CHAPTER - 3
RESEARCH METHODOLOGY

3.1 INTRODUCTION

The purpose of this chapter is to explain the procedures followed in conducting the research. The presentation of research methodology adopted for the study is structured as: research questions, objectives of study, research framework, research methodology and data analysis methods. The research comprises of 3 sections. Section A deals with survey of customer perceptions of CRM model variables. Section B discusses marketing and CRM practices at BSNL based on secondary data. Section C is the survey of perceptions of BSNL employees on CRM practices at BSNL.

In survey of customer perceptions details of research design, data sources, data collection method, sample design, survey instrument, pilot study, methods of data analysis are discussed.

For study of perceptions of BSNL employees with regard to practices of CRM adopted by BSNL, details of methodology, survey instrument, sample design and data analysis method was discussed. With regard to study of CRM at BSNL through secondary data under Section B, the sources of the data are indicated.
3.2 RESEARCH QUESTIONS

The present study seeks to investigate CRM in the context of telecom sector and for BSNL. The focus of inquiry is set on the following questions.

1. What are the major causal factors of relationship quality in Indian telecom services with reference to mobile telephone services and from perspective of BSNL?
2. How well BSNL is putting CRM in practice?
3. What BSNL needs to do further?

3.3 OBJECTIVES OF THE STUDY

The present study seeks to study CRM in mobile telephone services in Indian context with reference to BSNL AP Telecom circle and suggest measures to BSNL on how to improve its customer relationship quality and thereby customer patronage in the light of intensive competition and changing customer preferences.

The study is specifically designed with the following objectives

1. To examine the determinants of customer relationship quality in case of mobile services and present an analytical model of CRM, customized to telecom industry focusing on the perceptions of BSNL customers in AP Telecom circle
2. To analyze the steps taken by BSNL to build customer relationships
3. To understand the perceptions of BSNL employees about the CRM practices at BSNL AP Telecom Circle

4. To suggest strategies to BSNL to strengthen its customer relationship management.

3.4 RESEARCH FRAMEWORK

Parasuraman, Zeithaml and Berry (1994) suggested that disconfirmation measures provide richer information than the performance-based measures and have a greater diagnostic value for managers. Therefore, the strategy for this study utilized a survey design to evaluate perceptions in cellular mobile telecommunication services setting from the subscribers’ perspective and build a model for telecom context in India, with reference to BSNL, AP Telecom circle.

The objective of this research is not only to prove the validity of the model but also based on what is found, suggest some measures. It is necessary to extend the study to gain employee perceptions on CRM objectives and their priorities and the present practices, to gain helpful inputs to make suggestions with focus on both customer and employee perceptions. Employee perceptions are not related to the customer perception model but would provide a data base for thinking by researcher to suggest actions.
The following framework is adopted for the research

**Figure 3.1: Research Framework**

### 3.5 SURVEY OF CUSTOMER'S PERCEPTIONS

The research design is *descriptive* as it provides the inventory of feelings regarding perceived value of service, customer satisfaction and behavioral intentions of customer.

The independent variables examined consisted of:

(a) Demographic and affiliation characteristics of customers.

(b) Mobile telecom industry-specific dimensions of service quality and perceived value.

The dependent variables are

(a) Customer Satisfaction,

(b) Trust, Commitment

(c) Loyalty and behavioral intentions.

(d) Relationship quality
3.5.1 Scope

The study adopts the model given in Fig 3.2. The antecedents of customer relationship quality are customer satisfaction and perceived value. Another way of registering customer relationship quality is through loyalty factor, which is influenced by trust and commitment, which in turn is the outcome of customer satisfaction. The other variables are complaint behavior and complaint handling. Customer satisfaction reduces complaints and complaint handling increases trust and commitment. Perceived value is provided by factors such as tariff, brand image, network coverage, customer service and value added services.

The variables in the model fall under three categories:

1. The variables pertaining to Customer Relationship Quality, namely customer satisfaction, trust, commitment and loyalty - which are widely discussed in the literature on CRM and are applicable to general industry. These variables are in a way generic in nature.

2. Industry specific variables applicable for mobile telecommunication

The industry-specific dimensions of cellular mobile telecommunication services influence the ‘perceived service quality’ and ‘customer satisfaction’. Service failures have often been ‘triggers’ that accelerate a customer’s decision to discontinue the relationship with service provider. Variables pertaining to mobile telecommunications industry are taken from the studies of
scholars of various countries including the study of the research scholar and his research guide which was attached to thesis. The variables namely *tariff, brand image, network coverage, customer service and value added services* are included under model variable *‘Perceived Value’*. Apart from this, variables of ‘complaints’ and ‘complaint handling’ which are very important to service industry are also included.

