CHAPTER THREE
RESEARCH METHODOLOGY

Research methodology is the systematic method/process dealing with identifying problem, collecting of facts or data, analyzing these data and reaching at certain conclusion either in the form of solutions towards the problem concerned or certain generalization for some theoretical formulation. It also comprises of a number of alternative approaches and inter-related and frequently overlapping procedures and practices. Since there are many aspects of research methodology, the line of action is to be chosen from a variety of alternatives. The choice of suitable method can be arrived at through assessment of objectives and comparison of various alternatives. Methodology is defined as “the systematic study of methods that are, can be, or have been applied within a discipline” or “a particular procedure or set of procedures” (Meuter et al., 2000). Methodology includes the following concepts as they relate to a particular discipline or field of inquiry: “a collection of theories, concepts or ideas; comparative study of different approaches; and critique of the individual methods” (Merriam-Webster's Online Dictionary). There exist three sets of approaches to research methodology (Wikipedia) which are:

**Quantitative Approach** is one which the investigator primarily uses for developing knowledge (i.e. cause and effect thinking, reduction to specific variables and hypotheses and questions, use of measurement and observation, and the test of theories), employs strategies of inquiry such as experiments and surveys and collects data on predetermined instruments that yield statistical data.

**Qualitative Approach** is one in which the inquirer often makes knowledge claims primarily on constructivist perspectives (i.e. the multiple meanings of individual experiences, socially and historically constructed, with an intent of developing a theory or pattern) or advocacy/participatory perspectives (i.e. political, issue-oriented, collaborative or change oriented) or both. It also uses strategies of inquiry such as narratives, phenomenologist, Ethnographies, grounded theory studies or case studies. The researcher collects open-ended
and emerging data with the primary intent of developing themes from the data or for the concept building.

**Mixed Method Approach** is one in which the researcher tends to base knowledge claims on pragmatic grounds (e.g. consequence-oriented and problem-centered). It employs strategies of inquiry that involves collecting data either simultaneously or sequentially to best understand research problems. The data collection also involves gathering both numeric information (e.g. on questionnaire) as well as text information (e.g. on interviews) so that the final database represents both quantitative and qualitative information. There is not a single methodology which is right and suitable for every type of research, all depends on the topic, on the type of data one wants to collect, on the time one wants to spend on it (Creswell, 2002). The most essential thing is to use a method that brings forth the data you need in order to carry out an appropriate project. The present study is a mixed method approach but there is more use of quantitative approach.

**Research Design / Process**
A research process is required to perform tasks such as identifying the problem area, exploring previous literature, making a case study research, gathering data and synthesizing them as well as analyzing those data and presenting them. It necessitates “planning, control and continuous monitoring and evaluation” (Coombes, 2001). As regards the methodology, there is not a right research process for all types of studies, it depends always on what you intend to derive at the end of the studies. A research design is a simple framework or plan for a study that is used as guide in collecting and analyzing the data in an economic, efficient and relevant manner. Research can be exploratory or Descriptive. The primary purpose of exploratory research is to provide insights into, and an understanding of the problem confronting the researcher. This research is used when the problem needs to be defined more precisely, relevant course of action is to be identified while the Descriptive 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 this research are used as inputs into managerial decision making.
The present study is Exploratory-cum-Descriptive in nature as it endeavors to find out the determinants for measuring effectiveness of distribution function and at the same time predicts measures to improve effectiveness as well as recommendations for white goods manufacturing companies and their distributors.

The general approach for the collection of data for this research work was based on two major approaches. These are primary and secondary data collection. Our focus is on the collection of primary data through three questionnaires administered for marketing personnel of the companies, Distributors of the companies and the Customers. Along with this, data is also collected through interviews conducted for marketing managers of the companies and also secondary data is collected over the different websites of various white goods companies.

