricting the answer set, it is easy to calculate percentages and other hard statistical data over the whole group or over any subgroup of participants. Closed format questions also make it easier to track opinion over time by administering the same questionnaire to different but similar participant groups at regular intervals. Finally closed format questions allow the researcher to filter out useless or extreme answers that might occur in an open format question.

The complete instrument consists of ten spread over thirty-one dimensions. The items with respect to various dimensions have been jumbled and arranged in random order. Each item employed a five point Semantic Differential scale, fully anchored by strongly disagree/strongly agrees at one end to not important/very important at the other. Additional data on demographics was also collected. The questionnaire was divided into ten sections. The questionnaire consisted of 9 Sections. Section 1 (Demographics), Section 2 (CRM Goals), Sec 3 (CRM Principles), Sec 4 (Technology considerations and Implementation), Sec5 (Customer Satisfaction), Sec 6 (Customer Communication) Sec 7 (Customer Base), Sec 8 (Value Prepositions), Sec 9 (CRM Benefits).
3.7 Scale Refinement and Validation

There is a necessity to develop valid and reliable measures as this would enable proper framework for establishing dimensions under study. Unless reliability and validity are established, it is hard to standardize the measurement scales, without which it is difficult to know whether the scales actually measure what they are, suppose to measure. In present research data was collected through a field survey and then the collected data was factor analyzed in order to unearth the latent factors based on factor loadings. Then the instrument was subjected to tests of reliability and validity, thereby ensuring standardization. The technique used in this research is Exploratory Factor Analysis. To develop valid and reliable scale separate scales were formed for public and private sector.

3.8 Reliability and Validity of the Instrument

Reliability refers to the consistency of measurement results and the extent to which they are accurate, error free, and stable. Reliable measurement results are reproducible and generalizable to other measurement occasions. Reliability evidence most often is reported as a correlation coefficient. In classical test theory reliability is defined mathematically as the ratio of the variation of the true score and the variation of the observed score. Unfortunately, there is no way to directly observe or calculate the true score, so a variety of methods is used to estimate the reliability of a test. (Goodwin, 1997).

Researchers make inferences from measurement results about how much of the variable being measured is present. Validity refers to the extent to which these inferences are sound. A researcher's interpretation of a score is valid if it yields accurate conclusions about the variable. Validity, therefore, is not a characteristic of the research instrument itself, the term refers to the ways a researcher interprets and uses measurement results. Researchers make inferences from measurement results about how much of the variable being measured is present. Validity refers to the extent to which these inferences are sound. A researcher's interpretation of a score is valid if it yields accurate conclusions about the variable. Validity, therefore, is not a
characteristic of the research instrument itself, the term refers to the ways a researcher interprets and uses measurement results.

In order to assess reliability, the Cronbach alpha was determined for each construct (factor) identified through factor analysis. If the Cronbach alpha is greater than 0.7, the construct is deemed reliable. (Teo et al., 1999).

<table>
<thead>
<tr>
<th>Table 3.1: Reliability Statistics: CRM Constructs</th>
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<td><strong>Factor</strong></td>
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<td>CRM Goals</td>
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<td>CRM Principles</td>
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<td>Technology Considerations</td>
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<td>CRM Benefits</td>
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<td>Before and after CRM Benefits</td>
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<td>Value Propositions</td>
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Measures of variables should have validity and reliability (Cronbach, 1971; Nunally, 1978) in order to draw valid inferences from the research. Reliability deals with how consistently similar measures produce similar results (Rosental & Rosnow, 1984), and it has the two dimensions of repeatability and internal consistency (Zigmund, 1995). Internal consistency refers to the ability of a scale item to correlate with other items in the scale that are intended to measure the same construct. Items measuring the same construct are expected to be positively correlated with each other. A common measure of the internal consistency of a measurement instrument is Cronbach’s alpha. In this research, the content validity of the measurement instrument was assessed by asking experts to examine it and provide feedback for revision.