3. **Demographic and affiliation variables** namely ‘*Gender, Age, Occupation, Type of service (Pre-paid / post-paid) used, Period of usage*’ are considered to account for the impact of characteristics of BSNL customers of AP Telecom circle.

Thus efforts are made to make the model comprehensive by including all the important variables relevant to the subject of study and improvise the past models of CRM in mobile telecom services.
Figure 3.2: Research Model
3.5.2 Formulation of Hypotheses

In section A, there are two sets of hypotheses:

1. Hypothesis which enquire whether customer characteristics like gender, age, occupation, type of service and period of usage make difference to their perception on model variables (H1 – H11).

2. Hypothesis on the relationships of model variables.

1) Impact of gender, age, occupation, type of service and period of usage on model variables (H1 – H11):

Hypotheses pertaining to impact of demographic characteristics on Model variables are sub-divided into a, b, c, d, e to cover independent variables of a. Gender, b. Age, c. Occupation, d. Type of service, e. Period of usage on each hypothesis from H1 to H11.

Hypothesis- 1 to 5 (H1a – H5e)

*There is no difference in the perception of the customers of BSNL AP Telecom circle about perceived value due to gender, age, occupation, type of service and period of usage*

Hypothesis- 6 (H6a – H6e)

*There is no difference in the perception of the customers of BSNL AP Telecom circle on customer satisfaction due to gender, age, occupation, type of service and period of usage.*
Hypothesis- 7 (H7a – H7e)
There is no difference in the perception of the customers of BSNL AP Telecom circle on complaint handling of BSNL due to gender, age, occupation, type of service and period of usage.

Hypothesis- 8 (H8a – H8e)
There is no difference in the perception of the customers of BSNL AP Telecom circle on trust due to gender, age, occupation, type of service and period of usage.

Hypothesis- 9 (H9a – H9e)
There is no difference in the perception of the customers of BSNL AP Telecom circle on commitment due to gender, age, occupation, type of service and period of usage.

Hypothesis- 10 (H10a – H10e)
There is no difference in the perception of the customers of BSNL AP Telecom circle on Loyalty due to gender, age, occupation, type of service and period of usage.

Hypothesis- 11 (H11a – H11e)
There is no difference in the perception of the customers of BSNL AP Telecom circle on Customer Relationship Quality due to gender, age, occupation, type of service and period of usage.
3.5.2.1 Relationships of model variables

The following hypotheses are formulated to test the relationships given in the model based on the earlier research.

A number of notable findings reported that service quality, perceived value, and satisfaction may be directly related to behavioral intentions (the outcomes of loyalty), when all of these variables are considered collectively. Earlier research discussed that customer satisfaction mediates the relationship between customer perceived value and customer loyalty. The customer satisfaction and loyalty have significant reciprocal effects on each other.

Previous research suggests that network coverage is a key driver of overall perceived service quality and customer satisfaction/dissatisfaction in the cellular mobile telecommunications market (Gerpott et al., 2001; Lee et al., 2001; Kim and Yoon, 2004; Kim et al., 2004). Among other factors which are the key drivers of perceived value and customer satisfaction are tariff, value-added services, brand image, convenience in procedures and customer service activities of service provider (Ahn et al., 2006; Kim et al., 2004). Keaveney’s (1995) critical incident study of 835 customer-switching behaviors in service industries demonstrated that 44% switched their service providers because of
core service failures. In addition, service failures have been “triggers” that accelerate a customer’s decision to discontinue the service provider-customer relationship (Bolton, 1998; Bolton et al., 2000; Kim, 2000; Mozer et al., 2000). Therefore, the industry-specific dimensions of cellular mobile telecommunication services influence the overall perceived service quality and customer satisfaction.

1. Customer Satisfaction and perceived value:

The perceived value of a purchase positively influences the consumer’s satisfaction with the service provider. Since it is hypothesized that perceived value has five components in the context of mobile services – tariff, network coverage, value added services, customer service and brand image, the following hypotheses are stated.

H-12: Perceived value positively influences the customer Satisfaction

To find relations with various components it is divided into five Hypotheses

H-12a: Tariff of a purchase has positive impact on the Customer satisfaction with the service provider.

H-12b: Network coverage of a service provider has positive impact on the Customer satisfaction with the service provider.
H-12c: Value added services have positive impact on the Customer satisfaction with the service provider.

H-12d: Customer Service of a service provider has positive impact the Customer satisfaction with the service provider.

H-12e: Brand Image of a purchase has positive influence on the Customer satisfaction with the service provider.

