3.0 RESEARCH METHODOLOGY

“Not everything that can be counted counts and not everything that counts can be counted.”

-Albert Einstein

3.1 Introduction

Research methodology relates to the overall systematic research strategy and the way to solve the research problem that the researcher adopts with regards to conducting the research. This is significant in any research issue because it assures authority and authenticity of the research results. The objective of this chapter is to outline the nature of information required for the purpose of the study. Further this chapter covers data collection method, investigation of data, data analysis techniques and ethical considerations. Therefore this section will present the methodology that was used in order to obtain the necessary information so as to be able to analyze the topic of study and its findings.

3.2 Research design

The research design is the conceptual structure within which research is conducted. It outlines data required for the present study, the methods of data collection, the techniques used for the analysis and interpretation of the data for the study. The study is designed as a descriptive research design based on primary data and secondary data. Descriptive research includes surveys and fact finding enquiries of different kinds. The population of the study includes the Human resource managers working in the BPO sector organizations. The respondents in the present study included HR managers who were drawn from BPO companies located in Bangalore city of Karnataka state in India.

3.3 Scope of the study

The research covers BPO firms operating in and around Bangalore city owing to the fact that Bangalore city is the hub of IT and ITES and referred to Silicon Valley of India, where most of the BPO companies are located. The core knowledge based industry (BPO) depends on manpower, their skills and quality of available talents in the organization. In order to implement a successful business strategy to face global challenges, organizations have to ensure that they have the right people and capable of delivering the strategy. Although the research covers units operating in and around Bangalore city of Karnataka state, the
conclusions arrived at can be equally and justifiably be applied to the firms operating across the country.

3.4 Significance of the study

Manpower capital is the real asset for any organization, and this makes the HR role important in recruiting, managing, and retaining the best workforce. There are a number of challenges in the BPO industry which require a serious attention of HR managers. An urgent priority for most of the organizations is to have an innovative and competent HR pool; sound in HR management practices with strong business knowledge.

This study gives a reminder to the BPO sectors, in Karnataka to adopt innovative strategies to tackle the continuing high attrition rate of employees’ problem. The study will be helpful to the management of BPOs located in Karnataka state to focus on the critical factors that are identified in the study in addressing the attrition problem.

3.5 Statement of the problem

An attempt to study the role of analytics in HR decision making for recruitment in business process outsourcing sector is of paramount importance in making effective decision for recruitment since Employees are the life-blood of any organization to survive in the present competitive business environment. Human Resources are the most vital and yet dynamic resources of any organization. But only a few companies have realized this and are putting intervention of Human Resource Management (HRM) systems in place that support analytics philosophy. The issue of employee’s attrition/turnover has been found to be making huge economic impact on the organizations. The major problem faced by BPO organizations located in Bangalore city today is the increased employee attrition; the population of the study includes the employees working in the BPO sector organizations located in the state of Karnataka specifically Bangalore city.

3.6 Research gap

A deep analysis of the review of literature from the various sources has revealed that there is a gap in the application of analytics, HR needs to move away from providing reactive “Data fetching” support to move towards developing and delivering proactive HR intelligence results. No systematic process is available to make sense of and transform the disparate data collection activities into meaningful intelligence results. **Organizations need to advance HR Analytics is a decades old problem, data management is one challenges companies face in their use or adoption of HR Analytics can set the pace for better business operations**
decisions however many organizations are still unaware of the fact. Therefore less research evidence exists regarding the unstructured decisions of HR Analytics systems in the Indian organizations, where rules about practices such as Recruitment are based on intuitions. Which applicants should they recruit? Which of their hires do they wish to retain for their performance and productivity? This process is ad hoc and is subjected to easy manipulations by employers. On the other side of the coin it is true that HR Analytics could be fundamental in solving this management crisis of employers in BPO organizations.

The key challenges to wider spread of HR Analytics adoption in the firms is due to lack of understanding on how to utilize analytics to improve decision making in the business, is managerial challenge rather than technology. To take advantage of HR Analytics, you need the integration of data, analysis and predictive thought the enterprise that requires many types of analytical skills such as data integration, modelling, forecasting and simulation to explore trends and future patterns of recruitment activities as required by the organization’s goals and objectives to be achieved within specified time frame. It is only HR Analytics that it going to drive the required change in the sector. Since the job market becomes increasingly competitive and the available skills grow more diverse, recruiters need to be more selective in their choice, given that poor recruiting decisions can produce long-term negative effects to the organization’s performance. There is need for research to establish and make the distinct statement on the role of analytics in HR decision making for recruitment in BPO sector; hence an attempt is made in this thesis to bridge this paramount gap.

