CHAPTER III

RESEARCH METHODOLOGY

This chapter explicates the framework used to conduct the present study. It provides the details of the research procedure which was started from the identification of research problem and end with reporting of findings. The procedure defines the approach and foundation used to carry out the present research. In the first section of this chapter the objectives of the study are introduced. Conceptual research model and formulated hypotheses are also presented. Then research process of the present study is discussed followed by sample design, data collection, questionnaire development, data tools and analysis.

3.1 Objectives of the Study

The study was carried out to attain the following objectives:

- To measure the Organizational Citizenship Behavior exhibited by the IT Professionals in India.
- To study the relationships between Organizational Citizenship Behavior and its antecedents Organizational Commitment, Job Satisfaction, and Occupational Role Stress.
- To suggest effective strategies that shall help to enhance the Organizational Citizenship Behavior among the IT professionals.

3.2 Conceptual Research Model and Hypotheses

The conceptual research model depicts the series of relationships, integrated in the model. The model shows the hypothesized linkages between Organizational Commitment (OC), Occupational Role Stress (ORS), Job Satisfaction (JS) and Organizational Citizenship Behavior (OCB). The Model has captured OC, JS and ORS as independent variables and OCB as a dependent variable. Furthermore, the interlinkages among the independent variables are also the part of the study. The conceptual research model is presented in Figure 3.2.
Organizational Commitment and Organizational Citizenship Behavior

Scholl’s (1981) and Weiner’s (1982) model of organizational commitment have postulated the OCB as a function of organizational commitment. Scholl’s (1981) model posited that employees’ commitment reinforces the continuity in a given course of action (beneficial for the organization) even when the expectations of the employees are not met. Similarly, Weiner (1982) has suggested that commitment of employees derives organizational interest serving behaviors, that may happen by sacrificing individual interest and reward for such behaviors is not prescribed. Since OCB encompasses all such characteristics described by Scholl and Weiner, the organizational commitment can be assumed as a determinant of OCB.

Moreover, O’Reilly and Chatman (1986) have asserted that the motivational base to indulge in these types of extra-role spontaneous conducts for the organizational members is their psychological attachment to the organization. They conceptualized psychological attachment as one’s commitment towards his organization.

The relationship can be viewed from the perspective of social exchange theory. Lavelle et al. (2009) acknowledged organizational commitment as an attitudinal indicator for the healthy
social exchange relationship between employee and organization. To show their commitment employees engage in citizenship behaviors. Podsakoff’s et al. (2000) meta-analysis also provides evidence for the hypothesized link between OC and OCB. Therefore, it was hypothesized:

**H1:** There is a significant positive impact of Organizational Commitment on Organizational Citizenship Behavior.

**Job Satisfaction and Organizational Citizenship Behavior**

The belief that “high subordinate morale leads to high work performance” held by many organizational professionals and leaders (Gannon & Noon, 1971; Katzell & Yankelovich, 1975; Kossen, 1996) has lack of empirical evidences. The relationship between JS and task performance has been found paradoxical because several researchers (Brayfield & Crockett, 1955; Iaffaldano & Muchinsky, 1985; Vroom, 1964) have found the satisfaction-performance proposition unsupported. Organ (1977) cautioned that the probable reason for such non conformity may be the use of wrong measure of performance and the notion is consistent with the Bateman and Organ’s (1983) assertion. They further elaborate that the performance of task is the function of abilities and skills of the employees. On the other side, social exchange theory provides the base to postulate that prosocial behaviors are exhibited by the employees to reciprocate the favors they receive from the organization (Organ, 1988; Organ & Konovsky, 1989, Smith et al., 1983). Thus, OCB fits more logically in the measure of performance that need to be tested for the relationship with job satisfaction. The study of determinants of OCB was initiated by Smith et al. (1983) for the first time and they found JS as the strongest predictor of OCB. Thereafter, many studies (Organ & Lingl, 1995; Puffer, 1986; Schnake, Cochran & Dumler, 1995) have found support for the relationship. Therefore it was hypothesized:

**H2:** There is a significant positive impact of Job Satisfaction on Organizational Citizenship Behavior.
**Occupational Role Stress and Organizational Citizenship Behavior**