3.9 Sampling Procedure

The research data was collected with the help of structured questionnaire developed for the study. The elements of interest for this study were senior level managers and consultants who were looking after the CRM implementation in insurance organizations belonging to both public and private sector. Their designations could
be varied ranging from Director/Head Customer Management, Head/Director CRM Strategy, CRM Programme Director, Customer Relationship Manager, Director Customer Management, Marketing Director, Direct Marketing Manager, to Marketing Analysis Head. In order to have a representative sample and reduce bias in the responses, a list was generated of individuals looking after the CRM implementation in insurance organizations as well as the CRM experts by drawing upon the resource list maintained by FICCI (Federation of Indian Chamber of Commerce), MMA (Madras Management Association) and CII (Confederation of Indian Industries), HCL, Wipro and Accenture. This list comprised 1500 individuals who were associated with CRM implementation in public and private insurance companies. Of these roughly 500 were associated with private organizations and the remaining 1000 with public. These individuals were spread over various cities in the country. To reduce any element of bias census approach was adopted and questionnaires were administered on all 1500 individuals who comprised the sample frame through a blend of mail, e-mail, and personal administration.

The questionnaire was administered in three waves:

**First Wave:** Questionnaires were sent through surface mail to all 1500 individuals. A total of 150 responses were received. Of these 120 were from public and 30 from individuals who were associated with CRM initiatives in the private sector.

**Second Wave:** After a gap of about a month of sending the first set of questionnaires through surface mail, reminders were sent through a mix of e-mails as well as surface mail requesting the respondents to provide their feedback. This resulted in 200 responses (140 from public and 60 associated with private organizations).

**Third Wave:** During this stage, reminder mails accompanied with questionnaires were again sent to those from who responses had not been received. After dispatching the questionnaires, emails were sent and attempt was also made to contact them over telephone. This resulted in 152 responses from individuals associated with public CRM insurance initiatives and 58 from those connected with the private sector initiatives. Thus the final response rate was roughly 37%. The high response rate can be attributed to the wave
administration methodology adopted by the researcher and perhaps interest in
the respondents to share their views on the subject.

3.10 Data Analysis

Factor analysis is a multivariate statistical procedure primarily used for data
reduction and summarization—large number of correlated variables is reduced to set
of independent underlying factors. This technique is used because it analyzes the
structure of interrelationships among large number of variables by defining a set of
common underlying dimensions, known as factors or dimensions. This leads to
summarization and data reduction. Factor analysis is an interdependent technique in
which all variables are simultaneously considered, each related to all others and still
employing the concept of the variate, the linear composite of variables. The original
variables are dependant variables that are function of some underlying and latent set
of dimensions that are themselves made up of all other variables (Gorusch, 1983).

Factor analysis helps in understanding the complex relationships, which is otherwise
not possible with bi variate and univariate methods. The other benefit of this
technique is that researcher gets insight into empirical estimation of relationships
with conceptual foundation and interpretation of results. An important tool in
interpreting factors is factor rotation. Rotation means that the factors are turned
about the origin until some other position has been reached. This redistributes the
variance from earlier factors to later ones to achieve a simpler, theoretically more
meaningful factor pattern.

In this research, we have used varimax rotation with which maximum possible
simplification is reached. With varimax rotational approach there tend to be some
high loadings close to -1 or + 1) and some loadings near 0 in each column of the
matrix. The logic is that interpretation is easiest when the variable and the factor
correlation are close to -1 or +1, thus indicating a clear positive or negative
association between the variable and the factor close to 0, indicating a clear lack of
association. Thus, varimax rotation gives clear separation of factors.

Factors with eigenvalues greater than 1.0 and rotated factor loadings of 0.40 or
greater were retained. Despite the fact that, with a sample size greater than 350, a
factor loading of 0.30 can be considered significant in this research, Hair et al.
(1998) suggest that factor loadings of 0.50 or greater are practically significant. After extracting the Eigen values, rotation of principal components is done through varimax rotation. After the number of extracted factors is decided upon, the next task is to interpret the name of the factors as shown below. This is done by the process of identifying which factors are associated with which of the original variables.

