CHAPTER – 3
RESEARCH METHODOLOGY

The research methodology chosen for this study is discussed in this section. The classification of research has been provided and the methodological assumptions are explored, concentrating on all elements of the theoretical structure. Research issues are created, research methods are defined and assessed, taking into account the usefulness and nature of the research study. This will be followed by the discussion of the information collection methods used for this study.

This chapter describes the research framework, questionnaire drafting, sample size determination, and pilot study. It also presents the adopted research methodology, including research methods and criteria for selecting samples, analyzes, study results, and points out the research limitations. Hypotheses have been created in the end.

The proposed research is qualitative in nature and explores the experiences of the respondents who have investigated the employee competencies in the infrastructure industry. An important precondition for the analysis part of the study is the availability and accessibility of data. The current study is based on interviews conducted of CXO’s in ten reputed companies located throughout India.

Research Design

Skills are context-specific, it is evaluated through some performance criteria, and it is something that the individual is. Competence is more than expertise or abilities: it involves the motives of the person (or value judgments), features and self-
conception. Measurements of performance are instruments used to follow-up the past performance in an organization, predict the level of future performance and accomplish improvements in performance. Competency-based performance evaluates large sets of capabilities and knowledge which can significantly improve organizational productivity to a much greater extent than just doing a job using an existing skillset. The approach of this research is to Studying Employee Competencies” to Manage Evolving Business Environment, a balanced set of measures derived from the organization's objectives.

Hence, this researcher has utilized formal Research Design, wherein the changes in independent variable business competencies are responsible for changes independent variable (Business Performance – BP).

**The Research Problem**

Competence is the potential/capacity to be successful in a scenario including contextual decisions, objectives, abilities and knowledge sufficiency and anticipated results. Competence, therefore, is in close relationship with business needs and performance: it is needed to accomplish superior performance repeatedly in a particular context or situation. Jobs have been changing at a rapid pace over the past 20 years; People Capability Maturity Model (PCMM) is becoming more useful than the historical skill-based, transactional process. The nature of work is changing from single-skilled jobs to multiskilled jobs, from repetitive tasks to problem-solving tasks, from individual work to teamwork, and from functional specialization to collaboration. Taking a look at the ways in which work is changing, it is necessary for
the organization to move from skill-based performance to competency-based performance based on the People Capability Maturity Model (PCMM). In addition, performance measures are instruments used to monitor an organization's past performance, predict future performance levels and achieve performance improvements.

Traditional performance measurement systems rely on financial accounting measures, e.g. revenue growth rate, return on investment, market share, and unit costs. Competency-based performance evaluates large sets of capabilities and knowledge which can significantly improve organizational productivity to a much greater extent than just doing a job using an existing skillset. The most common type of a historical job (the individual repetitive job) is going away and the organization has an increasing need for competency-based evaluations through various competency-based management practices.

Consequently, the following main study issues were created in order to further investigate and clarify what concerns the real research problem. As recognized, the study issues are:

i. What are the major employee competencies that impact the business results in various categories of employees

ii. What are the competency models need to be adopted by the organizations to enhance the employee competencies to manage the business at the desired level

iii. What are the steps needed to be adopted by the HR Management
iv. What are the critical elements (factors) of competency-based performance management models?

Statement of the Problem

In the backdrop of earlier discussions, and as there has not been any work on Competency-Based Performance Measures in the infrastructure industry in the Indian context, we tried to explore different competencies required by the human resources in the Infrastructure industry.

Objectives of the Study

As is evident from the literature review, competency-based performance measures management (CBPM) is an absolute essential for organizations. It helps in resolving business performance (BP) management related issues. The current research work is intended to get practical insights into CBPM. The current research work is therefore intended:

1) To explore major human resource competencies that address the changing business environment needs in infra industry
2) To understand the role of human resource competencies for organizational performance.
3) To examine the implementation of various competencies development models and their influence on human capital development within the organization
4) To provide suitable recommendations to the industry to focus on employee competencies to manage the evolving business environments.

**Research Framework for the Study**

An attempt has been made to study the linkage of CBPM to infra and construction companies. The following research framework (Figure1) has been developed to study the relationship between CBPM and BP. CBPM has five major elements or activities as indicated in Figure1 viz.

i. Defining competencies of an individual

ii. Competency-based employee recruitment and selection

iii. Competency-based training and development

iv. Competency-based performance appraisal, and

Competency-based employee rewards.

