CHAPTER III

RESEARCH METHODOLOGY

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3.1 INTRODUCTION

This descriptive study is designed to examine the leadership characteristics of managers of IT and non-IT organizations and analyze its impact on organizational synergy and organizational excellence. Chapter one discussed elaborately the concepts of IT and non-IT industries and various leadership theories. Chapter two presented the review of literatures available on leadership characteristics, organizational synergy, and organizational excellence of managers. After the review of literature, the researcher felt that there is a visible gap in the body of knowledge in the area of research on leadership and its impact on managers of IT and Non-IT organizations. Hence, the researcher intends to provide empirical data for this under-researched area. The researcher adopted Full Range Leadership Model for understanding the leadership characteristics of managers of IT and Non-IT organizations. In this study, the transformational, transactional, and passive/avoidant leaderships are independent variables, and organizational excellence is the dependent variable. Further, organizational synergy is identified as intervening variable and the socio-demographic and economic factors are the control variables.

This chapter describes the methodology adopted and the instruments used for the conduct of the study. Figure 3.1 explains the various phases of the methodology followed in the study.
3.2 SIGNIFICANCE OF THE STUDY

This study aims at identifying and comparing the leadership characteristics of managers working in IT and Non-IT organizations. It also tries to examine the influence of leadership characteristics of managers on organizational excellence mediated through the intervening variables like employee empowerment, organizational transformation and organizational culture, together described as organizational synergy. Many studies have been conducted to assess the leadership characteristics of managers. However, the review of literature shows the absence of comparative studies on leadership of managers of IT and Non-IT organizations, and its impact on organizational synergy and organizational excellence.
In the current global economic scenario, organizations require capable administrators with transformational and transactional leadership characteristics in ensuring organizational effectiveness and excellence. Hence, the study is significant in adding literature to the exiting body of knowledge on leadership characteristics of managers of IT and Non-IT organizations and to know its influences on employee empowerment, organizational transformation, and organizational culture leading to organizational excellence. The study throws light on multiple dimensions of leadership characteristics on organizational excellence and is of unique relevance to the future researchers and professionals.

3.3 STATEMENT OF THE PROBLEM

The competitive business environment in the IT and Non-IT organizations has posed numerous leadership challenges to managers. Apart from the administrative skill sets, the modern day managers also require leadership capabilities which ensure effectiveness in managing the teams and achieving organizational goals. Even though there are visible diversities in the leadership requirements in IT and Non-IT organizations, the basic leadership challenges are almost similar. Hence, it is relevant to understand those leadership aspects that a leader shall possess in positively contributing to organizational excellence. Therefore, this study on leadership characteristics of managers of IT and Non-IT organizations examines the similarities and differences in leadership characteristics of managers in two kinds of organizations- IT and Non-IT. Further the study also explores the impact of leadership on organizational excellence while proposing a model for leadership and organizational excellence.
3.4 OBJECTIVES OF THE STUDY

1) To assess and compare the Leadership Characteristics of managers of IT and Non-IT organizations.

2) To identify the factors of Organizational Synergy and to compare these factors among managers of IT and Non-IT organizations.

3) To assess and compare Organizational Excellence of managers of IT and Non-IT organizations.

4) To understand the relationship between Leadership Characteristics and Organizational Synergy among managers of IT and Non-IT organizations.

5) To understand the relationship between Organizational synergy and organizational excellence among managers of IT and Non-IT organizations.

6) To propose a model integrating Leadership Characteristics, Organizational Synergy and Organizational Excellence, based on the outcome of the study.

3.5 HYPOTHESES

Hypotheses serve several important functions including the relevance of facts, providing a framework for presenting subsequent conclusions, guiding the direction of the study, and suggesting the most appropriate research design. A good hypothesis is testable, better than its rivals, and adequate for its purpose (Robson, 2002).

The following are the major hypotheses developed for the study:

H1: There is no significant difference between the means of transformational leadership of managers of IT and Non-IT organizations.

H2: There is no significant difference between the means of transactional leadership of managers of IT and Non-IT organizations.
H3: There is no significant difference between the means of passive/avoidant leadership of managers of IT and Non-IT organizations.

