Chapter-3: Research Methodology

3.1 Introduction

This chapter gives an overview of the research approach, design, sampling design, data types, data collection, and interpretation methodologies involved in conducting the research and the statistical tools used to test the proposed research hypothesis.

3.2 Research paradigm

A research paradigm is a dynamic~~al~~ scientific works system including values ~~their~~ perceived ~~values~~ by peer scientists, and ruled by the associated citation decay ~~and~~, endurance, and intrinsic intellectual values. Research paradigms fall into two categories ~~by name~~: (1) Positivism and (2) Hermeneutics (Gray and Malins, 2004).

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Positivism considers the objective existence of truth ~~in the globe~~ and ~~emphasis~~ emphasizes~~is put on~~ the relationships measurement between variables to reveal that truth. These measurements are ~~done~~ undertaken in a statistical and systematic way (Cook, 1985). Conversely, Grondin, Jean (1995) defined that hermeneutics is the interpretation of science and ~~is~~ exist~~ings~~ in the interpretive paradigm. Hermeneutics is a social subjective paradigm member where the meaning is created inter-subjectively in contrast to the considered scientific realism in the empirical universe.

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3.2.1 Paradigm adapted in this research

This study follows positivism as the research paradigm. Positivism is the view that the process of social science must be as similar as possible those of the natural sciences. The goals of the positivist approach are to provide descriptions leading to predictability and control. Positivism has been a prevalent way of knowing the social world (Babbie, 2004).

3.3 Research approach

Crotty (1998) ~~referred~~ maintained that ~~a~~ research is referred as the systematic method of gathering new information. The research approach refers to the method by which a research is conducted. The two common research approaches widely adapted by researchers are deductive and inductive research.

3.3.1 Deductive Approach:

~~Deductive~~ The deductive research approach is associated with the positivism paradigm. The deductive research approach permits the research to set up a hypothesis by using theory (Johnson and Duberley, 2000).

3.3.2 Inductive approach:

~~Inductive~~ The inductive approach is wholly opposite to deductive approach. ~~The i~~Inductive research ~~is~~ uses a flexible approach because there is no need ~~of~~ for predetermined theory to gather information and data (Mertens, 2008).

3.3.3. Research Approach Adapted:

This study adapts the deductive approach. ~~Deductive~~ The deductive approach initiates itself with normal ideas such as laws, principles and theory and ~~regarded~~ based on them, the researcher makes particular hypotheses, which can be verified to support general ideas (Somekh and Lewin, 2005).

3.4 Research Strategy:

According to O'Leary, Zina (2004) a research strategy is an action schedule, which gives position to a researcher's efforts enhancing them so as to organize the research haphazardly rather than systematically. The two types of research strategies adopted in this research are qualitative and quantitative research. Tucker et al. (1995) defined ~~that defined that~~ qualitative research as one which is organized in the natural settings and consists of procedures of building a holistic and composite depiction of interest phenomenon. ~~.~~ , ~~Whereas~~ whereas Dzurec and Abraham (1993) explained that an ~~inquiry~~ enquiry into a recognized issue, based on theory testing, ~~–~~ could be identified using statistical techniques and measured with numbers therefore, ~~is~~ known as Quantitative research.

3.4.1 Research strategy used in this research:

The research strategy adopted in this research is the quantitative research strategy. Fry, Chantavanich and Chantavanich (1981) defined that quantitative research is conclusive in its need as it tries to solve the issue and understand how it is powerful for projectable outcomes ~~to~~ for a bigger population.

3.5 Research Design

Kelly (2003) defined ~~that~~ research design ~~is~~ as the attempts by researchers to set up systematic procedures to solve problems. Most research designs in the social sciences follow the scientific method. Research design is different from the method by which the data is collected.

3.5.1 Exploratory research design

Exploratory research is always conducted to explore the problem and is done usually when the alternative choices have not been defined clearly or their scope is unclear (Monsen, 2008).

3.5.2 Conclusive research design

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Conclusive research is meant to offer information that is useful in ~~attaining~~ decision-making or arriving at conclusions (Grunow, 1995). The conclusive research design may be either descriptive or casual in nature.