3.7 Objectives of the study

The focal point of this study as pointed out earlier is to explore the level and pattern of HR Analytics usage in decision making of Recruitment of employees specifically in BPO sector. In other words, the study is an attempt to explore whether BPO sector uses HR Analytics in their decision making process. The broad objective of the present can be split in to the following detailed objectives.

1. To examine the function of HR Analytics in Recruitment with reference to the BPO sector.
2. To enumerate the benefits an organization derives by implementing HR Analytics in Recruitment decisions for BPO sector.
3. To identify how employees’ recruitment decisions in BPO sector can be approached from HR Analytics based trend.
4. To determine how HR Analytics reduce employees attrition in BPO sector.
5. To assess the new managerial skill set and competence required for adoption of HR Analytics in recruitment decisions for BPO sector.

3.8 Research questions

In the light of the above premises, this study focuses on the opportunities that can be utilized by the organization that make use of HR Analytics in their recruitment decision making. Therefore, this study deals with several main questions in order to achieve these objectives

1. What function does HR Analytics play in decision making of recruitment in BPO sector?
2. What are the benefits derived using HR Analytics for recruitment decision in BPO sector?
3. How does HR Analytics reduce employee’s attrition in BPO sector?
4. How do HR managers use analytics to make recruitment decision for employees in BPO sector?
5. What are new managerial skill set that are required to effectively the HR Analytics for recruitment decisions in BPO sector?

3.9 Hypothesis framed for the study

Hypotheses are conjectures and tentative statement, the validity of which remains to be tested. They act as a beacon in as much they provide the direction for the research programme. In order to address the above overall objectives, accordingly the researcher has constructed the following hypotheses with the aim of testing them.

Objectives: 1

To examine the function of HR Analytics in Recruitment with reference to the BPO sector.

Hypothesis H 1:

(H0): The function of HR Analytics is significant in recruitment decisions in BPO sector.

Hypothesis H2:
(HO): There is no association between recruitment using scientific and Analytical method with making a predictive model to identify recruitment needs.

Objectives: 2

To enumerate the benefits an organization derives by implementing HR Analytics in Recruitment Decisions for BPO sector.

Hypothesis H3

(HO): Use of HR Analytics maintain accurate employee data for recruitment

Hypothesis H4:

(HO): There is no association between clearly defined metrics used to evaluate result of HR decisions for recruitment and in determining formal organization recruitment decision making using HR Analytics.

Objective: 3

To identify how employees’ recruitment decisions in BPO sector can be approached from HR Analytics based trend.

Hypothesis H 5:

(H0): HR Analytics is influential in making recruitment decision in BPO sector

Hypothesis H6:

(HO): There is no association between recruiting creative, innovative and problem solving staff with identifying better promotions policies in the organization.

Objectives: 4

To determine how HR Analytics reduce employee attrition in BPO sector.

Hypothesis H7:

(H0): Attrition is reduced in BPO sector by use of HR Analytics.

Hypothesis H8:

(HO): There is no relationship between employee developments of skills with retention of high performing talents (employees).

Objectives: 5
To assess the managerial skill set and competence required for adoption of HR Analytics in recruitment decisions for BPO sector

**Hypothesis H9**

(H0): New managerial skill set is required in adoption of HR Analytics for recruitment decision in BPO sector.

**Hypothesis H10:**

(HO): There is no relationship between organization’s well defined recruitment policies using HR Analytics and optimization of employee’s skills.

### 3.10 Sampling design

A sampling design is a define plan to a sample from a given population; it explains the procedure adopted in selecting items for the sample. The step in sampling design includes identification of:

a) Universe, b) Sampling frame, c) Sampling unit, d) Sample size e) Sampling procedure and f) Sampling errors.

### 3.11 Universe/Population

The universe for this research is Bangalore which is the capital city of Karnataka state; referred as ‘Silicon Valley of India’ Bangalore has experienced enormous growth of BPO sector. Bangalore, also has advantage of heterogeneous mix of population wherein people from all parts of the country reside, consisting of those who came for the purpose of employment representing a mini-India. The population of the study includes the HR managers working in the BPO sector organizations that are using HR Analytics in their organization. The research covers units operating in Bangalore city of Karnataka; the conclusions arrived at may equally and justifiably are applied to units operating across the country.

### 3.12 Sampling frame

The sampling frame for the survey is BPO firms in Bangalore city which is IT hub in India. The sampling frame was constructed on the basis of professional outlook of the companies and convenience of getting response, and also their willingness to subject their organization with details in this research study.