The adverse effect of several role stressors, for example “role conflict, role ambiguity, role overload and work-family conflict” on employee attitude and behaviors is postulated based on Organizational Role Theory (Jain & Cooper, 2012). The theory suggested that employees show reluctance to perform in a way which is not consistent with the role defined. OCB is an extra-role behavior, and engagement in such behavior causes role conflict because they are not the part of formal role defined. Sometimes, exhibition of both formally prescribed tasks and jobs beyond them creates pressure due to inability to meet demands from multiple roles. OCB is a discretionary behavior; its non exhibition would not cause any punishment. Thus, when employees feel strain due to imbalance between demand and coping ability at workplace they choose to refrain themselves from engaging in extra-role behaviors (OCB) which are not required. They are more likely to concentrate their time and energy on in-role behaviors which are mandatory (Tompson & Werner, 1997). Different job stressors evoke negative emotions those have detrimental impact on the likelihood of the employees to involve in citizenship behaviors. Therefore, it was hypothesized:

\[ \text{H}_3: \text{There is a significant negative impact of occupational role stress on Organizational Citizenship Behavior.} \]

**Occupational Role Stress and Job Satisfaction**

Robbins (2005) asserted that stress can cause dissatisfaction because employees who experience stress due to inability to cope with the demands at the workplace are surrounded by negative emotions such as anxiety and tension (Jackson & Schuler, 1985) that attenuate their satisfaction from the job situations. Furthermore, Fairbrother and Warn (2002) provided controllability as theoretical base in support of the negative relationship between JS and stress. Control over the demands and expectations at workplace induces relaxation on the other hand unfulfilled demands and expectations cause negative emotions and employee feels dissatisfied at workplace. Kim, Murrmann & Lee (2009); Lapierre et al. (2008); Richardsen & Burke (1991) and many more empirically proved the relationship. Therefore, it is hypothesized:

\[ \text{H}_4: \text{There is a significant negative impact of occupational role stress on Job Satisfaction.} \]
Occupational Role Stress and Organizational Commitment

The state of stress, negative emotions, unfulfilled demands and expectations also attenuate one’s commitment towards his/her organization. The negative appraisal of job environment is likely to deteriorate the commitment of an employee to his organization. The organizational commitment and job stress negative relationship has also been supported by conventional wisdom (Mathieu & Zajac, 1990; Nart & Batur, 2014; Srivastava, 2008). Therefore, it is hypothesized:

\[ H_5: \text{There is a significant negative impact of occupational role stress on Organizational Commitment.} \]

Job Satisfaction and Organizational Commitment

Job satisfaction is the positive appraisal of the job circumstances by an individual on the other hand organizational commitment is the positive emotional response towards the organization as a whole (Zeinabadi, 2010). Based on Bagozzi’s (1992) attitude-intention-behavior relational model the influence of JS on OC can be postulated. One’s regular positive assessment of the job conditions (job satisfaction) develops positive emotional response towards the organization (organizational commitment). Many authors (Shin and Reyes, 1995; Srivastava, 2013; Ting, 2011) have found substantial impact of job satisfaction on organizational commitment. Therefore, it was hypothesized:

\[ H_6: \text{There is a significant positive impact of Job Satisfaction on Organizational Commitment} \]

3.3 Research Process

To carry out the research effectively certain steps were followed. The research process of the present study is captured by the Figure 3.1. The process included interrelated and interdependent research activities but generally they overlap each other and therefore strict prescribed sequence of these activities was not followed.
Define Research Problem

“An Study of Organizational Commitment, Job Satisfaction and Occupational Role Stress on Organizational Citizenship Behavior among Information Technology (IT) Professionals in India”

Literature Search for:
- Heritage of Organizational Citizenship Behavior: Conceptualization, Dimensions and Measurement
- Antecedents of “Organizational Citizenship Behavior: Organizational Commitment, Job Satisfaction and Occupational Role Stress”
- Interrelationship among Organizational Commitment, Occupational Role Stress and Job Satisfaction
- The relationship among the selected variables in the context of IT Industry

Three objectives and six hypotheses were formulated. Objectives are:
- To measure the Organizational Citizenship Behavior exhibited by the IT Professionals in India.
- To study the relationships between Organizational Citizenship Behavior and its antecedents Organizational Commitment, Job Satisfaction, and Occupational Role Stress.
- To suggest effective strategies that shall help to enhance the Organizational Citizenship Behavior among the IT professionals.

Research Design Type: Exploratory, Descriptive and Analytical
Research Approach: Deductive
Population: IT professionals in India
Sampling Technique: Nonprobability Sampling Technique
Sample Size: 357 IT professionals in India from three leading IT companies Tata Consultancy Services Ltd., Infosys Ltd., and Wipro Ltd.