H4: There is no significant difference between the means of employee empowerment enabled by managers of IT and Non-IT organizations.

H5: There is no significant difference between the means of organizational transformation imparted by managers of IT and Non-IT organizations.

H6: There is no significant difference between the means of organizational culture imparted by managers of IT and Non-IT organizations.

H7: There is no significant difference between the means of organizational excellence imparted by managers of IT and Non-IT organizations.

H8: Transformational leadership, transactional leadership and passive/avoidant leadership are predictors of employee empowerment.

H9: Transformational leadership, transactional leadership and passive/avoidant leadership are predictors of organizational transformation.

H10: Transformational leadership, transactional leadership and Passive/avoidant leadership are predictors of organizational culture.

H11: Employee empowerment, organizational transformation and organizational culture are predictors of organizational excellence.

3.6 SCOPE OF THE STUDY

The scope of the study describes the parameters and specifications set in the smooth conduct of the study. The scope of the study gives the direction and reminds the researcher to be focused. The study explores
the leadership characteristics and the related behavioural outcomes of the managers in the IT and Non IT organizations.

The scope of this study is restricted to the IT and non IT companies operating in the Ernakulam district of Kerala. For the collection of data, the researcher selected software development companies in Infopark, Kochi as target group for IT organizations and manufacturing industries in Ernakulam district registered with Kerala State Industrial Development Corporation (KSIDC) as target group for the Non-IT organizations. Even though there are 42 IT firms operating in the area under consideration, for the purpose of this study the selection criteria for identifying the IT firms was based on the nature of the IT firms. Therefore the selected number of companies is again restricted to 12 applying inclusion and exclusion criteria mentioned under the subsection 3.9 of this chapter. Further, in case of Non IT firms, even though the total number of companies exceeds 251, the scope for the study is reduced to 46 organizations after applying inclusion and exclusion criteria explained under the subsection 3.9 of this chapter.

Kerala is known as God’s own country. It is most literate and educated State in India, having achieved 100 percent literacy. It is situated on the eastern coast of the country and linked by road, rail, air, and sea routes. Therefore, many Government establishments like BHEL, IOC, FACT, TELK, HMT, etc. started their operations on large scale in Kerala.

There are many IT companies in Kerala established in recent past. Infosys, Wipro, TCS, HCL, etc., are the major IT companies in India having their operations in Kerala especially in Infopark, Kochi. Comparing to other IT Parks in India, Infopark- Kochi is younger and
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hence the leadership issues are to be studied with priority. Also small and medium size IT establishments are prospering in this region.

Ernakulam is the central part of Kerala and it is the most happening city in Kerala. It is also known as the industrial capital and main IT hub of Kerala. Infopark, Kochi is the first Infopark established in Kerala to promote IT industry.

The reasons for selection of Ernakulam for present research are:
1. The study will be representative sample of Indian IT and non-IT industries.
2. Manufacturing and IT companies in Ernakulam are established in the recent past. It is young industrial and IT hub. Therefore, the researcher feels that data collected will be useful for leadership studies.
3. The researcher is from Kerala. He personally knows all the cities and towns in Kerala, especially Ernakulam. It is convenient to the researcher to collect data and other research information.

3.7 POPULATION OF THE STUDY

After applying inclusion and exclusion criteria mentioned under the subsection 3.9 of this chapter, 12 IT companies and 46 Non-IT companies come under the scope of the study. In the case of IT organizations, there are approximately 6000 employees across the organizations among whom, 4820 are developers and non-developers. The researcher selected these 4820 managers as population of the study from IT industry.

In the case of non-IT organizations, there are about 18,300 employees across the organizations among whom, 5640 are in different levels of management. The researcher selected these 5640 managers as population of the study from non-IT industry.
3.8 SAMPLING METHOD

The sample represents the target population of employees who work in IT and Non-IT organizations. The sampling method used in this study is simple random method.

The researcher approached the authorities of Infopark, Kochi and KSIDC, Ernakulam, and collected the list of companies with the necessary information which helped the researcher to select the companies. Companies provided the list of managers in various levels which helped the researcher to select the respondents by simple random method. The sample size estimation is done as follows.