### 3.13 Sampling unit
For this study the sampling unit was BPO HR Managers in Bangalore city for the organizations using HR Analytics in their recruitment decision making process.

### 3.14 Sample size

In order for the study to be representative, it was thought that a sufficiently large sample was required. The data was collected from BPO industries located in Bangalore city with a population of 417 companies in Bangalore city as per Nasscom Bangalore office database as on 31st March 2017. The researcher contacted 365 of BPO respondents out of those respondent 146 responded back. The researcher scrutinized the questionnaire to find out the partial responded questionnaire, 36 responses were found to be partial filled hence they were rejected and not considered for data analysis. The researcher was left with 110 respondents for data analysis. Four factors were taken into consideration when determining the sample size, they include:

1. Number of groups within the sample that will be analyzed
2. The general value of information in the study and its accuracy for the results to be produced.
3. Cost of the sample collection
4. Variability of the universe.

### 3.15 Sampling procedure

The sampling procedure that was followed for the survey was simple random sampling. Simple random sampling was chosen since every item of the population has equal chance of inclusion in simple and all the choices are independent of one another. It gives each possible sample combination an equal probability of being chosen any HR managers for BPO sector in Bangalore who are applying HR Analytics in their organization.

### 3.16 Questionnaire design

The study is basically based on the questionnaire survey method as a tool to collect primary data. Since the research is descriptive and exploratory in nature, the questions were structured and designed according to the objective of the study. Care has been taken to design each question on the basis of hypothesis and objectives of the study in such a way that will avoid any ambiguity or duplication of data. To make it more realistic, the researcher discussed the questions with experts’. Based on their recommendations and suggestions the questionnaire
was finalized. Before administering the questionnaire to the respondents, a pilot study has been carried out to test the technical faults of the questions. The questionnaire enclosed a covering letter which contained all the relevant information about the research and the researcher objectives in the questions asked.

Finally, a well structured questionnaire was developed and administered to the respondents of the present study.

3.17 Systematic bias and sampling error

It is worthy to that the causes for incorrect inferences systematic bias and sampling error.

3.17.1 Systematic bias results from errors in the sampling procedures, and it cannot be reduced or eliminated by increasing the sample size. Whenever causes responsible for such errors were detected they were eliminated. The possible causes responsible for systematic bias were monitored. Firstly, a bias could emerge because of inappropriate frame. No such a bias was found in any of the sampling used. Secondly, a bias could emerge because of a defective measuring device. The questionnaire was pilot tested and ensured free a possible defection while measuring. Thirdly, respondents tend to behave differently when responding to the question. Since the questionnaire was lengthy, the respondents took enough time to complete and sensed fatigue filling the questionnaire. This had advantage and disadvantage, some of respondents came up front with their genuine responses, but some of them hurriedly responded to the questions. Hence this study might have the element of systematic bias due to indeterminacy. Fourthly, there might raise a systematic bias because of non response from the sample, also in the current scenario when the respondents are fielded with all kind of response forms, they intend to be either casual in their response or postpone response and finally decline to respond.

3.17.2 Sampling errors are the random variations in the sample estimates around the true sample parameters. Since they occur randomly and are equally likely to be in their direction, their nature happens to be of compensatory type and the expected value of such errors happens to be equal to zero. Sampling error decreases with the increase in the size of the sample, and it happens to be of a smaller magnitude in case of homogeneous population since increasing sample size is not a feasible option (because of non response and cost) an effective way to increase precision has been selecting a better sampling design most of times. Hence this study has used an adequate sample size and simple random sampling to reduce systematic bias and the sampling error.
3.18 Data collection

A structured questionnaire was used as an instrument to collect data. The questionnaires were self administered and also Google forms were used by the researcher to collect the data from HR managers for BPO firms in Bangalore city to ensure the convenience of the respondents. This being the main tool used for collecting quantitative primary data. It enables quantitative data to be collected in a standardized way so that the data are internally consistent and coherent for analysis. Also the questionnaire ensures standardization and comparability of the data across interviews, increases speed and accuracy of recording, and facilitates data processing. The scaling techniques used in the development of questionnaire of this study are: nominal scale, Likert type scale under interval scale, itemized rating and rank-order scale under ordinal scale and word association under disguised structured scale, at the end of the questionnaire their six open ended questions.

3.18.1 Primary data collection

The researcher made use of primary extensively. The said primary data has been collected by administering questionnaires on the topic for the study. Data was collected from HR managers working in BPO organizations located in Bangalore city using HR Analytics in their daily operations in and around Bangalore city.