Primary Data Collection Technique: Survey through Online Questionnaire
Secondary Data Collection Technique: Published Research Papers, Published & Unpublished Dissertations, Theses, books, reports and websites.

A series of steps was used to analyze the data.
Data Description ➔ Data Screening ➔ Descriptive Analysis ➔ Comparing OCB level ➔ Exploratory Factor Analysis ➔ Partial Least Square-Structural Equation Modeling (PLS-SEM) Analysis


Chart and Graphs Used: Pie Chart, Histogram, Scatter Plots, Bar Chart

Results are interpreted in the light of the theories and findings of the previous studies
Thesis has been organized in to three sections (i) the preliminary pages, (ii) the main body, and (iii) the end matter

Figure 3.2: Research Process
The whole research process was divided into two phases. Phase I could be marked as conceptual phase at which research problem was identified through rigorous review of literature. The review of literature was continued to identify and understand the tentative linkages among the selected variables of the study. Phase II could be marked as execution phase which involves setting objectives and formulation of hypothesis. Phase I gave impetus for this activity of phase II. After formulation of hypothesis, research design was determined. Research is exploratory and descriptive in nature. Phase I was oriented to exploratory research and phase II was oriented to descriptive research. The next steps required to execute the research was sample design, data collection and data analysis. To design sample multistage non-probability sampling was used. Both primary and secondary sources of data collection were undertaken. To analyze data series of steps were followed and many parametric and non-parametric data analysis tools, charts and graphs were used to draw unbiased inferences. At last results were reported in the systematic and organized manner.

There was an overlap between phase I and phase II. Extensive review of literature was consistently done along with the execution phase to had guidance to carry out research, to reveal confirmation or contradiction of results and to remove obstacles.

3.4 Scope of the Study

The Information Technology (IT) professional of selected IT companies working in India: Tata Consultancy Services (TCS) Ltd., Infosys Ltd. and Wipro Ltd were covered under the scope of the study. These three IT companies are leading companies in IT industry since many years (NASSCOM). The companies lead in terms of sales turnover, profitability and headcounts. Therefore, the industry is widely represented by these companies. IT professionals working at senior, middle and junior level were approached. Sample selection was designed such that diversity of respondents could be derived in terms of age, education, department, tenure, and gender.
3.5 Sample Design

For the present research the multistage sampling was done in which sampling was done at three levels to select the final sample of the study that is Information Technology (IT) Professionals. Thus, sampling was done in three sequential stages. The sampling process is described in Table below.

**Table 3.1: Multistage Sampling Process**

<table>
<thead>
<tr>
<th>Stages</th>
<th>Task</th>
<th>Rationale</th>
<th>Sampling Technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Selection of the IT Companies</td>
<td>Three leading IT companies of IT industry in India ranked by NASSCOM 2011-12 (Source: <a href="http://www.nasscom.in/industry-ranking">http://www.nasscom.in/industry-ranking</a>, accessed on 01 December 2012) were selected</td>
<td>Judgmental Sampling</td>
</tr>
<tr>
<td></td>
<td>TCS Ltd. Infyos Ltd. Wipro Ltd.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>Selection of the Location</td>
<td>India’s first and across the world fourth ranked global hub of technological innovation (Source: VERGE A NASSCOM Regional Newsletter- SOUTH, June 2012)</td>
<td>Judgmental Sampling</td>
</tr>
<tr>
<td></td>
<td>Bangalore, India</td>
<td></td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>Approach to Target Population of Interest</td>
<td>Through Referrals, Social Networking Websites, Available mail ids of IT professionals</td>
<td>Snowball and Convenience Sampling</td>
</tr>
</tbody>
</table>

At the first stage, the sampling was done to select IT companies in India and from these companies IT professionals would be selected. By using judgmental sampling three IT companies namely, TCS Ltd., Infosys Ltd., and Wipro Ltd. were selected. The basis used for the selection of these companies was that these were the leading IT companies of India. The companies are ranked by National Association of Software and Services Companies (NASSCOM) for the year 2011-12, based on Some Criteria such as: sales turnover, profitability and, headcounts etc. (Source: http://www.nasscom.in/industry-ranking, accessed on 01 December 2012).