3.8.1 SAMPLE SIZE ESTIMATION

The collected data from fifty respondents, as part of pilot study, are studied in detail to identify the extent of variation in responses. It is stated that the sample size is proportional to the level of variation and the assumed level of the error of the estimate of the population parameter of study variable. This study is supposed to consider statements in three different parts of the instrument to assess the various components in the study variable. For an assumed level of 5% error in the estimates of means of these responses, using the information on variance from the pilot study, sample size was obtained based on each response. Then the sample size, $n$, with 95% confidence level is given by:

$$n = 4* \frac{SD^2}{(0.025* M)^2}$$

Where, SD is the Standard Deviation; and M is the Mean (Levin & Rubin, 2009). The details of the sample size calculation is given in table 3.1
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### Table 3.1
Sample Size Calculation

<table>
<thead>
<tr>
<th></th>
<th>TFL</th>
<th>TCL</th>
<th>PAL</th>
<th>EE</th>
<th>OT</th>
<th>OC</th>
<th>OE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>72.52</td>
<td>31.29</td>
<td>12.54</td>
<td>35.26</td>
<td>12.37</td>
<td>20.28</td>
<td>17.24</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>18.3</td>
<td>6.3</td>
<td>3.8</td>
<td>6.3</td>
<td>2.1</td>
<td>4.2</td>
<td>3.1</td>
</tr>
<tr>
<td>Sample Estimate, n= (4 \times \frac{SD^2}{(0.025\times M)^2})</td>
<td>407.537</td>
<td>259.448</td>
<td>587.695</td>
<td>204.313</td>
<td>184.45</td>
<td>274.5</td>
<td>206.933</td>
</tr>
<tr>
<td>Sample Size</td>
<td>303.554</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Hence the sample size is fixed as 304 and it is decided by the researcher to take 152 from IT managers and 152 from non-IT managers.

### 3.9 INCLUSION AND EXCLUSION CRITERIA

The following session discusses the inclusion and exclusion criteria.

#### 3.9.1 INCLUSION CRITERIA

1) Software Developers, Group Leaders, Project Leaders, Project Managers, Team Leaders, and HR Managers who are working in software development companies in Infopark, Kochi.

2) Executives, Sectional Managers, and General Managers who are working in manufacturing organizations in Ernakulam district registered with KSIDC.

3) Managers from medium and large scale organizations of IT and Non-IT.

#### 3.9.2 EXCLUSION CRITERIA

1) Leaders and managers working in IT enabled Companies (ITeC) functioning in Infopark, Kochi.
2) Managers of manufacturing organizations which is not listed in KSIDC, Ernakulam.

3) Managers of manufacturing organizations in Public, Joint, and Cooperative sectors listed in KSIDC.

4) Managers from small scale organizations of IT and Non-IT.

5) Managers in service sectors listed in KSIDC.

3.10 RESEARCH DESIGN

The research type used in this study is descriptive in nature. The design of the study is centered on a quantitative assessment of the relationship between the transformational, transactional, and passive/avoidant leadership styles, organizational synergy and organizational excellence of managers of IT and Non-IT organizations. A survey research approach using a structured questionnaire is adopted in this study. A statistical package, SPSS, is used for the analysis of data.

3.11 RESEARCH QUESTIONS

Research questions must be very focused and framed in such a way as to define specifically what, how, why and who is being studied (Meadows, 2003) and shall be clear, specific, answerable, interconnected, and substantively relevant (Robson, 2002).

The study explores five research questions in determining the differences and associations, if any that exists between the variables: leadership characteristics (transformational leadership, transactional leadership, and passive/avoidant), organizational synergy (employee empowerment, organizational transformation, and organizational culture), organizational excellence, and socio-demographic and
economic variables. The following research questions would be used to steer the study.

1. Are there any significant differences between leadership characteristics (transformational, transactional, and passive/avoidant) of managers of IT and Non-IT organizations?

2. Are there any significant differences among managers of IT and Non-IT organizations in imparting organizational synergy (employee empowerment, organizational transformation, and organizational excellence)?

3. Are there any significant differences among managers of IT and Non-IT organizations in imparting organizational excellence?