Customer satisfaction = a + b1 Tariff + b2 Network coverage + b3 Value added services + b4 Customer service + b5 Brand image

Where a is intercept and b1, b2... b5 are regression coefficients

The relationship between perceived value of a purchase and the customer’s trust in and commitment to the supplier are analyzed by many researchers. Morgan and Hunt (1994) consider that the benefits of the relationship are precursors of trust. The perceived value of a purchase can be considered part of the benefits of the relationship. For this reason it can be considered that the perceived value of a purchase is an antecedent of customer’s trust in the supplier (Singh and Sirdeshmukh, 2000).

2. Trust and Perceived Value:

H-13: Perceived value positively influences the trust

To find relations with various components, it is broken into five hypotheses.
H-13a: Tariff of a purchase has positive impact on the trust with the service provider.

H-13b: Network coverage of a service provider has positive impact on the trust with the service provider.

H-13c: Value added services have positive impact on the trust with the service provider.

H-13d: Customer Service of a service provider has positive impact on the trust with the service provider.

H-13e: Brand Image of a service provider has positive influence on the trust with the service provider.

\[ Trust = a + b_1 \text{ Tariff} + b_2 \text{ Network coverage} + b_3 \text{ Value added services} + b_4 \text{ Customer service} + b_5 \text{ Brand image} \]

Perceived value, customer satisfaction, complaints and trust present significant effects on loyalty (Dwayne Ball and Pedro Simões Coelho and Alexandra Macha’s, 2004). Hennig-Thurau et al. (2002) conclude that the core dimensions of relationship quality are satisfaction, trust, and commitment. Therefore, it seems that these three related constructs have stood the test of time and scrutiny. Higher satisfaction has been proposed to be related to higher loyalty (Hallowell, 1996; Strauss and Neuhaus, 1997, Oliver, 1999 and ECSI model (Casseland Eklof, 2001) Crosby et al. (1990) define relationship quality as a higher-order construct, consisting of at
least two key related, but distinct dimensions: Trust and Satisfaction.

So, for the purpose of this study, we focus on the original key dimensions of trust and satisfaction, as proposed by Crosby et al. (1990)

3. Commitment and Perceived Value

H-14: Perceived value positively influences the commitment.

To find relations with various components it is divided into five hypotheses

- H-14a: Tariff of a purchase has positive impact on the commitment with the service provider.
- H-14b: Network coverage of a service provider has positive impact on the commitment with the service provider.
- H-14c: Value added services have positive impact on the commitment with the service provider.
- H-14d: Customer Service of a service provider has positive impact on the commitment with the service provider.
- H-14e: Brand Image of a service provider has positive influence on the commitment with the service provider.
Commitment = $a + b_1 \text{Tariff} + b_2 \text{Network coverage} + b_3 \text{Value added services} + b_4 \text{Customer service} + b_5 \text{Brand image}$

Customers with different levels of satisfaction may react in different ways. Satisfied consumers, for instance, engage in positive word-of-mouth (Prince, 1992). Conversely, less satisfied (or dissatisfied) customers complain more (Bolfing, 1989; Singh and Wilkes, 1996).

4. Complaint Behavior and Customer Satisfaction

$H-15$: Customer satisfaction, has negative influence on the level of complaint behavior

Complaint behavior = $a + b \times \text{Customer satisfaction}$

5. Trust and Customer Satisfaction

The literature posits that customer satisfaction is an antecedent of customer’s trust (Garbarino and Johnson, 1999; Singh and Sirdeshmukh, 2000; Delgado-Ballester and Munuera-Aleman, 2001; Bloemer and Odekerken-Schroder, 2002; Anderson and Srinivasan, 2003). The greater the customer’s satisfaction with the supplier, whether due to the product purchased or to the performance of the supplier itself, the more trust is generated in the consumer, thus establishing a direct relationship between the two.
6. Loyalty and Customer Satisfaction

Customer satisfaction and loyalty are highly correlated (Athanassopoulos et al., 2001; Hallowell, 1996; Silvestro and Cross, 2000), but form two distinct constructs (Bennett and Rundle-Thiele, 2004; Oliver, 1999). In case of banks, customer satisfaction with a bank relationship is a good basis for loyalty (Bloemer et al., 1998; Pont and McQuilken, 2005), although it does not guarantee it, because even satisfied customers switch banks (Nordman, 2004). One important reason for switching is pricing (Colgate and Hedge, 2001; Ennew and Binks, 1999). Hence, banks have launched customer loyalty programmes that provide economic incentives. Although the effectiveness of loyalty programmes has been questioned (Dowling and Uncles, 1997; Sharp and Sharp, 1997; Stauss et al., 2005), research has shown that they have a significant, positive impact on customer retention, service usage, and/or share of customer purchases (Bolton et al., 2000; Verhoef, 2003).
H-17: *Customer satisfaction has a positive influence on the customer’s loyalty to the service provider.*

\[
\text{Loyalty} = a + b \text{ Customer satisfaction}
\]