At the second stage, sampling was done to select location of the selected IT companies. By using judgmental sampling Bangalore, India was selected. The rationale behind the judgment for selecting Bangalore location was that it has been ranked fourth as a global hub of technological innovation, behind san Francisco and Austin of the US, and Taipei in Taiwan (Source: VERGE A NASSCOM Regional Newsletter- SOUTH, June 2012). Therefore, in India,
the Silicon Valley (Bangalore) is a global hub of technological innovation that was selected to draw out the final sample of the study that is IT Professionals.

At the last stage, sampling was done to approach the target population of interest who were IT professionals working in TCS Ltd., Infosys Ltd., and Wipro Ltd. located in Bangalore. To approach target population of interest snowball and Convenience sampling were used. First, an initial group of respondents was selected and subsequent respondents were selected based on referrals. The respondents who were in initial group were asked to identify others who belong to the target population of interest. By carrying out the process of obtaining referrals from referrals responses were collected. The convenience sampling was also used to approach target population of interest. IT professionals working in the three selected IT companies located in Bangalore were approached on social networking websites such as LinkedIn, Facebook, Twitter.

The following groups’ members on Facebook are IT professionals of Interest.

- Indian Software Engineers
- TCS 2012 Batch
- Freshers @ TCS 2011
- Current IT Opening
- TCS off campus recruits
- Wipro Technologies
- Wipro Techies 2012 freshers
- Wipro Techies 2014 freshers
- Prichay
- SLRB
- Computer Security and Hacking

3.6 Determination of Sample Size

The proposed study has included three leading IT Companies: Tata Consultancy Services Ltd., Infosys Ltd., & Wipro Ltd. Since, the total number of employees working in the selected companies was beyond 50,000, the Cochran’s formula was used to determine an appropriate sample size for study, which is as follows:

$$Sample \ Size = \frac{z^2 \times p \times (1-p)}{c^2}$$
\[ z = z\text{-value} \]

\[ p = \text{Percentage of population picking a choice} \]

\[ C = \text{Confidence interval} \]

\[ \text{Sample Size} = \frac{1.96^2 \times 0.5 \times (1-0.5)}{0.05^2} = 384 \]

A sample size of 384 was suggested by above formula given by Cochran, but the actual number of responses that was collected is 357.

**IT Companies-wise and Executive Levels-wise Breakup of Respondents**

The Table 3.2 has captured the company-wise and executive level-wise breakup of respondent. Total number of respondents from TCS Ltd. was 129, out of which 6, 31 and 92 were from senior, middle, and junior level respectively. Total number of respondents from Infosys Ltd. was 127, out of which 11, 42 and 74 were from senior, middle, and junior level respectively. Finally, total number of respondents from Wipro Ltd. was 101, out of which 3, 33 and 65 were from senior, middle, and junior level respectively.

**Table 3.2: IT Companies-wise and Executive Levels-wise Breakup of Respondents**

<table>
<thead>
<tr>
<th>Executive Level</th>
<th>TCS Ltd. (n=129)</th>
<th>Infosys Ltd. (n=127)</th>
<th>Wipro Ltd. (n=101)</th>
<th>Total (N=357)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior Level</td>
<td>6</td>
<td>11</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>Middle Level</td>
<td>31</td>
<td>42</td>
<td>33</td>
<td>106</td>
</tr>
<tr>
<td>Junior Level</td>
<td>92</td>
<td>74</td>
<td>65</td>
<td>231</td>
</tr>
</tbody>
</table>

*Note:* ‘n’ represents sample size from each selected company

‘N’ stands for total sample size

Therefore, total number of respondents from senior level, middle level and junior level across the selected three companies were 20, 106 and 231 respectively. So, that’s how 357 responses were collected from three selected IT companies and their executive levels.

**3.7 The Study Area**

The Bangalore stands at the fifth position for largest city of India in terms of population and in a way to become fourth by overtaking Chennai and Hyderabad by 2015 is the Bangalore *(Source: Tholons, 2010)*. It is acknowledged as India’s Silicon Valley and considered as global
IT hub of India (Bangalore Urban District Profile- Government of Karnataka; NASSCOM). Bangalore is the political and commercial capital city of the Karnataka State, southern India. The city has extended more than an area of 531 sq. kms in 1991. In 2007, “the area has increased to 741 sq. kms under Bruhat Bangalore Mahanagara Palike (Greater Bangalore Corporation)”. At that time the population was 8.4 million. The population growth rate (CAGR 2000-2015) is 2.74%.