**Research Problem Being Stated**

The starting point of any research work is the recognition of the problem area, which is very necessary. For a problem to be well understood, it is better developing good questions. “What do I want to find out?” is a question we must answer (Brewerton, 2001). The entire research will be based on this question. Difficulties can arise for other steps in the research process if the problem area is not defined clearly (Brewerton, 2001). The interest of the study is on the measurement of effectiveness of distribution function in White Goods industry. There are various studies on distribution channel decision, selection procedure, conflicts and their resolution, channel communication and channel power. But on the same there are significant gaps due to the fact that the different studies are not comprehensive study done on distribution functions in white goods industry in Indian context. In this study, the focus is on the study of effectiveness of distribution channels as per manufacturers’, distributors’ and customers’ point of view.

**Objectives of the Study**

- To study the present state of channels of distribution in white goods industry.
- To study the working of emerging channels of distribution like telemarketing, e-marketing etc.
- To analyze the factors in selection procedure of distribution intermediaries influencing the white goods companies.
- To understand the causes of conflicts within the channel of distribution, techniques to resolve the conflicts and to determine the factors to motivate them.
- To evaluate the performance of the dealers and distributors from company’s point of view.
- To determine the motivators as per the distributors’ perception that is responsible for their performance.
- To study the effectiveness of distribution channels from distributors’ point of view.
- To study the effectiveness of distribution channels from customers’ point of view.

**Hypotheses**

On the basis of review of the existing literature, the following null hypotheses were developed.

**Hypothesis One** (Ho1): There is no significant difference in the perception of employees of various companies regarding the importance of various Parameters for Selecting Distributors.

**Hypothesis Two** (Ho2): There is no significant difference in the perception of employees of various companies regarding the effect of Liberal Credit Policy on effectiveness of Distributors.

**Hypothesis Three** (Ho3): There is no significant difference in the perception of employees of various companies regarding the importance of various Factors Motivating Distributors.

**Hypothesis Four** (Ho4): There is no significant difference in the perception of employees of various companies regarding the Satisfaction of Distributors with Profit Margins.

**Hypothesis Five** (Ho5): There is no significant difference in the perception of employees of various companies regarding the effectiveness of Distributors to Promote the Products locally.

**Hypothesis Six** (Ho6): There is no significant difference in the perception of employees of various companies regarding the importance of various Parameters for Evaluating the Performance of Distributors.
**Hypothesis Seven** (Ho7): There is no significant difference in the perception of employees of various companies regarding the various Reasons of Conflict among sales personnel and distributors.

**Hypothesis Eight** (Ho8): There is no significant difference in the perception of Distributors of various companies regarding the importance given by company to their feedback for Pricing.

**Hypothesis Nine** (Ho9): There is no significant difference in the perception of Distributors of various companies regarding the importance given by company to their feedback for Product Improvement.

**Hypothesis Ten** (Ho10): There is no significant difference in the perception of Distributors of various companies regarding the importance given by company to their feedback for Product Promotion.

**Hypothesis Eleven** (Ho11): There is no significant difference in the perception of Distributors of various companies regarding their satisfaction level with the Sales Efforts by the company.

**Hypothesis Twelve** (Ho12): There is no significant difference in the perception of Distributors of various Regions in Haryana regarding their satisfaction level with the Sales Efforts by the company.

**Hypothesis Thirteen** (Ho13): There is no significant difference in the perception of Distributors of various Regions in Haryana regarding their satisfaction level with the Profit Margins provided by the company.

**Hypothesis Fourteen** (Ho14): There is no significant difference in the perception of Distributors of various companies regarding their satisfaction level with the Promotional Efforts by the company.

**Hypothesis Fifteen** (Ho15): There is no significant difference in the perception of Distributors of various companies regarding their satisfaction level with the Credit Policy of the company.

**Hypothesis Sixteen** (Ho16): There is no significant difference in the perception of distributors of various companies regarding the conflict issues among companies’ sales personnel and Distributors.
**Hypothesis Seventeen** (Ho17): There is no significant difference in the perception of distributors of various companies regarding the impact of conflict issues on the Motivation of Distributors.

**Hypothesis Eighteen** (Ho18): There is no significant difference in the perception of Distributors of various companies regarding their satisfaction level with the overall sale of the products of the company.

**Hypothesis Nineteen** (Ho19): There is no significant difference in the perception of Distributors of various companies regarding importance of various factors Motivating the Distributors.

**Hypothesis Twenty** (Ho20): There is no significant relationship between Residential Status of customers and Visibility of Retail Stores of white goods companies.