7. **Trust and Complaint Handling**

Complaint handling is a special case of customer interactions. Improper and slow handling of complaints could reasonably be viewed by customers as opportunistic behavior (proposed by Morgan and Hunt, 1994 as an antecedent of trust) or as incompetence, thereby having a negative effect on credibility and therefore on trust (Ganesan, 1994).

H-18: *Customer complaint handling has a positive influence on trust in the service provider*

\[
\text{Trust} = a + b \text{ Complaint handling}
\]

8. **Commitment and Complaint Handling:**

Along with trust commitment develops. Commitment has been defined as the desire to continue a relationship, along with the willingness to work towards that continuance and the expectation that the relationship will continue (Wilson, 1995; Anderson and Weitz, 1989). It has two components.

*Affective commitment* is defined as a desire to continue the relationship because it is enjoyed for its own sake, not taking into account its instrumental worth.
Calculative commitment refers to a more instrumental type of commitment and is defined as the extent of the need to maintain a relationship due to significant perceived termination or switching costs.

*H-19: Customer complaint handling has a positive influence on commitment to the service provider*

\[
\text{Commitment} = a + b \text{ Complaint handling}
\]

9. **Commitment and Trust:**

Trust is found to be an important antecedent to relationship commitment in business relationships (Anderson and Weitz, 1992; Dwyer et al., 1987; Moorman et al., 1992; Ganesan, 1994; Geyskens et al., 1996; Morgan and Hunt, 1994). The clearest explanation is that of Kramer (1999), who considers that trust reduces the transaction costs of searching for information on prices and alternatives available in the market, of inspection and measurement of the objects exchanged, of communication between the parties and of legal advice. The higher the level of customer's trust, the lower the transaction costs and the greater the customer's commitment to the supplier.

*H-20: Trust has a positive influence on the customer's commitment to the service provider.*

\[
\text{Commitment} = a + b \text{ Trust}
\]
10. Loyalty and Trust:

Trust is logically and experientially a critical variable in relationships, as has been hypothesized and borne out in the marketing literature (Moorman et al., 1993; Morgan, and Hunt, 1994). Those who are not willing to trust a vendor in competitive market places are unlikely to be loyal. The importance of trust in explaining loyalty is also supported by authors as Lim et al. (1997), Garbarino and Johnson (1999), Chaudhuri and Holbrook (2001), Singh and Sirdeshmukh (2000), and Sirdeshmukh et al.(2002).

*H-21: Trust directly and positively influences the customer’s loyalty to the service provider.*

\[ \text{Loyalty} = a + b \text{Trust} \]

11. Loyalty and Commitment:

Commitment strengthens the covalent bond between retailers and customers and is a useful instrument for the measurement of likelihood of customer loyalty as well as for forecast the future purchase frequency (Gundalch et al, 1995; Morgan and Hunt, 1995). This implies a higher level of obligation to make a relationship succeed and to make it mutually satisfying and beneficial (Gundalch et al, 1995; Morgan and Hunt, 1994).

*H-22: Commitment directly and positively influences the customer’s loyalty to the service provider.*

\[ \text{Loyalty} = a + b \text{Commitment} \]
12. Relationship Quality and Loyalty:

Loyalty is an outcome as well as process. Oliver (1997a) distinguishes among four stages of loyalty: cognitive, affective, conative, and action loyalty. Loyalty, according to Ganesh et.al (2000) is an outcome that can manifest in repetitive purchase behavior or strong commitment to buy a product. Other authors have considered loyalty as a process than as outcome. A common approach is to distinguish between consumer’s attitudinal loyalty and behavioral loyalty. Attitudinal loyalty is defined as both positive affect towards the relationship continuance and the desire to continue to remain in the relationship and is sometimes defined equivalently with relationship commitment (e.g. Morgan and Hunt, 1994)

H-23: Loyalty directly and positively influences the customer relationship quality

\[ \text{Relationship quality} = a + b \text{Loyalty} \]

13. Relationship Quality and Customer Satisfaction:

Literature posits that customer satisfaction an antecedent to relationship quality (Garbarino and Johnson, 1999, Singh and Sirdeshmukh, 2000, Delgado- Ballester and Munuera – Aleman, 2001, Anderson and Srinivasan, 2001). The greater the customer’s satisfaction with supplier, whether due to products purchased or
to the performance of supplier itself, the more trust is generated thus establishing a direct relation between the two.