Bangalore has several benefits and strengths, which make it IT Hub of Asia and Silicon Valley of India. Bangalore is considered as ideal location for investment due to several factors such as friendly climate, healthcare facilities, and availability of housing, education, and good quality life and so on. The source countries of foreign direct investments (FDI) to Karnataka through multinational companies are USA, Japan, UK, Germany, Holland, Sweden and China. The location gets attention from the investors due to the IT infrastructure set up by the government. The major IT clusters in Bangalore are “Software Technology Parks of India (STPI); International Tech Park Ltd. (ITPL) and Electronic City”.

**Software Technology Parks of India (STPI), Bangalore:** It was started in 1991 with investment of Rs. 2.5 crore made by the Ministry of Information Technology. Since STPI get great level of acceptance from its customer, more than Rs. 40 Crores investment is made in Network Operation Centre. It has a “microwave network with 140 radios providing services to about 400 customer projects”. A large “Earth Station facility and VSAT Hub of ERNET” has also been established. In order to promote IT sector, “cyber Park – Technology Incubation Centre” was established in 2000.

**International Tech Park, Bangalore:** It has came into existence to provide held and support to multinational high-tech companies in the several areas such as information technology, research and development, telecommunication, software development, electronics and other high tech sectors.
**Electronics City:** It is established to provide incubation facilities and datacom services. It accommodates more than a hundred industries and IT industry is one of them. In which the leaders are Motorola, Infosys, Siemens, ITI, Wipro etc.

The educational infrastructure of Bangalore is also sound comprising world-renowned schools, colleges, institutes of higher learning, research and development centers. There are 55 polytechnics and 66 engineering colleges in the city. Some of the premier institutes are Indian Institute of Science, Indian Institute of Management, Bangalore, Indian Institute of Information Technology, Bangalore, National Institute of Mental Health & Neurosciences. Therefore, the IT companies also have the pool of educated and talented IT professionals from the local area.

Governmental support in terms of subsidy also attracts investment in the IT sector in Bangalore. There was a drastic growth in the number of IT units located in Bangalore, from 13 software units in 1991-1992 to 1885 in 2006-2007 (Shobha, Krishne & Mahindra, 2009). Bangalore is an IT hub with 950 product firms out of an overall count in India which was 2400 in the year 2012 (Source: VERGE A NASSCOM Regional Newsletter- SOUTH, June 2012). Many of the largest IT firms are headquartered in Bangalore (refer Table 3.3).

<table>
<thead>
<tr>
<th>IT Firms</th>
<th>Revenue</th>
<th>Number of Employees</th>
<th>Headquarters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tata Consultancy Services Ltd.</td>
<td>$11.57 Billion</td>
<td>2,54,076</td>
<td>Mumbai</td>
</tr>
<tr>
<td>Infosys Ltd.</td>
<td>$6.69 billion</td>
<td>1,53,761</td>
<td>Bangalore</td>
</tr>
<tr>
<td>Wipro Ltd.</td>
<td>$5.73 billion</td>
<td>1,40,569</td>
<td>Bangalore</td>
</tr>
<tr>
<td>HCL Technologies Ltd.</td>
<td>$4.3 billion</td>
<td>85,335</td>
<td>Noida</td>
</tr>
</tbody>
</table>

**Source:** Corporate Sustainability Report of TCS Ltd., Infosys Ltd., Wipro Ltd., and HCL Technologies Ltd.

### 3.8 Data Collection

The study is based on both primary and secondary data.
3.8.1 Sources of Primary Data Collection

The primary data were collected through survey by using questionnaire method to collect the information from the sampled IT professionals. The questionnaires were sent online. In order to design a Questionnaire for the present study following steps were carried out:

- Listing the Available Measurement Instruments for the variables of the study
- Selecting the Appropriate Measurement Instruments for the variables of the study
- Modifying the Selected Measurement Instruments for the variables of the study
- Developing the Questionnaire Draft
- Pretesting of the Questionnaire
- Finalizing the Questionnaire

Figure 3.3: Designing of Questionnaire

At the first step of designing of questionnaire a list of available measurement tools to measure the constructs of the study: organizational commitment, occupational role stress, job satisfaction and organizational citizenship behavior was prepared. The measurement instruments adopted by previous studies were included in the list. After that at the second step the most appropriate measurement instruments for the variables of the study were selected. The selection was made based on the measurement instruments’ reliability and validity found in context of service industry and their accessibility. Based on the above said criteria, Podsakoff, MacKenzie, Moorman, and Fetter’s (1990) measurement scale was selected to assess Organizational Citizenship Behavior. Measurement tool developed by Meyer, Allen, and Smith (1993) was selected in the present study to measure OC. Hackman and Oldham’s (1980) Job Diagnostic
Survey was for assessing JS. Lastly, measurement scale developed by Rajeswari and Anantharaman (2003) was selected to measure occupational role stress.