4. Are the factors of leadership characteristics predictors for organizational synergy?

5. Are the factors of organizational synergy predictors for organizational excellence?

3.12 PILOT STUDY

A pilot study was conducted to test the feasibility of the research on the subject. The researcher held a series of discussion with experts who are involved in the field, working in IT and Manufacturing sectors. The discussion with the experts in the field and the key functionaries of Infopark and KSIDC and the information gathered from the review of literature formed the basis for limiting the area of study, tool selection and finalizing the sample and hypotheses.

The pilot study is conducted by taking 25 managers each from IT and non-IT sectors. The results of the pilot study are properly studied and necessary changes are incorporated in the questionnaire.
3.13 SOURCES OF DATA

The data is collected from the following sources

3.13.1 PRIMARY DATA SOURCE

Prior to collecting primary data, a pilot study was conducted by taking 25 managers each from IT and non-IT sectors. The results of the pilot study were properly studied and necessary changes incorporated in the questionnaire.

Primary data is collected from 304 managers of IT and non-IT organizations. For the collection of data, the researcher selected software companies in Infopark, Kochi as target group for IT organizations (12 companies) and manufacturing industries in Ernakulam district registered with Kerala State Industrial Development Corporation (KSIDC), Ernakulam as target group for the non-IT organizations (46 companies). All these organizations are medium and large scale enterprises. The researcher collected the data from 304 managers from both IT and non-IT organizations (152 each).

3.13.2 SECONDARY DATA SOURCES

The major sources of secondary data used for the purpose of the study are:

1) Published research studies in various international and national journals mostly accessed through academic databases like EBSCO, Emerald etc.

2) News magazines and news paper articles on leadership, employee empowerment, organizational transformation, organizational culture, and organizational excellence.
3) Books on IT and manufacturing industry, leadership, employee empowerment, organizational transformation, organizational culture, organizational excellence, Research Methodology, etc.

Inputs from interviews with subject experts from different national and international universities, chief executive officers of companies, both IT and Non-IT have been found relevant to the study for understanding the leadership characteristics, employee empowerment, organizational transformation, organizational culture, and organizational excellence.

3.14 RESEARCH INSTRUMENTS

This study focuses on the relationship among the leadership, organizational synergy, and organizational excellence of the managers working in IT and non-IT sectors. The questionnaire survey method is used in this research. The instrument for data collection (attached as Annexure 1) has three parts. The first part of the questionnaire, developed by the researcher was used to collect the socio-demographic and economic information about the participants. The second part of the survey called Multifactor Leadership Questionnaire (MLQ Form 5X-short) developed by Avolio and Bass (1995) was used to measure transformational, transactional and passive/avoidant leadership and it contained 36 questions. The third part of the instrument called Organizational Synergy and Excellence Scale contained 25 questions developed by the researcher and was used to measure organizational synergy (employee empowerment, organizational transformation, and organizational culture) and organizational excellence. All the above scales are of a five point system. The details of the three major sections of the questionnaire are shown below:-
3.14.1 MULTIFACTOR LEADERSHIP QUESTIONNAIRE (MLQ)

There are many instruments to measure the leadership styles of managers. Organizational Leadership Assessment (OLA) is a self report measure that has been widely used in assessing organizational leadership. Numerous studies have used OLA to measure organizational leadership (Bradshaw, 2007; Irving, 2005; Hebert, 2004). Servant Organizational Leadership Assessment (SOLA) is used to assess servant leadership. Multifactor Leadership Questionnaire for Teams (MLQT) is used to assess shared and/or collective leadership (Team leadership) styles (Avolio & Bass, 2004).

The instrument, Multifactor Leadership Questionnaire (MLQ) is used to assess the Full Range Leadership of an individual at any organizational level. It is an effective tool to measure the full range leadership (Avolio & Bass, 2004). The MLQ has been used extensively in research to study Transformational, Transactional, and Passive/Avoidant leadership styles. Therefore, the MLQ is more suitable for administration at all levels of organizations and across different types of production, service, and military organizations (Bass, 1998).

Avolio & Bass (2004) have given following advantages of MLQ.