**H-24: Customer satisfaction directly and positively influences the customer relationship Quality**

\[
\text{Relationship quality} = a + b \text{ Customer satisfaction}
\]

### 3.5.3 Research Design of the Study

The present research was conducted in two phases. In the first phase, an exploratory study was carried out to determine industry specific factors that contribute to perceived value in case of mobile telephone services. Review of previous studies conducted in India and other countries with similar background was taken as the basis to arrive at exploratory factors. Their relevance to Indian market was validated by discussions with specialists in telecom industry in AP Telecom Circle - Three from BSNL, one from Idea, Reliance communications and Airtel and two academicians.

The second phase was a field survey to gather the data necessary to test the relationships between the constructs listed in the proposed model. A survey research design was considered appropriate for the following reasons:

1) The use of a survey is advantageous for collecting perceptual data from a large population

2) Survey data is easily quantifiable
**Data Sources:** The description of research literature on CRM as well as the explanation of the growth and marketing efforts of BSNL is drawn from secondary data sources. The customer relationship quality determinants as well as the CRM practices of BSNL are based on primary data sources comprising customers and BSNL employees.

**Data Collection:** The study required two types of respondents- the service beneficiaries (Customers) of mobile telephone services of BSNL and service providers (employees) of BSNL.

**Population of the Study**
As the study is with particular reference to BSNL, AP Telecom circle, the population of the study is the mobile telephone users of AP Telecom circle.

**Sampling Frame and Criteria:**
BSNL customers in Hyderabad and Secunderabad are considered as sampling frame. The twin cities represent all three regions of Andhra Pradesh with urban and semi-urban frame and represent different demographic and social segments of the state due to large scale migration of various sections of people from districts of Andhra Pradesh.

The services of BSNL AP Telecom circle are common for all the customers within the circle. No separate provision is made for providing any service to the customer based on region like Andhra,
Telangana or Rayalaseema. As the telecom service is an intangible commodity type service, customer perceptions are not likely to vary based on geographical location within the circle. Care is taken to include the locations where the people of these three regions are concentrated in Hyderabad and Secunderabad. Also the Customer Service Centers in urban, sub urban and rural areas are included in the survey. As the region wise and geographic segment wise study is not part of the scope of the study and primacy was given to demographic and affiliation characteristics which have more influence on the customer perception, the sampling frame is felt adequate for the subject under study. The details of locality wise coverage in the sample are given in APPENDIX 7.

**Sampling Unit:** The sample subjects for the present research are the current male and female BSNL customers belonging to different age groups and socio-economic classes. The purpose is to ensure that the sample had similar representation to the population.

**Sampling Technique:** Systematic random sampling technique with an approach similar to mall intercept method is adopted for collecting the data.

The criteria for choosing this sampling method for this research are twofold:

1. The total number of cellular telephone subscribers of BSNL in AP TELECOM CIRCLE was over a million. Further mobile
cellular phone subscribers are dispersed geographically. Because of their mobility, it is found to be very difficult to meet them for data collection, if simple random sampling technique were to be adopted.

(2) Previous research works conducted in telecom consumer surveys in India and abroad used the systematic random sampling technique for similar reasons. If the population elements are arranged in a manner unrelated to the characteristics of interest, systematic sampling will yield results quite similar to simple random sampling. Systematic random sampling can even be used without knowledge of composition of the sampling frame. For this reason systematic random sampling is often employed in consumer mail, telephone survey, mall intercept, and internet surveys (Naresh K Malhotra, Satyabhusan Dash, 2009)

In administering the questionnaire, care is taken to cover:

(i) Urban and semi urban customers

(ii) Different major localities in twin cities to make the study representative to the population to a large extent.
**Sample Size:**

Sample size \( (n) = \frac{(Z \cdot s)^2}{e^2} \)

Where

- **Z** - The ‘Z’ value represents the Z score from the standard normal distribution for the confidence level desired by the researcher. Z score of 1.96 applicable for 95% Confidence Level is considered in this study.
- **S** - Represents the estimate of the population standard deviation for the variable. The unknown value of ‘s’ can be determined by dividing the range (maximum and minimum values of the variables used in the study) by 6.
- **E** - The tolerable error for estimating the variable in question.

  The lower the tolerance, the higher will be the sample size. Value of 6 percent is considered.