The descriptive research characterizes specific functions or characteristics that the management is likely to be interested in such as market opinion, customers, conditions, buying behavior, and so forth (Johnson and Onwuegbuzie, 2004). On the other hand, causal research design is used to investigate the cause-and-effect relationship between variables (Maxwell, 2004).

3.5.3 Research design used in this study

This study makes use of the descriptive research design. ~~The d~~Descriptive research is used to recognize issues or justify practices and conditions. It also makes evaluations and comparisons and gathers brief factual information, which depict~~s~~ the occurring phenomena (Howe, 1992).

3.5 Sampling Design

A s~~S~~ampling plan or sampling defines ~~to~~ the procedure or the technique the researcher ~~would acquire~~resorts to ~~in~~ when choosing items for the sample. There are 2 techniques of sampling ~~by names~~:

i. ~~Non~~ Non-random sampling or Non-probability sampling.
ii. Random sampling or ~~probability~~ Probability sampling.

Probability sampling can be very easy or extremely critical, expensive and time consuming. ~~The p~~Probability sampling eliminates unconscious or conscious biases in the choice of ~~choosing of~~ elements on the part of the researcher. There are 4 kinds of probability sampling ~~such as~~ methods: 1) Stratified sampling; 2) ~~simple~~ Simple random sampling; 3) ~~cluster~~ Cluster sampling; and 4) ~~systematic~~ Systematic sampling (Collins, Onwuegbuzie and Jiao, 2007).

On the other hand, in ~~non~~ non-probability sampling, ~~is where the~~ samples are not chosen randomly. Here, one chooses customers based on the judgment of the researcher, convenience, or other non-random processes. There are 4 kinds of ~~non~~ non-probability

sampling methods such as: 1) Judgment sampling; 2) ~~convenience~~ Convenience sampling; 3) Snow ball sampling; and 4) Quota sampling (Punch, 1998).

3.5.1 Sampling design adapted:

This research makes use of probability sampling or simple random sampling. A simple random ~~of~~ sample of size 'n' from a finite population of size 'N' is ~~a sample~~ chosen such that every possible sample of size 'n' has a similar probability of being chosen (Henry and John, 1982).

3.5.2 Sampling unit

The sampling units are the following 10 IT companies in India.

i. TCS
ii. CTS
iii. Wipro
iv. WNS Global Services
v. Infosys
vi. Genpact
vii. L and T Infotech
viii. ~~I~~ i-flex ~~solutions~~Solutions
ix. Mahindra Satyam
x. HCL Technologies

3.5.3 Target population

The target population in this research for the quantitative study is 50 Board of ~~directors~~ Directors belonging to the above mentioned 10 IT companies ~~in India~~.

3.5.4 Sample size

For the quantitative study, the sample size is 50, or five Boards of ~~directors~~ Directors from each of the IT compan~~y.~~ies mentioned above.

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3.5.5 Sampling plan

This includes the ~~It has been~~ schedules to gather data from the sample group of 50 ~~Board of d~~Directors working in 10 different IT companies in India. The data is to be gathered ~~must be gathered~~ by handing out questionnaires to respondents ~~to~~ at their corresponding places of work.

3.6 Data Collection Method

The research data is about observations or facts on which the argument or test is made. The research data may be categorized ~~into 2 types such~~ as the primary and secondary data.

3.6.1 Method adapted to collect primary data:

Sale, Lohfeld and Brazil (2002) defined ~~that~~ primary data ~~is~~ as that collected directly ~~from~~ by the researcher for some specific purpose or study. Primary data takes a huge amount of expense and time for the researcher to prepare but ~~it~~ has the benefits of being more applicable to the research situation or problem.

3.6.2 Justification for using questionnaire for data collection:

In this research, open- and closed-~~-~~ended questionnaires ~~are~~ were used since the research aimed to ~~determines~~ undertake ~~to conduct~~ both, quantitative and qualitative ~~analysis~~analyses**.** ~~Open~~ Open-ended questionnaires ~~are~~ were subjective in nature whereas ~~closed~~ closed-ended questionnaires ~~are~~ were objective ~~in nature~~ ones.