1) MLQ has 360 capabilities and can be used for rating of leaders from peers, superiors, and subordinates
2) It can be used to assess leadership effectiveness of managers of different levels in an organization.

3) It can be applied universally across cultures.

4) Another important advantage of MLQ over other leadership questionnaires is its emphasis on development. It can be used to measure leader’s effect on both the personal and intellectual development of self and others.

5) It is easy to understand and interpret.

Hence the researcher has selected MLQ as the instrument to measure leadership characteristics of managers of IT and Non-IT organizations.

Since the researcher focuses on leadership characteristics of managers, the researcher has selected only 36 questions from MLQ (5X-Short) to measure transformational, transactional and passive/avoidant leadership.

It is a five point scale rating. The rating scale for leadership items are: Not at all, Once in a while, Sometimes, Fairly often, and Frequently, if not always. All these questions are self explanatory. The factor structure of MLQ (5X-Short) has been validated by both the discriminatory and confirmatory factor analysis.

1) Reliability of MLQ

The MLQ was administered on 150 managers in banking, private sector industries, and 400 subordinates in the same organizations during the time of the construct of the tool. Reliability of the total items and for each leadership factor ranged from 0.71 to 0.93. All the coefficients were generally high. Table 3.3 presents the reliability of each leadership
factor for both the samples, leaders, subordinates as well as total sample. The reliability was computed using Cronbach coefficient alpha.

Table 3.3
Descriptive Statistics and Reliability Scores for MLQ Subscales

<table>
<thead>
<tr>
<th>Factors of MLQ</th>
<th>Leaders Sample (N=150)</th>
<th>Subordinates Sample (N=400)</th>
<th>Total Sample (N=550)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>Reliability</td>
</tr>
<tr>
<td>IIA</td>
<td>3.01</td>
<td>.45</td>
<td>.71</td>
</tr>
<tr>
<td>IIB</td>
<td>3.27</td>
<td>.41</td>
<td>.82</td>
</tr>
<tr>
<td>IM</td>
<td>3.16</td>
<td>.44</td>
<td>.83</td>
</tr>
<tr>
<td>IS</td>
<td>3.18</td>
<td>.42</td>
<td>.74</td>
</tr>
<tr>
<td>IC</td>
<td>3.34</td>
<td>.41</td>
<td>.77</td>
</tr>
<tr>
<td>CR</td>
<td>2.95</td>
<td>.52</td>
<td>.70</td>
</tr>
<tr>
<td>MBE-A</td>
<td>1.46</td>
<td>.59</td>
<td>.73</td>
</tr>
<tr>
<td>MBE-P</td>
<td>0.79</td>
<td>.48</td>
<td>.89</td>
</tr>
<tr>
<td>LF</td>
<td>1.25</td>
<td>.50</td>
<td>.71</td>
</tr>
</tbody>
</table>

(Source: Dubey, Surendra Nath Manual for Indian Adaptation: MLQ Form 5x-short and TLS)

However, the researcher conducted the reliability test of the instrument with the data during the pilot study and during the actual research. The values of reliability of each leadership factor during the pilot study are for Transformational Leadership (Cronbach's Alpha) 0.823, Transactional Leadership - Cronbach's Alpha) 0.802, and Passive/Avoidant Leadership (Cronbach's Alpha) 0.761. The values of reliability of each leadership factor during the actual research study are for Transformational Leadership (Cronbach's Alpha) 0.860, for Transactional
Leadership (Cronbach's Alpha) 0.807, and Passive/Avoidant Leadership (Cronbach's Alpha) 0.793.

3.14.2 ORGANIZATIONAL SYNERGY AND EXCELLENCE SCALE

Organizational Synergy and Organizational Excellence are measured in this study by using a self constructed instrument called Organizational Synergy and Excellence Scale. It is a five point scale.