Some modifications were made in the selected scales. For the development of questionnaire, three judges were asked to rate each scale item (a) appropriate, (b) somewhat appropriate, and (c) not at all appropriate. Items those were rated as ‘not at all appropriate’ by any of the three judges were eliminated. Most of the items which were rated as ‘not at all appropriate’ were repeated questions and others did not fit in the Indian context according to the judges, therefore, they accounted for elimination. Further, suggestions were sought out in terms of questions sequence, wordings from the judges and also from some of the sampling units and accordingly modifications were made.

3.8.1.1 Measurement Instruments

Organizational Citizenship Behavior (OCB): 17 items from the scale of Podsakoff et al. (1990) were used to assess organizational citizenship behavior. Participants indicated their level of agreement to each statement on the 5-point Likert-type scale (1= Strongly Disagree, 5= Strongly Agree). Four items measured Altruism dimension of OCB (e.g. I help others who have been absent at work.). Four items measured Conscientiousness dimension of OCB (e.g. My attendance at work is above the norms). Three items measured Sportsmanship dimension of OCB (e.g. I consume a lot of time complaining about unimportant matters). Three items measured Courtesy dimension of OCB (e.g. “I take steps to try to prevent problem with other workers”). Lastly, three items measured civic virtue dimension of OCB (e.g. “I attend meeting that are not compulsory, but are considered important”).

Organizational Commitment (OC): Organizational commitment was assessed using 12 items of the Meyer’s et al. (1993) scale. IT professionals responded to 5-point Likert Scale to indicate their agreement with the statements (1= Strongly Disagree, 5= Strongly Agree). Three components of commitment were assessed. First, affective commitment was assessed by four
items (e.g. I would be very happy to spend the rest of my career with this organization). Four items were used to measure normative commitment (e.g. I would feel guilty if I left my organization right now). Finally, four items were used to measure continuance commitment (e.g. “I feel that I have too few options to consider leaving this organization”).

**Job Satisfaction (JS):** To measure the intrinsic and extrinsic satisfaction of IT professionals 8 items from the Job Diagnostic Survey (JDS) were used. Participants were instructed to rate how much satisfied they feel with the job components on the 5-point Likert-type scale (1= Strongly Dissatisfied, 5= Strongly Satisfied). Two components of JS: Intrinsic (Affective) job satisfaction and Extrinsic (Contextual) job satisfaction were measured. Three items from JDS were used to assess the intrinsic facets of job such as personal growth, Autonomy and challenging jobs (e.g. The amount of personal growth and development you get from doing your job). Five items from JDS were used to assess extrinsic facets of job such as pay, co-workers, supervisors and job security (e.g. The amount of job security you have).

**Occupational Role Stress (ORS):** 18 items from the scale developed by Rajeswari and Anantharaman (2003) were used to measure ORS. IT professionals rated the intensity of a particular stressor at their job on the 5-point Likert-type scale (1= very low intensify, 5= very high intensify). Five occupational role stressors were measured. Four items were used to assess Fear of Obsolescence stressor. Four items were used to assess Individual Team Interaction stressor. Three items assessed Work-Family Interface stressor. Four item assessed Role Constraints stressor. Lastly, three items assessed Role Ambiguity stressor.

After finalizing the instruments, they were converted in to the form of a drafted questionnaire. The questionnaire draft was comprised of five sections. First section was to seek out demographic details of the respondents. Second section contained organizational citizenship behavior measurement scale. Third section contained organizational commitment measurement
scale and fourth section was to collect information about the satisfaction of IT professional thus contained job satisfaction measurement scale. At last fifth section comprised of occupational role stress measurement scale. The draft was developed by keeping in consideration the layout, sequence and wordings of the Questions such that respondents should not feel any problem in filling the questionnaire. The draft of the questionnaire was required to be pretested before developing the final questionnaire.