For \( Z=1.96 \) (for 95 percent confidence level), \( e=6.0\% \), and \( s=0.67 \)

\[
\text{Sample size } (n) = \frac{(1.96 \times 0.67)^2}{(0.06)^2} = 479.02
\]

The minimum sample size was calculated to be 479 respondents.

The sample sizes of studies on Mobile telephone services by various authors are given in Appendix 3. The sizes vary from 100 to 400 with majority surveys using around 250. The sample size of 544 taken in this survey is valid.
Sample Criteria

Current customers of BSNL

3.5.4 Data Collection Method

Data for this study was collected from walk-in subscribers of BSNL at various service centers in Hyderabad and Secunderabad cities with the criteria that the respondent should be an existing BSNL customer. Care was taken to minimize the bias by adopting technique similar to mall intercept technique from 32 customer service centers and franchisees.

The data was collected by a team consisting of researcher along with three MBA students. They were trained before taking up the survey. The researcher obtained permission form BSNL AP telecom circle to visit Customer service centers and franchisees to meet and interview customers and employees and collect data based on the questionnaire which was shown to their General manager.

Every third person leaving the customer service center was approached. After explaining the purpose of the survey, he/she was requested to fill in the questionnaire. Whenever they expressed lack of time as their constraint, they were requested to take the questionnaire home and fill it up at their convenience and send it by mail. Duly stamped envelope with the address of the
researcher was given to them for this purpose. Their telephone number was taken for further follow-up. Whenever a person has refused to comply with the request for their personal reasons, the refusal was recorded and the next person was approached. The respondents were given a small complement as a gesture of appreciation of their co-operation. Time chosen for data collection was from 11.00 AM to 1.00 PM and 2.30 PM to 4.00 PM on a working day. This is adopted as per the advice of Customer service centers. It was felt by them that this timing would have maximum walk-ins. The duration varied from 3 to 5 days depending on the size of customer care center. The duration of the survey was from Sep 2010 to June 2011.

### Table 3.1: Response Rate

<table>
<thead>
<tr>
<th>S No</th>
<th>Description</th>
<th>Nos.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Number of outlets approached</td>
<td>53</td>
</tr>
<tr>
<td>2</td>
<td>Number of outlets surveyed</td>
<td>32</td>
</tr>
<tr>
<td>3</td>
<td>Number of customers surveyed:</td>
<td>820</td>
</tr>
<tr>
<td>4</td>
<td>Number of customers, who returned completed questionnaire</td>
<td>620</td>
</tr>
<tr>
<td>5</td>
<td>Number of usable questionnaires</td>
<td>544</td>
</tr>
<tr>
<td>6</td>
<td>Response rate of usable questionnaires as percentage of questionnaires received</td>
<td>87%</td>
</tr>
</tbody>
</table>

The secondary data sources were: relevant websites, national and international referred journals, business magazines and newspapers, working papers, relevant to the area of research. Table 3-2 shows the sources.
3.5.5 Survey Instrument

The respondents were administered a structured questionnaire (shown in Appendix 1). The questionnaire begins with a brief introduction indicating the importance and purpose of the study. It also assures respondents about the confidentiality of their identity and that the information given by them will be strictly maintained and the survey will be strictly used for academic purpose. The self-administered questionnaire was developed using scales from previous studies. The questionnaire used dichotomous, multiple choice questions and statements to be rated on Likert’s 5 point scale.

The questionnaire has two parts Part 1 and Part 2. Part 1 deals with the information about respondent. Part 2 is concerned about the perceptions of the respondent on the research model variables.

Part 1 has 14 questions. First 3 questions enquire name of respondent and whether respondent is using BSNL mobile telephone services and the telephone numbers of the respondent and whether it is pre-paid or postpaid service. Details of name and telephone number of the respondent are optional. The balance questions enquire whether it is their first connection, if not, the details of earlier service provider and the reasons for the switch. Questions 4 to 10 enquire their demographic and affiliation
characteristics like age, gender, occupation, income, education, period of usage and average monthly expense on mobile telephone service.

Part 2 comprises of model variables like industry specific factors contributing to perceived value, customer satisfaction, trust, commitment, complaint behavior, complaint handling, loyalty and customer relationship quality. The item scales are adapted from previous studies, collected from literature review. The constructs and the item sources are given in table 2.1. Likerts 5 point scale is used to measure the agreement or satisfaction with 1 – Strongly disagree/Very dis-satisfied, 2 – Disagree/ Dis- satisfied, 3 – Neither agree nor disagree/ Neutral, 4 –Agree / Satisfied, 5 – Strongly agree/ Very satisfied.