This instrument after the content analysis, which suggested additions and deletion of items by experts, was handed over again to experts for verification and was later approved by the research supervisor. The approved instrument was tested in the field for its reliability during the pilot study and at the time of actual research. Each set of scales has got rating scale of 0.7 and above in the test of reliability (Cronbach’s Alpha). The first set of instrument used to measure Employee empowerment contains 11 items. Each item is given five responses. Thus the scale measuring Employee empowerment consisting of 11 items can score values in between 11 (minimum) and 55 (maximum). The scale received Cronbach’s Alpha 0.862 and 0.873 respectively during the pilot study and at the actual research (test of reliability). The scale to measure Organizational Transformation consists of 4 items and can score values between 4 (minimum) and 20 (maximum). The scale received Cronbach’s Alpha 0.814 and 0.825 respectively during the pilot study and at the actual research (test of reliability). The scale to measure Organizational culture contains 6 items and can score values between 6 (minimum) and 30 (maximum). The scale received Cronbach’s alpha 0.814 (test of reliability). The scale to measure Organizational excellence consists of 4 items and can score values between 4 (minimum) and 20 (maximum). The scale received Cronbach’s alpha 0.874 and 0.891 respectively during the pilot study and at the actual research (test of reliability). Since all the above mentioned scales
used by the researcher have got rating of .7 and above (Cronbach’s alpha), they are found to be reliable.

3.15 VARIABLES

This study includes four types of variables. The factors of full range leadership such as transformational leadership, transactional leadership, and passive/avoidant leadership are called independent variables. Organizational excellence is the dependent variable. The factors of organizational synergy such as employee empowerment, organizational culture, and organizational transformation are intervening variables. In addition to the independent, dependent, and intervening variables, there are 14 control variables. The control variables selected for this study are, type of industry, age, gender, educational qualification, religion, monthly income, total length of service, place of living, Type of family, marital status, size of organization, training programmes attended, nature of job in IT, and current managerial level.

Each control variable is determined by a single question on the survey instrument. Table 3.4 offers a summary of the variables for this study.
## Table 3.4: Summary of Variables