**Hypothesis Twenty one** (Ho21): There is no significant relationship between customers’ Preference towards various white goods companies and their Residential Status.

**Hypothesis Twenty Two** (Ho22): There is no significant relationship between customers’ Preference towards various white goods companies and their Level of Education.

**Hypothesis Twenty Three** (Ho23): There is no significant relationship between customers’ Preference towards various white goods companies and their Profession.

**Hypothesis Twenty Four** (Ho24): There is no significant relationship between customers’ perception regarding the importance of various factors affecting buying decision and their Residential Status.

**Hypothesis Twenty Five** (Ho25): There is no significant relationship between customers’ perception regarding the importance of various factors affecting buying decision and their Level of Education.

**Hypothesis Twenty Six** (Ho26): There is no significant relationship between customers’ perception regarding the effect of retailer’s suggestions on buying decision and their Residential Status.

**Hypothesis Twenty Seven** (Ho27): There is no significant relationship between customers’ perception regarding the effect of retailer’s suggestions on buying decision and their Level of Education.
**Hypothesis Twenty Eight** (Ho28): There is no significant relationship between customers’ perception regarding the effect of retailer’s suggestions on buying decision and their Profession.

**Hypothesis Twenty Nine** (Ho29): There is no significant relationship between customers’ perception regarding the effect of Salesman Knowledge & Attitude on buying decision and their Residential Status.

**Hypothesis Thirty** (Ho30): There is no significant relationship between customers’ perception regarding the impact of companies’ service infrastructure on their satisfaction and their Residential Status.

**Hypothesis Thirty one** (Ho31): There is no significant relationship between customers’ perception regarding the Overall Impact of Retailer on buying decisions and their Residential Status.

These Null Hypotheses were tested for significance and conclusions were drawn on the basis of acceptance or rejection of the Hypotheses.

**Area of Study**

The area covered in this research work was whole Haryana. For convenience and practicability, a thorough and careful examination of geographic segmentation was carried out to actually review the effectiveness of distribution function. The whole Haryana was divided into four geographic segments. First segment was G.T. Road Belt which included the districts located on G.T. Road from Sonepat to Ambala and Yamunanagar, Kaithal. Second segment included the districts on National Highway 10. This belt included Rohtak, Bhiwani, Hissar, Fatehabad, Sirsa, Jind. Next segment i.e. South Haryana incuded Jhajjar, Riwari, Charkhi Dadri and Mahendergarh. Fourth segment was National Capital Region. It included Gurgaon, Faridabad, Palwal and Mewat. This segmentation was done not only on the basis of location but a difference of buying behavior and marketing strategies was also observed.

**Population**

The saying that “no decision is wise until it yields positive results” comes to fulfill its meaning. In the light of the above, the idea of choosing a section/segment of Haryana would not serve the purpose of the study. Samples have been taken from all the four segments of
Haryana. There are around 15 companies which are the major players in white goods market in Haryana. About 40% companies have been studied in the present study by collecting data from their sales personnel and distributors through questionnaire and interviewing their senior managers. There are more than 500 distributors of white goods in Haryana. Samples of distributors consist of all segments. The households of Haryana State have formed the population of customers.

Sample Design

In most of the research studies, it has become almost impossible to examine the entire universe; the only alternative thus is to resort to sampling. Based on the data obtained from the sample, generalizations about the population are made. The present study is also of the same nature. According to Manheim, “a sample is a part of the population which is studied in order to make inferences about the whole population.” Thus a good sample is a miniature version of the population. The sampling procedure may be simple random sampling. This procedure is used because it affords each element of the population the opportunity of having independent and equal of being represented in the sample. It is equally easy and simple in terms of conceptualization and application. There may also be judgmental sampling. A good sample design involves the following:

- Sample Unit
- Sampling Techniques
- Sample Size

**Sample Unit**: Since the objective of the present study was to analyze the factors that lead to improve and enhance effectiveness of distribution function in the purview of white goods sector in Haryana; the white goods manufacturing companies, distributors of these companies and the customers have been taken as the sample unit.