The next step was to pretest the questionnaire which was done at two stages. At the first stage 30 respondents who belonged to target population were interviewed to test the all aspect of the questionnaire including question content, wording, sequence, form and layout and question difficulty. The respondents did not report any problem with these issues and therefore we came at the next stage of the pretesting. At the second stage same respondents were asked to fill the questionnaire. Based on the 22 completed and returned questionnaires reliability of the questionnaire were examined. All constructs were found reliable as all cronbach alpha values were equal to or greater than 0.7. Visual inspection of the recorded responses was also done to identify whether the respondents were understand the instruction to fill the questionnaire.

Last step is to finalize the questionnaire. The pretesting did not suggest any changes and modifications in the questionnaire; therefore, with the help of Google Documents an online questionnaire was created and sent to all sampling units of the study. The questionnaire of the study is shown in Appendix D

3.8.2 Sources of Secondary Data Collection

Secondary data was collected Journals, articles, published and unpublished theses, magazines, books, reports such as corporate sustainability reports, annual reports and websites.

3.9 Data Analysis and Statistical Tools

Data was analyzed by using statistical tools, charts and graphs to attain the objectives of the study. The description is given below:
**Data Description:** To understand the characteristics of the respondents frequency and percentage methods were used. The use of pie chart helped in graphical presentation of the characteristics.

**Data Screening:** This is an initial and essential step in the multivariate data analysis. The use of multivariate techniques of data analysis impose burden on the researcher to understand thoroughly the basic characteristics of the underlying data because these techniques encompasses the understanding, evaluation and interpretation of complex results. The examination and understanding of data includes evaluation of missing data, identification of unengaged responses and outliers and testing of the multivariate analysis assumptions. To identify missing values visual inspection of the observations was done.

In case of outliers, both univariate and multivariate outliers are required to be detected. The detection of univariate outliers includes examination of distribution of observation and identifies the values those do not lie in the range. In order to detect multivariate outliers Cook’s Distance measure was used which measure each observation’s distance from the mean centre of all observations. Unengaged responses were identified through visual inspection of observations and responses that have zero or approx standard deviation was accounted to elimination.

Multivariate analysis need to test certain statistical assumptions which are the foundation for the valid and reliable statistical inferences and results. First, Normality is required to use the parametric statistical tools such as ANOVA, Z-test. All statistical inferences are invalid if distribution substantially deviates from normality. Histograms, skewness, kurtosis, Kolmogorov-Smirnov and Shapiro-Wilk Test measures were used to test normality. Second is Homoscedasticity refers to the equal variance explained in dependent variable (s) in a dependence relationship (s) across the range of the predictor variable (s). Homoscedasticity was analyzed through scatter plots. Third is Linearity which could also be represented by correlation
but it is not able to recognize the nonlinear effects. Therefore, it is required to test linearity to ensure no deviation from linearity. Last is Multicollinearity refers to the high association between set of predictors which lead to biased and spurious relationships. To check the presence of collinearity among the set of predictors variance inflation factor (VIF) method was used.

**Descriptive Analysis:** Measure of central tendency, Mean was used to measure the level of variables of the present research these are OCB, OC, JS and ORS. With the help of Bar chart the level of variables were compared. Measure of dispersion, standard deviation (SD) was used to measure the variability in the observations. Measures of shape, Skewness and Kurtosis were applied to check normality of distribution.

**Analysis of Organizational Citizenship behavior (OCB) between different Backgrounds: Gender, Age Groups and Hierarchy Level:** To compare the level of OCB among male and female IT professional, IT professionals of different age group and IT professionals working at different levels of hierarchy parametric test were used. The level of OCB between two independent samples that were male IT professionals and female IT professionals was compared by applying Z-test. The comparison of OCB level between different age group IT professionals and between IT professionals at different hierarchy levels was done by applying one way analysis of variance (ANOVA). The analysis compares the one factor between two or more independent samples.

**Exploratory Factor Analysis (EFA):** In the present study EFA was performed to develop a parsimonious model, therefore, it has two objectives. First, to ensure that the same factors would emerge from the dataset those have been undertaken by the standardized measurement tools adapted to measure the variables of the study. Second was to use it as purification mechanism, which helps in identifying the unimportant items in capturing the theoretical constructs (OCB, OC, JS and ORS).
KMO and Bartlett’s Test was applied to check the appropriateness of conducting the factor analysis. The percentage of variance explained by each factor and its correlation (factor loading) with the each item captured by it was also determined. The EFA was performed using Varimax Rotation Method which simplifies the columns in the factor matrix. The items those had factor loading greater 0.7 or approx were undertaken as important items in capturing the constructs and others that had poor loadings were eliminated. Items that had loadings on more than one factor were also account for elimination. In all the EFA procedure helps to group a set of items into a separate construct and eliminates items with poor factor loadings.