Defining and managing these five elements or activities is very critical for deriving the desired performance. The consolidated Business Performance Parameters as shown in the Unified Matrix of Business Performance (as mentioned in Literature Review) have been discussed with senior executives of few companies, HR Consultants and advisors. It is found that few parameters are considered critical while assessing the Business Performance by the companies. As per their recommendation, eight parameters (grouped in 4 categories) are considered for this study.
Business Performance Parameters

These eight Business Performance Parameters as considered by infrastructure Companies are summarized below:

Table 2

<table>
<thead>
<tr>
<th>Business Performance Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Financial</strong></td>
</tr>
<tr>
<td>1. Cost Reduction</td>
</tr>
<tr>
<td>2. Revenue Growth</td>
</tr>
<tr>
<td>3. Growth</td>
</tr>
<tr>
<td><strong>Customer Related</strong></td>
</tr>
<tr>
<td>1. Market Share</td>
</tr>
<tr>
<td>2. Customer Satisfaction</td>
</tr>
<tr>
<td><strong>Internal Process</strong></td>
</tr>
<tr>
<td>1. Innovation</td>
</tr>
<tr>
<td>2. Project Delivery</td>
</tr>
<tr>
<td><strong>Learning and Growth</strong></td>
</tr>
<tr>
<td>1. Employee</td>
</tr>
<tr>
<td>2. Employee Retention</td>
</tr>
<tr>
<td>3. Employee Productivity</td>
</tr>
</tbody>
</table>

This model does not rule out the effect within the organization of other assets and procedures. It demonstrates one way to explain how CBPM is related to Business Performance.

Scope of the Study

Defining competencies of individual, Competency-based employee recruitment and selection, Competency-based training and development, Competency-based performance appraisal, and Competency-based employee rewards have been taken into consideration for the study. The study covers all companies i.e. Small and Medium Businesses and MNCs irrespective of a number of sites and locations.
The following points describe the scope of the present research:

i. The scope of the present research is restricted to the study of how competencies need to be enhanced in a structured way to manage the future business.

ii. This study focuses on the impact of the People Capability Maturity Model (PCMM) on business performance.

iii. On Business Performance, i.e. it covers the perception aspects of CBPM.

iv. This research studies whether PCMM has an impact on BP and in case if PCMM has an impact to what extent it will impact the BP.

v. All the infrastructure companies operating in India are considered for this study.

Selection of Research Method and Justification

The chapter below provides a rationale for choosing a study technique:

*Empirical vs. Non-empirical*

Empirical research involves observation and direct fact-finding about issues related to the topic concerned. Observation is the oldest method used by man in the scientific investigation. However, guided and controlled observation has replaced the ancient form of unaided visual observation. Non-empirical techniques are those that concentrate not on observation but on concepts, frameworks, and speculation.

The HR sector and professionals have now recognized empirical study techniques. Therefore, it is one of the reasons to adopt an empirical research method. As this research investigates the relationship between PCMM and BP, a non-empirical
research “method based on ideas and speculations may not be regarded as a valid research approach. As identified in Chapter II – Review of Literature, there has been a number of empirical research papers published with a focus on PCMM. Thus, the empirical line is a valid direction for this study.

**Qualitative vs. Quantitative**

In the social sciences, a qualitative study has a background. It was discovered to be helpful for studying social and cultural phenomena. Within qualitative research, a number of different research methods are available. In the last twenty years, qualitative research has gained acceptance in the academic rigor of HR discipline. For researchers, quality research in the field of HR has become important to understand the inter-relationship of various parameters. Qualitative research requires the investigator to understand a broad variety of information collection ideas and meanings.

Quantitative research, on the other hand, is derived from the natural sciences, where the research data is usually in the form of precise numbers that have been collected according to the clearly defined steps. Quantitative methods are usually used for testing hypotheses and they include defined processes that frequently use numbers and statistics to obtain study outcomes.

Qualitative research is used to explore and understand the extent of the relationship between the concerned variables. Normally, it produces information that is not numerical. Quantitative research produces numerical data or information which
can be transformed into numbers. For example, the number of organizations that have implemented the PCMM model. In the present study, qualitative research has been used to explore the different propositions made by the researcher.