**Sampling Technique**: The procedure that a researcher adopts for selecting the sample is known as sampling technique. In the present study, Non-probability sampling has been used. **Judgmental Sampling** has been used but utmost care has been taken to take respondents from all the four segments of Haryana under study as well as from various demographic profiles. In fact six companies selected as sample are representing the whole industry as they jointly hold more than 75 percent of total market share.
**Sample Size:** The sample size has been taken as six white goods manufacturing companies, 84 distributors which were distributing the products of these companies and 300 customers who are using or considering buying the products of these companies. To ensure required sample size and to allow for the possibility of spoiled questionnaires, 400 customers have been targeted from varied demographic profile from Haryana. The researcher explained the voluntary nature of the survey to the respondents, assured them of the anonymity of their responses, and told them to feel free to opt out any of the options. They provided each respondent with a copy of the questionnaire and an envelope, explained how the questionnaire was to be filled out and collected the completed questionnaires. A total of 72 refused to participate and another 28 questionnaires were discarded because the customers failed to complete them properly. The effective sample size was thus 300 with a good response rate. This response rate was higher than the response rate of the acceptable limits to ensure the validity of the data. Further, the study targeted 100 distributors of various companies, out of which 12 refused to participate and another four questionnaires were discarded because the distributors failed to complete them properly. The data from companies was collected from their Area Sales Managers, Branch Managers and Regional Managers - Sales. Total 50 persons were contacted out of which the responses of 45 respondents have been recorded and analyzed.

**Reliability and Validation of the Instrument**
Reliability simply means idea, that another researcher would obtain the same findings if the study was repeated (Zikmund, 2000). In other words, reliability is the degree to which measures are error-free and thus yield consistent results (Kumar, 1996). Being well informed about the respondents in the interview could be a way to increase the trustworthiness and this can encourage the respondents to be more open and detailed about the questions asked. Reliability may also be promoted if the respondents receive a list of questions that are going to be discussed during the interview (Sekaran, 2000). Validity refers to how accurately the research has been conducted. Validity can also be referred to as “the ability of an instrument to measure what it is designed to measure” (Mark, 1996). The idea of validity refers to the quality of the data and can be relevant to any aspect of the research process. The questionnaire designed for this research work, in order to meet with its purpose, i.e., measure
what it was expected to measure, was subjected to a validation process. Hence, copies of the designed questionnaires were given to experts to scrutinize. Some criticisms and corrections were made based on the outcome of such test and corrections before it was finally given to respondents. For the purpose of consistency, the instrument of what questionnaire is designed to measure, the questionnaires were tested and retested, administering them to the same group of respondents more than once and the results remain the same.

**Methods of Data Collection**

The study was based on primary as well as secondary data. The secondary data were collected from various published or unpublished research work companies’ websites, different books, and journals. Some important information was also compiled from different newspapers and magazines. Primary data has been collected through well structured comprehensive questionnaire. Various types of questions were administered in view of the objectives of the study. They intended to elicit desired information / opinion of the respondents. The questionnaires contained easily understood questions and were carried to the respondents to be filled by them. In the case of sales personnel of the companies, personal interviews were conducted by the researcher to secure correct and necessary information.

For the purpose of data collection, questionnaires were designed and handed over to the respondents to fill. For the fact that the research design was based on primary and secondary sources of data collection, the instruments of research employed were unstructured interview and use of questionnaires. The questions were designed in a way to facilitate respondents’ answers. The questionnaire were equally designed and presented in a way to carry the statement of objective and the identification being sought in this research work.

**Instruments of Data Collection**

**The Questionnaire:** Questionnaire was the main instrument for data collection in this study. The questions were designed to collect relevant information needed for the research from respondents. Prior to constructing the actual questionnaire, the researcher conducted a pilot study to pretest the questionnaire. Only on rare occasions and for specific and explicit reasons, a questionnaire should be administered without a thorough pretest. The
questionnaire was sent for thorough pretest to the respondents who were as similar as possible to the target of respondents. The questionnaire was administered in the same manner as the final survey. In addition, some of the pretest respondents were interviewed after they completed the questionnaire.