Discussion on scale used

A Likert item is a statement. The respondent is asked to indicate the level of agreement or disagreement. It is considered symmetric or "balanced" because there are equal amounts of positive and negative positions. Often five ordered response levels are used, although many researchers advocate using seven or nine levels.

After the questionnaire is completed, each item may be analyzed separately or in some cases item responses may be summed to create a score for a group of items. Hence, Likert scales
are also called ‘summative scales’. Further Likert scales are arbitrary. The value assigned to a Likert item has no objective numerical basis except indicating that level is more positive than preceding level.

Research revealed that the 7-point scales are a little better than 5-points—but this difference is not significant. The psychometric literature suggests that having more scale points is better but there is a diminishing return after 11 points (Nunnally 1978). If there aren’t enough response options users will be forced to choose the next best alternative and this is likely to introduce measurement error.

It may seem like a compelling reason to always use 7-point over 5 point scales. However two tempering factors need to be considered for a practical decision on this.

1. While there was error in the five point scale, it is unclear how much of an impact this actually has on the final score.
2. Errors in statistics have a way of cancelling themselves out. It is likely that many responses that are "forced" into higher numbers will be cancelled out by those forced into lower numbers.
3. The convention is that for ‘single item questionnaires - 7 or more points are used’ to provide more response options.
4. For Multiple item Questionnaires it matters less whether the scale is 7 point or 5 points as the more response options are available because of number of items.

5. When designing a new scale, having 7 points will give a small benefit over five. But this benefit will be realized only when there are fewer response items (less than 10). If the items are more than 10, it hardly matters.

Jon Krosnick, professor of communication at Stanford has conducted a meta-analysis of the results of many past studies to explore the relation between scale length and reliability. He found that in general, five- or seven-point scales produced equally reliable results. Bipolar scales performed best with seven points, whereas unipolar scales performed best with five."

Deciding between a 5-point scale and a 7-point scale can be also guided by the following practical considerations:

1. How the questionnaire is administered:

   If it’s over the telephone, it could be difficult for respondent to keep track of more response categories. So having fewer options might be better. If questionnaires are administered hard /soft copy on paper or over the internet, then people can see all of the options and having more options may be okay.

2. The number of response categories needs to be meaningful to the respondents. In a hypothetical example of
appreciating fresh flowers, it probably doesn’t really matter how many response categories are available. However, if researcher is interested in finding out how employees feel about healthy food options in the cafeteria, the researcher may want to determine if respondents really feel strongly about the issue or not.

From the above it can be concluded that 5 or 7 point balanced Likert scales are equally preferred. However the preference depends on the application and context of research.

1. In the survey of BSNL customers for evaluation of customer relationship quality of BSNL by the customers of BSNL a 5-point scale is used as it is felt optimal because:

   1. The questionnaire has more number of variables and items
   2. Customers may find it difficult to rate on 7 point scale.
   3. Questionnaire with 7 point scale takes more time to fill up and customers are likely to be reluctant to spend more time
   4. Traditionally customer surveys use 5 point scale

3.5.6 Pilot Study

The purpose of pilot study is to get an idea on the validity of conceptual approach and see how the content of questionnaire is understood by the respondents and carry out necessary
corrections before a full-fledged survey is conducted. This is carried out in customer service centers in Ameerpet, Erragadda, Kukatpally and Jeedimetla. Approximately 50 customers were approached using the intercept technique. The customers were requested to fill in the questionnaire on the spot and identify any areas of questionnaire which are not clear or confusing or offer suggestions about the language. This also helped us to understand the time taken by the respondent to complete the questionnaire. It took about 15 to 20 minutes to complete the questionnaire. There was no confusion or vagueness on the instructions, content. The researchers also did not have much difficulty in getting the co-operation of the customers. The exercise went off smoothly. The variables were tested for the internal consistency. The Cronbach’s alpha was found to be over 0.7 which is satisfactory for social science research. Minor corrections in language to make questions clear was carried out for improving clarity and a telugu version of questionnaire was kept ready for use in case customers desire. The pilot study was considered satisfactory and full survey was planned. The responses collected from pilot study are not used in the analysis.
3.5.7 Methods of Analysis

After completion of pilot study a full-fledged survey was carried out with the revised questionnaire. For the purpose of data analysis, a coding was created with distinctive code assigned to each variable. Further, the responses were coded in the form of numbers assigned to each response. Data was arranged in an orderly fashion in a spreadsheet. Analysis for outliers and tests for violations of assumptions were carried out.