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Variable</th>
<th>Type of variable</th>
<th>Definition</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Transformational Leadership</td>
<td>Independent</td>
<td>1. Idealized Influence-Attributed</td>
<td>It will be determined by the aggregate score of 24 Question instrument</td>
</tr>
<tr>
<td></td>
<td></td>
<td>variable</td>
<td>2. Idealized Influence-Behaviour</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3. Inspirational Motivation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4. Intellectual stimulation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5. Individualized consideration</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Transactional Leadership</td>
<td>Independent</td>
<td>1. Contingent Reward Management by Exception (Active)</td>
<td>It will be determined by the aggregate score of 8 Question instrument</td>
</tr>
<tr>
<td></td>
<td></td>
<td>variable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Passive avoidant</td>
<td>Independent</td>
<td>1. Management by Exception (passive)</td>
<td>It will be determined by the aggregate score of 8 Question instrument</td>
</tr>
<tr>
<td></td>
<td></td>
<td>variable</td>
<td>2. Laissez-faire leadership</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Employee empowerment</td>
<td>intervening</td>
<td></td>
<td>It will be determined by the aggregate score of 11 Questions instrument</td>
</tr>
<tr>
<td></td>
<td></td>
<td>variable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Organizational transformation</td>
<td>intervening</td>
<td></td>
<td>It will be determined by the aggregate score of 4 Questions instrument</td>
</tr>
<tr>
<td></td>
<td></td>
<td>variable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Organizational culture</td>
<td>intervening</td>
<td></td>
<td>It will be determined by the aggregate score of 6 Questions instrument</td>
</tr>
<tr>
<td></td>
<td></td>
<td>variable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Organizational excellence</td>
<td>Depended</td>
<td></td>
<td>It will be determined by the aggregate score of 4 Question instrument</td>
</tr>
<tr>
<td></td>
<td></td>
<td>variable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Type of Industry</td>
<td>Control</td>
<td>2 groups: IT and Non IT</td>
<td>Determined by single question</td>
</tr>
<tr>
<td>Sl. No.</td>
<td>Variable</td>
<td>Type of variable</td>
<td>Definition</td>
<td>Measurement</td>
</tr>
<tr>
<td>--------</td>
<td>---------------------------------</td>
<td>------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>9</td>
<td>Age</td>
<td>Control variable</td>
<td>4 groups: (22-32, 33-43, 44-54, &amp; 55-65)</td>
<td>Determined by single question</td>
</tr>
<tr>
<td>10</td>
<td>Gender</td>
<td>Control variable</td>
<td>2 groups: Male &amp; Female</td>
<td>Determined by single question</td>
</tr>
<tr>
<td>11</td>
<td>Religion</td>
<td>Control variable</td>
<td>3 groups: Hindu, Christian, &amp; Muslim</td>
<td>Determined by single question</td>
</tr>
<tr>
<td>12</td>
<td>Educational qualification</td>
<td>Control variable</td>
<td>3 groups: Ordinary degree, Professional Tech. Degree (BTech, MCA, MTech), &amp; Professional Management Degree</td>
<td>Determined by single question</td>
</tr>
<tr>
<td>13</td>
<td>Marital status</td>
<td>Control variable</td>
<td>3 groups: Single, Married, &amp; Others (widows/ separated)</td>
<td>Determined by single question</td>
</tr>
<tr>
<td>14</td>
<td>Size of the organization</td>
<td>Control variable</td>
<td>2 groups: Medium &amp; Large</td>
<td>Determined by single question</td>
</tr>
<tr>
<td>15</td>
<td>Managerial level</td>
<td>Control variable</td>
<td>3 groups: Low, Middle, &amp; Top</td>
<td>Determined by single question</td>
</tr>
<tr>
<td>16</td>
<td>Year of service</td>
<td>Control variable</td>
<td>4 groups: (1-10, 11-20, 21-30, &amp; Above 30)</td>
<td>Determined by single question</td>
</tr>
<tr>
<td>17</td>
<td>Monthly income</td>
<td>Control variable</td>
<td>4 groups: Below Rs. 15000, Rs.15000-30000, Rs.30001-45000, Rs.45001-60000, &amp; Above Rs. 60000</td>
<td>Determined by single question</td>
</tr>
<tr>
<td>18</td>
<td>Place of living</td>
<td>Control variable</td>
<td>2 groups: Urban, &amp; Rural</td>
<td>Determined by single question</td>
</tr>
<tr>
<td>19</td>
<td>Type of family</td>
<td>Control variable</td>
<td>2 groups: Joint &amp; Nuclear</td>
<td>Determined by single question</td>
</tr>
<tr>
<td>20</td>
<td>Training programme attended</td>
<td>Control variable</td>
<td>4 groups: None, 1-5, 6-10, &amp; more than 10</td>
<td>Determined by single question</td>
</tr>
<tr>
<td>21</td>
<td>Nature of job in IT</td>
<td>Control variable</td>
<td>2 groups: Developmental &amp; Non developmental</td>
<td>Determined by single question</td>
</tr>
</tbody>
</table>
3.16 OPERATIONAL DEFINITIONS

In research, the operational definitions of the terminologies used in the study depend to a great extent on the purpose of the researcher (Campbell, 1977). The following are the operational definitions of the terminologies used in this study.

- **IT Organization**

  IT organizations are those organizations which come under the field of software development.

- **Non-IT Organization**

  Non-IT organizations are those organizations which come under manufacturing sector.

- **Managers of IT Organization**

  Managers of IT organization refer to employees from the field of software development under the designations of sectional heads, group leaders, project leaders, project managers, team leaders, and software developers.

- **Managers of Non-IT Organization**

  Managers of Non-IT organization refer to executives, sectional heads, heads of the departments and general managers in the manufacturing sector.

- **Transformational Leadership**

  Transformational leadership constitutes idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration.
Chapter III  

Leadership Characteristics of Managers of IT and Non-IT Organizations - A Comparative Study

- **Transactional Leadership**
  Transactional leadership constitutes contingent reward and management by exception (active).

- **Passive/Avoidant Leadership**
  Passive/Avoidant leadership constitutes management by exception (passive) and laissez-faire leadership.

- **Organizational synergy**
  Organizational synergy constitutes employee empowerment, organizational culture and organizational transformation in an organization.

- **Organizational excellence**
  Organizational excellence is the achievement of organizational objectives through the resource management and continuous improvement process systems with proper discussion and planning in order to create co responsibility among all employees and with detective, corrective, and preventive measures for operational excellence.