The study included three types of questionnaires. **Questionnaire - A** was administered for sales personnel of six white goods companies under study. This questionnaire contained total 24 questions (see Appendix A). The contents of the questionnaire were related to observe their perception regarding impact of company policies on motivation level of distributors and overall effectiveness of distribution function. The sales personnel were asked about the parameters used by companies to select channel members, factors affecting motivation of distributors, causes of conflicts, performance evaluation criteria and their perception regarding distributors’ contribution in marketing mix strategies. The intensity of the respondent’s feeling on these issues was measured for each of the statements on a three point scale. The data was collected from Area Sales Managers, Branch Managers and Regional Managers - Sales. Total 50 persons were contacted out of which the responses of 45 respondents were recorded and analyzed.

The **Questionnaire - B** contained questions that were framed in a way to obtain information on the impact of companies’ policies and strategies on the distributors and overall effectiveness of distribution function as per the perception of their distributors. The distributors were asked about the factors that motivate them, frequency of occurrence of conflicts, impact of various conflict situations on their motivation and effectiveness etc. In order to elicit the cooperation of the respondents and make feel comfortable without suspicious of the researcher’s intention, it was categorically stated in the opening letter to the Questionnaire that the information furnished by the respondents for the research, shall be used for the research purpose and such information shall be treated as strictly as confidential. Out of the one hundred (100) questionnaires distributed to the respondents, 12 refused to participate and another four questionnaires were discarded because the distributors failed to complete them properly. The results are based on the analysis of 84 questionnaires in the case of Questionnaire - B.

**Questionnaire - C** was administered for the customers who are presently using the products of these companies or intending to buy these products. This questionnaire contained the
questions to understand influence of distribution function and marketing channel members on the buying decision of the respondents. Further it was aimed at obtaining respondents’ opinion about various emerging channels of distribution like internet and telemarketing. Third questions was to know the level of awareness of respondents of different demographic profiles for these upcoming marketing channels and fourth question is related with their preference for such channels for buying white goods. Next question was aimed at obtaining respondents’ opinion regarding visibility of various white goods companies through their marketing intermediaries. Further, questions were asked to know respondents’ opinion and perception how a distributor and a retailer can affect buying decision by way of their support & suggestion, providing good service, positive attitude of the salesman and his own influence on customers. A total of 72 refused to participate and another 28 questionnaires were discarded because the customers failed to complete them properly.

**Unstructured Interview:** This method was used to supplement and complement the questionnaire in data collection because it provided the opportunity to explore certain aspects, which could not be covered by the questionnaire, and also to be able to ask questions and get replies from the sales personnel of the white goods manufacturing companies. The interview equally covered sales personnel at all the levels of the organizations and correct answers to questions recovered from those concerned. The use of interview was highly useful in the case of data collection from the senior managers of the companies.

**Secondary Sources:** The secondary sources of data collection for this research study included articles, journals, published official documents, magazines, textbooks, review of relevant literature, unpublished lecture notes and browsing / surfing the internet. These provided the background information for study.

**Data Analysis**

Due to the use of statistical measurements in quantitative research, data analysis and presentation is usually simpler. Tables and charts are tools used for the presentation of data and the report can be structured around these exhibits, while in qualitative research, it seems difficult (Zikmund, 2000). During the analysis of qualitative information, the researcher employs an in-depth investigation and subjectively interprets the data, in order to explain
much of the variation in the field of study (Mason, 1996). The present study is more of quantitative nature. So the analysis is based on statistical tools and techniques.

Data analysis usually involves reducing accumulated data to a manageable size developing summaries, looking for patterns, and applying statistical techniques. Scaled responses on questionnaire often require the analyst to derive various functions, as well as to explore relationship among variables.

In this study, after collection of needed data, it was first tabulated and then analyzed. Simple frequency Tables were prepared for learning about the general profile of the respondents selected for this study. Methods used for analysis were Mean, Multi Dimensional Scaling, ANOVA and Chi Square Test. Percentage, Pie Charts, Bar Charts and Mean Plots were used to present the facts and data in appropriate and effective manner. The data was cross tabulated to find the effect of various demographic variables on the general opinion or attitude of respondents towards effectiveness of distribution function. The hypotheses framed in these respect were tested statistically for their significance. The data was analyzed using SPSS 11.01, an effective package for statistical analysis throughout the study. The statistical tools used for analyzing the data are:

**Mean**

The most popular and widely used measure for representing the entire data by one value is what most lay-men call an “average” and what the statisticians call the arithmetic means. Its value is obtained by adding together all the items and by dividing this total by the number of items.