The data analysis was carried out on SPSS version 18. A combination of descriptive and inferential statistical techniques was used to analyze the data gathered. Model variables are checked for cronbach’s alpha and correlation among model variables. Inter item correlation was carried out with the variable. For testing hypotheses related to impact of demographic variables, one way ANOVA was conducted. For hypothesis related to relationship between model variables multiple/simple regression analysis was carried out.
3.6 SURVEY OF EMPLOYEES

3.6.1 Overview of Methodology

The main objective of this survey is to gain insight into the BSNL employees’ evaluation of CRM practices of BSNL. It is important to know, how much the employees understand and appreciate what it is doing and to what extent. When the researcher wanted to survey BSNL employees on BSNL’s CRM practices and interviewed BSNL employees on CRM practices for purpose of framing the questionnaire, many employees including fairly senior officers replied that BSNL has no CRM program and it is a new project being taken up by BSNL as a part of suggestions given by their consultants M/S BCG for revival of BSNL. As author could not get any positive or tangible reply from BSNL officers, he planned to change the methodology.

3.6.2 Survey instrument for Survey on CRM Practices

Survey of literature on CRM planning and implementation has revealed inventory of various CRM practices adopted in the industry.

A list of 24 customer relationship oriented practices was collected from previous studies (Claycomb and Martin, 2002: Leo Y.M Sin, Alan, Yim,2004). They are segregated into 5 factors – market orientation, design of organization and resources, setting
goals and standards, technology and IT support, employee performance management. Employees are asked to indicate their agreement with the statements based on how it is practiced at BSNL, on a seven point scale with 1 indicating very strong disagreement and 7 indicating very strong agreement. This scale is:
1 – Very strongly disagree, 2 – Strongly disagree, 3 – Disagree, 4 – Neither agree nor disagree (Neutral), 5 – Agree, 6 – Strongly agree, 7 – Very strongly agree.

**Discussion on the scale used:**
In case this survey, which is essentially employee survey for evaluating CRM practices of BSNL a 7 point scale was found appropriate as:

1. The scale has comparatively less number of items.
2. Employees being more familiar with their work are comfortable and interested to exercise choice on longer scale.
3. Some surveys on CRM scale development have used 7 points scale.

**3.6.3 Sample Design**

160 employees of different backgrounds participated in the survey. A sample size of 100 was considered adequate for employee surveys. The survey instrument was tested in a pilot study of 20 officers, especially with regard to clarity of content, instructions of
filling the questionnaire, language and relevance. Participants have indicated that they have no confusion on any issue relevant to questionnaire. Then full-fledged survey was undertaken.

### 3.6.4 Data Analysis

To check internal reliability Cronbach’s alpha was calculated for each factor. Employee CRM performance management was considered as dependent variable and the other four factors, market orientation, design of organization and resources, setting goals and standards, technology and IT support was considered as independent variables and multiple linear regression was carried out to establish influence of the factors on employee CRM performance.

#### Table 3.2: Secondary Data Sources Used to Study CRM at BSNL in Chapter 4 Section B

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Source</th>
<th>Description/Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Websites</td>
<td>• <a href="http://www.emeraldinsight.com">www.emeraldinsight.com</a>&lt;br&gt; • <a href="http://www.sagepub.com">www.sagepub.com</a>&lt;br&gt; • <a href="http://www.marketingpower.com">www.marketingpower.com</a>&lt;br&gt; • <a href="http://www.dotindia.com">www.dotindia.com</a>&lt;br&gt; • <a href="http://www.bsnl.co.in">www.bsnl.co.in</a>&lt;br&gt; • <a href="http://www.trai.org">www.trai.org</a>&lt;br&gt; • <a href="http://www.coai.co.in">www.coai.co.in</a></td>
</tr>
<tr>
<td>2</td>
<td>National Refereed Journals</td>
<td>• Vikalpa&lt;br&gt; • IIMB Management Review&lt;br&gt; • Journal of Marketing &amp; Communication&lt;br&gt; • Asia-Pacific Business Review&lt;br&gt; • The ICFAI Journal of Services Marketing&lt;br&gt; • South Asian Journal of Management</td>
</tr>
<tr>
<td>3</td>
<td>International Refereed Journals</td>
<td>• Journal of Marketing&lt;br&gt; • Journal of Marketing Research&lt;br&gt; • Journal of the Academy of Marketing Science</td>
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</tbody>
</table>
| 4 | Business Magazines | • Business World  
• Business Today  
• Business India  
• Business & Economy |
|---|---------------------|----------------|
| 5 | Business News Papers | • Business Standard  
• Business Line  
• The Economic Times |
| 6 | Working Papers and Monographs | • IIM Bangalore  
• IIM Ahmedabad  
• Stanford University |