3.6.3 Method adapted to collect secondary data

Secondary data are the data that have been collected by other researchers. A researcher can often gather secondary data in a matter of days. ~~–~~Secondary data is often cheaper and simple to develop than primary data, which might consist of large groups of interviews or ~~sending out~~the dispatching of questionnaires (Newman and Benz, 1998).

3.7 Analysis and Interpretation of data

According to Dzurec and Abraham (1993) the effort and the time needed for data analysis and interpretation ~~rely~~ depends on the study's methodology and purpose ~~used~~. Analysis and interpretation may take from many days to many months.

3.8. Hypothesis testing:

Hypothesis testing decides the consideration validity with a view to selecting between ~~2~~ two conflicting hypotheses about the population parameter value ~~about the population parameter value~~. The following hypotheses are to be tested in this study:

1. Null Hypothesis: There are no ~~numerous~~ challenges involved in internationalizing the operations of IT organizations of India.
   Alternate Hypothesis: There are numerous challenges involved in internationalizing the operations of IT organizations of India.
2. Null Hypothesis: Internationalization does not increase the profitability of IT organizations.
   Alternate Hypothesis: Internationalization increases the profitability of IT organizations.
3. Null Hypothesis: Internationalization of IT organizations does not contribute to the improvement of the Indian economy.

   Alternate Hypothesis: Internationalization of IT organizations contributes to the improvement of the Indian economy.

3.9. **Statistical tools employed:**

The statistical tools that are used for the analysis of the primary data to be collected are

i. Graphical method
ii. Sample ~~percentage~~ Percentage method
iii. Weighted Average Method

i. Graphical method

The process of representing the gathered primary data in the form of figures or visual form is referred to as the graphical method.

ii. Simple ~~percentage~~ Percentage ~~analysis~~Analysis:

This technique is used in making differentiations between one or two data sets. The percentages represent the relationships between the data and are used in differentiating the respondent~~'~~s' responses.

$$\text{Percent} = \frac{\text{No of responses}}{\text{Total number of responses}} \times 100$$

iii. Weighted Average Method

The weighted arithmetic average removes the items' bias and gives a better measure of central tendency. The weighted average method is calculated by:

Weighted Arithmetic Average =
Total of the weighted scores ÷ Total no. of respondents

3.10. **Software tool used**

The following tools are used to analyze the primary data collected and test the proposed research hypothesis:

i. Microsoft Excel 2007

To produce graphs for the calculated percentages from the gathered primary data Microsoft Excel 2007 is used.

ii. StatCalc

The Statcalc is a ~~user~~ user-friendly tool which simplifies similar statistical calculations with 22 procedures.

3.11 Strategies for validating findings:
In any research, the obtained results are validated with the help of two parameters using reliability and validity.

3.11.1 Reliability:
According to Onwuegbuzie A J (2003), reliability is the degree to which the measures yield stable results and are free from error i.e. the measurement procedure stability~~leness~~.

3.11.2 Validity:
Validity decides whether the research measures ~~truly which~~ what it was intended to measure or how real the outcomes of research are (Onwuegbuzie and Johnson, 2006).

3.12 Ethical considerations
Ethics is the study of what is correct and incorrect. It explores what one might do when confronted with a situation where rights, values, societal rules, or personal beliefs may be in conflict.

3.13 Limitations of the research

i. This sample size of this research is merely 50 ~~Board of d~~Directors, owing to time~~s~~ constraints.
ii. The respondents were not that co-operative ~~with~~ in providing the answers and they had to be ~~given much pressure~~pressurized.
iii. The data collected for this research is exclusively with respect to the study of the IT industry in India and is not applicable ~~for~~ to other organizations ~~other than that~~.

3.14 **Summary**

It is ~~able to~~ understa~~n~~ood from the chapter on research methodology ~~chapter~~ that this research is quantitative in nature. A total of 50 respondents belonging to 10 different IT companies in India and designated as part of the Board of ~~directors~~ Directors were interviewed for the study using questionnaires containing closed-ended questions. The research design adapted in this study is descriptive research and the sampling technique involved is simple random sampling. This section besides explaining the statistical tools required for testing the proposed research hypothesis, has explained how the researcher has managed to maintain validity and reliability despite several limitations involved in conducting the research.