**Formula**

\[
\bar{X} = \frac{\sum fx}{N}
\]

**Graphic Presentation**

Bar charts and pie charts are used to present the facts and data in appropriate manner, neat and clean, and good design form as far as possible because a graphic illustration can be indeed worth a thousand words. Apart from these, Mean Plots were also used to present
mean values of different variables graphically in order to present the facts in comparative terms as and when required.

ANOVA
ANOVA means analysis of variance. When there are three or more levels for the nominal variable, a simple approach is to run a series of t-tests between all the pairs of levels. A more powerful approach is to analyze all the data in one go. The model is the same, but it is now called a one-way analysis of variance (ANOVA). So t-tests are just a special case of ANOVA: if you analyze the means of two groups by ANOVA, you get the same results as doing it with a t-test. If you're expressing a difference between means as an effect size, the standard deviation to use in the calculation is the root mean square error (RMSE) in the ANOVA. An ANOVA is based on the assumption that the standard deviation in the same in all the groups, and the RMSE represents the estimate of that standard deviation. You can think of the RMSE as the average standard deviation for all of the groups.

The results are analyzed on the basis of Significance Value. A value less than 0.05 represent Significant Variance among the groups. ANOVA has been used to test the significance of Hypothesis One through Hypothesis Eighteen. These hypotheses were related with sales personnel data and distributors’ data.

Chi-Square Test
Probably the most widely used non-parametric test of significance is chi-square ($X^2$) test. It is particularly useful in tests, involving nominal data but can be used for higher scales - Typical are cases where persons, events or objects are grouped in two or more nominal categories. Using this technique, we test the significant difference between the observed distribution of data among categories and the expected distribution based on null hypothesis. It must be calculated with actual counts rather than percentage.

Formula used in this study is as follows:

$$X^2 = \sum_{i=1}^{n} \frac{(O_i - E_i)^2}{E_i}$$
Where $O_i$ = Observed frequency in $ith$ cell

$E_i$ = Expected frequency in $ith$ cell

$n$ = Number of cell

$E_i$ is given by $\frac{RT \times CT}{N}$

Where $RT$ = the row total for the row containing the cell.

$CT$ = the column total for the column containing the cell.

$N$ = the total number of observations.

The test was conducted at 95% confidence level (or 5% level of significance). The calculated chi-square values were compared with the Table value of chi square at given degree of freedom (d.f).

Where Degree of freedom $(\nu) = (R - 1) (C - 1)$

$R$ = No. of Rows

$C$ = No. of Columns

If the calculated Chi-square value worked out to be less than 0.05, the deviation of observed frequency from expected frequency was considered to be significant. Consequently, the null hypothesis was rejected. If the calculated Chi-square value was found to be more than 0.05, the difference was considered to be insignificant and thus the null hypothesis was accepted.

This test was used to test the significance of Hypothesis Nineteen through Hypothesis Thirty one. These hypotheses were related with customer data and the number of respondents for this section was appropriate enough to use Chi-Square test.

**Multi Dimensional Scaling**

For detailed comparative analysis, Multi dimensional scaling (MDS) technique is used for parameters of selecting distributors, factors of motivation for distributors, causes of conflicts and measures of performance evaluation. MDS yields to perceptual mapping which expounds the comparative importance of various factors on a 2 X 2 matrix. RSQ values are the proportion of variance of the scaled data (disparities) in the partition (row, matrix, or entire data) which is accounted for by their corresponding distances. Higher the RSQ value, the better the model explains the variation present in the data. Results of perceptual mapping of
sales personnel’s perception and distributors’ perception regarding these variables are shown in the form two dimensional pictures.

Although every effort has been made to undertake a representative study, still the limitations could peep in the course of study. ‘Sample’ is only sample, it can never be the ‘universe’. This truth, in fact is the real cause of the limitations in the study based on sampling techniques. The ‘uncontrollable factor’, also contribute positively towards the number of limitations.