**Partial Least Square- Structural Equation Modeling (PLS-SEM) Analysis:** The PLS-SEM analysis technique was used to test the interdependent hypothesized relationships simultaneously. The research objective of the PLS-SEM technique is theory development and predicting endogenous (dependent) construct(s). The statistical objective of the technique is to maximize the variance explained by exogenous (independent) construct(s) in endogenous (dependent) construct(s) (Hair, Hult, Ringle, & Sarstedt, 2013). It is a non parametric technique of data analysis has following features:

- Normality of data distribution not assumed.
- Give good solutions even with smaller sample sizes.
- Can be used with fewer indicator variables (1 or 2) per construct.
- Applicable to ordinal and binary scaled questions.
- Can include a larger number of measured variables.

The PLS-SEM technique has two elements. First is measurement model and second is structural model. Measurement model comprises the relationship between construct and measured variable(s). Structural model represented a group of the hypothesized relationships. Measured variables are represented by rectangles and constructs are represented by circles or ovals. The PLS-SEM analysis encompasses the evaluation of both measurement and structural
model. Therefore, the procedure of PLS-SEM analysis was carried out in two sequential parts to meet the objectives of the analysis. The first part includes the assessment of measurement model which was done to develop the theory and structural model was assessed to predict endogenous construct (OCB) and to test the hypothesized relationships in the other part.

**Measurement Model**

The assessment of measurement model is aimed to ensure whether the construct are measured accurately. The accurate measurement of constructs is essential because the results of hypotheses testing will be affected by this. The evaluation of measurement model was done by examining the model’s reliability and validity. Construct reliability was measured using composite reliability and cronach’s alpha. The reliability values of 0.7 or greater indicate appropriate reliability. To ensure the construct validity three types of validity were checked. These were convergent, discriminant and nomological validity. Measures used to check convergence of constructs were factor loadings, average variance extracted (AVE) and reliability. Factor loadings approx and above 0.7, AVE approx and above .5 and reliability approx and above 0.7 indicate the convergent validity of the constructs included in the measurement model. Discriminant validity was checked using cross loadings, Fronell and Larcker (1981) Test and Heterotrait-Monotrait (HTMT) Ratio. To ensure discriminant validity of the constructs cross loadings should not be present. According to Fronell and Larcker (1981) Test correlation between the constructs should be less than the squared root of AVE and HTMT ration should be lower than 0.90. Nomological validity was assured by correlation analysis.

**Higher-order Measurement Model**

The higher-order construct also need to be validated. For example OCB is made up of five factors that are altruism (AT), sportsmanship (SP), conscientiousness (CN), courtesy (CR) and civic virtue (CV). Thus, OCB is a higher-order (second-order) construct and its five factor are first-order construct. The correlation between first-order and second-order construct should also be higher (approx or greater than 0.70). The appropriateness of the reliability and validity
of the constructs (first-order and second-order) involved in the model gives green signal to move to the evaluation of structural model.

**Structural Model**

The research model framed based on the hypothesized relationships was the structural model. Evaluation of structural model was done by the path coefficients’ strength and significance. The coefficients reported by the PLS-SEM analysis are standardized coefficients which make relationships included in the model comparable. The variance explained by exogenous construct(s) in endogenous construct(s) also the parameter of interest for evaluating the structural model.

3.10 Organization of Thesis

The thesis has been organized in three parts. The certificates, acknowledgement, table of content, list of tables and figures are the preliminary pages. The main body is organized into six chapters. Chapter first is Introduction which has discussed organizational citizenship behavior from different perspectives and theories to give comprehensive understanding of these variables of the study. Chapter second is Review of literature, has reported the previous studies investigated the relationships between OCB, OC, JS and ORS to get input and insights from their results. Third chapter Research Methodology has given an explanation of the approach and procedure used to conduct the research. The chapter fourth which is Profile of Selected IT organizations has provided a brief overview to the IT industry to understand it vitality for the Indian economy. Then profile of selected IT companies TCS Ltd., Infosys Ltd., and Wipro Ltd. has been presented. The Fifth chapter Analysis and Results explained the analytical procedure and analysis of the data for the present study. Last chapter Conclusion and Suggestion has concluded the research findings and captured the suggestions given to HR professionals of IT industry based on the findings.

The end matter has comprised of references, bibliography and appendices.