After conducting above Exploratory Factor Analysis (EFA), consistency is estimated using a reliability coefficient called Cronbach's alpha. The Cronbach's alpha values for all the cases well exceeded the obligatory requirement, thereby testifying that all the scales are internally consistent and have accepted reliability values in their original form. In addition, a series of independent samples t-test were conducted to address the entire research hypotheses. An exploratory factor analysis (EFA) with principal components was conducted to determine the dimensions of CRM practices in the Indian Insurance sector. This analysis includes preliminary tests to determine the appropriateness of factor analysis: the anti-image correlation matrix, Bartlett's test of sphericity, and the Kaiser-Meyer-Olkin measure of sampling adequacy (MSA). In factor analysis, some degree of multicollinearity is desirable, because the objective is to identify interrelated sets of variables. The correlations among variables can be analyzed by computing the partial correlations among variables. If "true" factors exist in the data, the values of partial correlation should be small. The anti-image correlation matrix contains the negative values of the partial correlations among variables; smaller anti-image correlations are indicative of a data matrix suited to factor analysis.

Bartlett's test of sphericity is a statistical test for the presence of correlations among variables. It provides the statistical probability that the correlation matrix has significant correlations among at least some of variables. Thus, a significant Bartlett's test of sphericity is required (Hair et al.). The Kaiser-Meyer-Olkin MSA index, which can range from 0 to 1, indicates the degree to which each variable in a set is predicted without error by the other variables. If the MSA index reaches 1, each variable is perfectly predicted by the other variables without error. According to Hair et al. (1998), a value of 0.50 or more from the Kaiser-Meyer-Olkin MSA test indicates that the data are adequate for Exploratory Factor Analysis. The Kaiser-Meyer-Olkin measure of sampling adequacy test and Bartlett's test of sphericity
(p<.001) indicated that the data on satisfaction of the customer with banks services were appropriate for factor analysis. Given these results, the exploratory factor analysis (EFA) was conducted.

**Exhibit 3.1 Diagrammatic Representation of Factor Analysis**

![Diagram of Factor Analysis Process]

3.11 Limitations

Though a number of precautions have been taken to increase the reliability of the present study, yet the researcher feels that there are certain limitations which may be given due consideration:

- Limitations of time and willingness of the respondents dictated the sample could not be larger than the present one. Although this fact limits the generalization of results, we believe that it represents a necessary and economical first step in identifying useful concepts and relationships that can later be tested in larger, more representative samples in the Indian context.

- The findings cannot be generalized to the Insurance sector owing to some macro and micro factors, which can affect profitability of the insurance companies.

- It is possible that the negative effects of technology change over time as employees and customers become more accustomed to the systems. It might be that in the end, a more positive relationship between the two variables could be expected. Therefore, a future longitudinal study might also provide worthwhile insights.
Our study merely considers the moderating effects of the customer orientation of integration. It is plausible that customer orientation of integration has a direct effect on cost savings and market-related performance. Some dimensions of relationship marketing could be out of the preview of study.

As new CRM processes evolve over time, it could be argued that our sets of processes at each stage will need to be “enriched” or updated, as new activities become common practice.

It should be noted that we are studying a dynamic phenomenon from a cross-sectional perspective. Because capturing this process over time is often difficult, we took a “snapshot” of the situation at a single point in time.

We examine CRM processes at the end user and consultant facing level only. It would be interesting to determine how our findings compare with observations from the company wide or functional levels. The critical issues are different at these other levels. For a complete picture of CRM, all the other levels i.e. vendor and agents must be examined.

There is possibility of respondent bias. He could have given answers, which were desirable to him.

Some dimensions of CRM could be out of the preview of study.