3.18.2 Secondary data collection

The secondary data related to the present study was collected from different sources including text books, research papers, EBSCO database, articles published in journals, online journals like science Direct, European journal of Operations Research, periodical, news papers and Doctorial Research thesis this were obtained through the visits to professional libraries. National Association of Software Companies (Nasscom), websites, Mckinsey study reports company websites and various other related sites.

3.19 Pilot study

The researcher conducted a pilot survey before carrying out the actual survey. The pilot survey was conducted in Bangalore city using a structured questionnaire. During this survey informal discussions were also conducted with professionals, human resource managers, and academicians. The researcher approached 123 respondents from BPO firms located in
Bangalore city. The researcher got 67 responses back from the respondents. After a carefully scrutiny of the responded questionnaire 48 were considered for the plot study, while 19 of the responses were rejected since they were partial filled, therefore, they could not be considered for the pilot study. The reliability test was done and it was observed that Cronbach’s Alpha values of two factors were 0.432 and 0.362 respectively hence these two factors were eliminated from the questionnaire while other constructs had Cronbach Alpha value more than 0.7. The structured questionnaire was refined to collect the data from HR managers in BPO sector who are using HR Analytics in their recruitment decision making process in Bangalore city. A final questionnaire was administered for the present study.

3.20 Data analysis techniques

The researcher has collected extensive primary and secondary data was properly analyzed and edited to get meaningful information in the context of the objectives defined, this required to be analyzed by utilizing instruments that are suitable for extracting the right information out of the available data into descriptive statement or inferences about relationships. To test the significance of the set parameters and to test the formulated hypotheses, the researcher applied Factor Analysis, Multiple Regression analysis, Garrett ranking technique, Chi-Square test, Friedman-test, pie-charts, averages, percentages graphs, bar diagrams and Statistical package for social science (SPSS) package version 20.0 was used to analyze data and outputs interpreted in the present study. The results are carefully analyzed and interpreted to make some concrete conclusions.

3.21 Statistical treatment of the data

The raw data was scored and tabulated for each variable being studies for both the organizations independently. The raw data was computed in order to do the following statistical analysis.

i. **Descriptive analysis** – This was done to obtain mean and standard deviation of each variable.

ii. **Inferential analysis** – This analysis was done using T-test to find the significant differences, if any between means related to different groups for different variables

iii. **Correlation analysis** – a Pearson’s product moment correlation was used to discover the relationship between variables.

iv. **Multiple regression** – It is the determination of a statistical relationship between two or more variables, in this study, number of independent variables were employed to predict the single dependent variable
3.22 Reference period of the study
The study covers a period generally starting from 2004 through May 2017 for literature review as well as trends in the research area.

3.23 Limitations of the study
Limitations are the restrictive conductions under which the research is conducted. The present study, though carefully planned and executed, is not free from certain limitations for any research in any faculty of knowledge to undertake such research. The variables under study may be affected by external factors which the study did not take into consideration. However, due to the small number of respondents; the summary of the results could look different should the respondents group be bigger or different. In other words, the results are not definitive even though in this study some trends could be seen. This study is still a good starting point for further analysis, from which one can take input to further empirical studies.

1. The study is confined to one sector that is BPO industry and few samples are selected among the population.
2. Judgmental errors personal bias as well as possible reluctance to disclose information due to HR function seen as a sensitive matter may have affected the results of this study.
3. The past organizational data it may have been manipulated hence making it hard to determine exactly the future trends of the industry.
4. Non response bias created by the universe choice to exclude possible other population for example, junior HR practitioners who may have better insights to contribute to the research problem.
5. The findings are based on the authenticity of data provided by the respondents.
6. Time and other resources restricted the selection of more number of responders of the present study.

3.24 Ethical considerations
This research work has been conducted ethical by collecting responses from the respondents. The utmost efforts have been put to collect authentic, relevant and detailed information based on the research objectives by the researcher with honest and academic approach the confidentiality and anonymity of all the respondents has been maintained constantly in this study. From the point of view of the respondents are well as for a researcher in analysis is based on that data that has been collected from the field.

3.25 Summary
This research methodology provides the blueprint for finding answers to a research Problem. Based on literature review, ten working hypotheses were formulated to meet the objectives of the study. Bangalore city was chosen as sampling frame for the study. The sample size of 110 respondents spread across Bangalore city. A structured questionnaire was self administered and a Google form was also used for data collection and follow-up was done through personal visits.

The responses collected were analyzed using statistical techniques such as frequency distribution, cross tabulation and factor analysis. Hypotheses were tested using person correlation coefficient, T-test and Friedman test. The responses received from respondents have been analyzed and findings represented in the next chapter.