- **Socio-Demographic and Economic profile**
  Socio-demographic and economic profile includes the details of type of industry, age, gender, educational qualification, religion, monthly income, total length of service, place of living, type of family, marital status, size of organization, training programmes attended, nature of job in IT, and current managerial level.
• **Medium and Large Scale Organizations:**

Medium Scale IT organizations are those IT organizations which have invested Rs. 2 to 5 Crores, and Medium Scale Non-IT organizations are those manufacturing organizations which have invested Rs. 5 to 10 Crores for ‘Plant and Machinery’.

Large Scale IT organizations are those IT organizations which have invested Rs. 5 Crores and above; and Large Scale Non-IT organizations are those manufacturing organizations which have invested Rs. 10 Crores and above for ‘Plant and Machinery’.

**3.17 ANALYSIS OF DATA**

The data collected are coded and tabulated. This is analyzed using statistical package (SPSS) and all relevant outputs were generated. Descriptive techniques like averages, percentages and frequencies were generated. The statistical techniques like **t-test, ANOVA, correlation and regression analysis** were used for further analysis and testing of the hypotheses. The details of statistical tests used are exhibited in table 3.5.
Table 3.5
Statistical Tests Used

<table>
<thead>
<tr>
<th>Tests conducted</th>
<th>Purpose of Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>t-Test</td>
<td>To test the significance of the difference of leadership characteristics, organizational synergy, and organizational excellence between the managers of IT and non-IT organizations.</td>
</tr>
<tr>
<td>ANOVA</td>
<td>To test leadership, organizational synergy, and organizational excellence on the basis of certain socio-demographic factors.</td>
</tr>
<tr>
<td>Correlation</td>
<td>To test degree of relationship between leadership, Organizational synergy, and organizational excellence.</td>
</tr>
<tr>
<td>Regression</td>
<td>To establish the predictor dependant relationship among variables.</td>
</tr>
</tbody>
</table>

3.18 LIMITATIONS OF THE STUDY

The major limitations are presented below.

1) Even though there are many studies conducted on leadership characteristics of employees in various parts of the world, there has been a lack of literature on leadership, organizational synergy and organizational excellence in the Indian context. Hence the researcher has had to rely mainly on studies conducted in other parts of the world during the review of literature.

2) The present study considers only the manufacturing organizations to represent Non-IT industry.

3) The study focuses only on medium and large scale industries. The characteristics of small scale industries may be significantly different from those industries.
4) The geographical scope is limited to the state of Kerala, which is significantly different from many other states in terms of literacy and lifestyle patterns. The findings from the study may be limited to societies similar to Kerala.

3.19 ORGANIZATION OF THE THESIS

The present study is organized in five chapters.

Chapter one, Introduction, Concepts, and Theories of Leadership in IT and Non-IT Organizations, gives a brief description about the concept of IT and Non-IT industries, and the theoretical background of leadership.

Chapter two, Review of Literature, provides an extensive review of literature on leadership, especially, the transformational, transactional, and passive/avoidant styles, and its relationship with organizational synergy and organizational excellence. The Gap in the academic literature and motivation for the study are also present at the end of the chapter.

Chapter three, Research Methodology, describes the methodology adopted and the instruments used for conduct of the study.

Chapter four, Analysis and Interpretation of data, presents the findings of research, a review of results, and a comprehensive data analysis and interpretation by using relevant and appropriate statistical tools. Testing of hypotheses is also done in the same chapter.

Chapter five, Findings and Recommendations, provides a summary of the findings of the study, discusses implications of the
findings, and opens up an entry for further research activities in the relevant field.

**Chapter six, Summary and Conclusion**, gives a summary of each chapter and major findings of the study, and also presents a general conclusion.

A section on **References** is given at the end of the Thesis.

A copy of the instrument for data collection is displayed in **Appendix: 1**.

Questionnaire for Receptivity Test is presented in **Appendix: 2**.

In brief, Chapter III illustrates the methods used in conducting this research project. The data for analysis are collected from the managers who work in IT and Non-IT industries. This chapter helps to reveal the research questions and hypotheses, establishes the validity of the proposed study and identifies the use of SPSS software for data processing. The following chapters will present an analysis of the findings and provide interpretation and recommendations including a new model, based on the results.