Process of Research

1. DEFINING THE PROBLEM

The starting point of any research is to formulate the problem and mention the objectives before specifying any variables or measures. This involved defining the problem in clear terms. Problem definition involves stating the general problem and identifying the specific components of the research problem. Components of the research problem include:

a) The decision maker and the objectives

b) The environment of the problem

c) Alternative courses of action

d) A set of consequences that relate to courses of action and the occurrence of events not under the control of the decision maker and

e) A state of doubt as to which course of action is best

Problem formulation is perceived as most important of all the other steps, because of the fact that a clearly and accurately identified problem would lead to effective conduct of the other steps involved in the research process. Moreover, this is the most challenging task as the result yields information that directly addresses the management issue, though, the end result is for the management to understand the information fully and take action based on it. From this we

understand, that the correctness of the result depends on how well the research takes on, at the starting point.

Following are the techniques to get a clear idea of a problem:

- Secondary data analysis
- Pilot studies
- Statement of research objectives

2. PLANNING A RESEARCH DESIGN

After researcher has formulated the research problem, the research design must be developed. A research design is a master plan specifying the methods and procedures for collecting and analyzing the needed information. It is a framework of the research plan of action. The researcher must determine the source of information, the design technique (survey or experiment, for example), the sampling methodology, and the schedule and cost of the research.

There are **four basic design techniques** - surveys, experiments, secondary data, and observation.

a) Surveys: A survey is a research technique in which information is collected from a sample of people by using a questionnaire. The task of writing a questionnaire, determine the list of questions and designing the exact format of the questionnaire is an essential aspect of research design through survey.

b) Experiments: Test marketing is a frequent form of business experimentation. Business experiments hold the greatest potential for establishing cause effect relationships. The use of experimentation allows investigation of changes in one variable, such as productivity, while manipulating one or two other variables, perhaps social rewards or monetary rewards, under controlled conditions. Ideally, experimental control provides a basis for isolating causal factors because outside influences do not come into play.

An experiment controls conditions so that one or more variables can be manipulated in order to test a hypothesis.

c) Secondary Data: Collection of secondary data provides useful information for planning the research design.

d) Observation: In many situations, the objective of the research project is merely to record what can be observed. For example, the number of automobiles that pass a site for a proposed gasoline station. This can be mechanically recorded or observed by any person. Similarly, the amount of time taken by an employee to perform a task may be observed in a time study.

3. PLANNING A SAMPLE

Although the sampling plan is included in the research design, the actual sampling is a separate stage of the research process. However, for convenience, the sample planning and sample generation processes are treated together, here.

Sampling involves any procedure that uses a small number of items or that uses parts of population to make a conclusion regarding the whole population. In other words, a sample is a subset of a larger population. If certain statistical procedures are followed, it is necessary to select every item in a population because the results of a good sample should have the same characteristics as the population as a whole. Of course, when errors are made, samples do not give reliable estimates of the population.

There are two basic **sampling techniques**: probability and non-probability sampling. A probability sample is defined as a sample in which every member of th$_e$ population has a known, and non-zero probability of selection.

If sample units are selected on the basis of personal judgement, the sample method is a non-probability sample. As a matter of fact, the sampling decision is not a simple choice between two methods. Random samples, stratified samples, quota samples, cluster samples and judgemental samples are some of the examples of samples that may be drawn.

4. COLLECTION OF DATA

Adequate and appropriate data are required for any standard research work. The data may differ considerably keeping in view the financial aspect, time and other resources available to the researcher. The researcher, while collecting data takes into consideration the nature of investigation, objective and scope of the inquiry, financial resources, available time and the desired degree of accuracy. That apart his own ability and experience also counts much in the collection of required data.

Secondary data are collected from books, journals, newspaper, reports of the earlier studies etc., whereas primary data are to be collected either through experiment or through survey. For examining the facts through hypothesis, the researcher, takes recourse to experiment for observing some quantitative measurements.

But, for the purpose of a survey, data may be gathered by observation, personal interviews, telephonic interviews, mailing of questionnaires and through schedules. For any particular survey he may administer one or more than one of the above methods, depending on the nature of study.

5. ANALYSIS OF DATA

After completion of the collection of data, the researcher embarks upon the analysis of these data. This involves a number of operations such as establishment of categories, the application of these categories to raw data through coding, tabulation. Thereafter statistical inferences are drawn.

All these operations are very closely related to one another. At the outset, the researcher classifies the raw data into some usable categories on the basis of some purposes. At this stage coding operations is also done so as to transform the categories of data into symbols in order to make them amenable to be tabulated and counted. The researcher may also induct editing in order to improve the quality of data for coding.

Thereafter, in the post-coding stage, the classified data are put in the form of tables as a part of technical procedure either manually or through mechanical devices such as computers. Computers are generally used in large enquiries for the dual purposes of saving time and for making the study of large number of variables possible. While analyzing data, the researcher applies various well defined statistical formulae for the computation of percentages, coefficients, tests of significance, so as to determine with what validity data can indicate any conclusion.

6. CONCLUSION AND REPORT

As we know that most of the business research is applied research. Hence, the purpose of the research is to make a business decision. An important but often overlooked aspect of the researcher's job is to look at the analysis of the collected information and ask "What does this mean to management".

The final stage in research process is to interpret the information and make conclusions for managerial decisions.

The research report should communicate the research findings effectively. Generally, management is not interested in detailed reporting of the research design and statistical findings but wishes only a summary of the finding. It should be noted that if findings of the research remain unread on the manager's table, the study is useless. Research is only as good as the applications made of it. Business researchers must communicate their findings to the management.