**Research Process**

The Research Process consisted of the following:

**Sample Design**

The entire group of companies from which the sample is to be chosen is called Universe or Population technically. Designing of the sample has been carried out in the following manner:

i. Definition of the Sample

ii. Characteristics of Sample

iii. Sampling Method

iv. Testing of Validity, Reliability, and Representativeness of Sample

v. Comparison of Sample with Ideal Sample

vi. Sampling and Non-Sampling Errors

vii. Sample Size

viii. Source List

The frame for sampling was an in-depth interview with the top-level management (founder/resident/vice president/general manager) and middle-level manager (Dean / Department Head / Area Manager). In choosing the sample, a non-probability purposeful sampling technique was used. Generally, purposive sampling is needed to be used for qualitative research because there is a need for discussion about
the construct from various dimensions and the HR manager needs to have a good experience on the competencies required by the firm. Similarly, for an in-depth interview, the same purposive sampling design was adopted because they were selected based on their designation and the position in the hierarchical level of management. For experts’ opinion surveys, a list of subject experts and industry-specific practitioners were approached with a formal invitation and those who came under the criteria and interested to fill the questionnaire were requested to take the survey. The criteria followed in this survey method is that: (a) Academician who is an expert in the human resource management (b) Practitioner who has experience for more than 20 years in the infrastructure industry.

For an in-depth interview, a request was made by directly approaching and through the mail and on one to CXOs, CEOs, CFO, CPOs and COOs of different infrastructure companies operating within India. Earlier literatures like Chan (2001); Cook et al., (2002); Peterson-Sweeney (2005); Rochlen et al (2010); Deliens, Deforche, De Bourdeaudhuij&Clarys (2015); Rahimi, Kalantari, Rafiee&Khosravi (2019) organized focus group discussions within a single city or two whereas in this study participant unit were from throughout India to give their opinion on various competencies required by their human resources.

There are many literatures (Creswell, 1998; Ritchie et al 2003; Creswell, 2003; Charmaz 2006; Ritchie et al., 2013; Mihas, 2019) suggesting that determining sample size for qualitative study is difficult and it varied from one study to another and further stated that when the researcher observed the saturation limit has reached he/she can conclude the process. According to Ritchie et al., (2013), it is better to
concentrate on how in-depth a researcher conducts an interview rather than the breadth in terms of sample size. Boyce and Neale (2006) stated that if the same points are repeated then the saturation point has attained and it's better to end the interview.

The following table explains the sampling design adopted for in-depth interviews such as sample frame, sampling unit, sample size, and sampling area. Further, the table also depicts the interview technique adopted, mode of conducting the interview, questionnaire type, and duration of the interview.

Table: 3

*Sampling Design*

<table>
<thead>
<tr>
<th>Frame</th>
<th>Corporate Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit</td>
<td>Human Resource Managers / Business Heads</td>
</tr>
<tr>
<td>Area/location</td>
<td>PAN India</td>
</tr>
<tr>
<td>Size</td>
<td>20 Respondents</td>
</tr>
<tr>
<td>Industry</td>
<td>Infrastructure</td>
</tr>
<tr>
<td>Interview Technique</td>
<td>Soft laddering</td>
</tr>
<tr>
<td>Mode of interview</td>
<td>Audio recording &amp; One on One</td>
</tr>
<tr>
<td>Questionnaire type</td>
<td>Semi-structured questionnaire</td>
</tr>
<tr>
<td>Duration</td>
<td>60-90 minutes</td>
</tr>
<tr>
<td>Confidentiality</td>
<td>The respondents were assured that their information will be used only for academic purposes and not for commercial purposes. At the same time, their information will not be disclosed to anyone.</td>
</tr>
</tbody>
</table>

Each interviewee was chosen based on purposive sampling techniques and based on their interest and availability. The table below gives the demographic details of the interviewee where the prior appointment was fixed with the interviewee.
<table>
<thead>
<tr>
<th>Organization</th>
<th>Position</th>
<th>Gender</th>
<th>Experience</th>
<th>Date of Interview</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>LancoInfratech Limited</td>
<td>Director HR</td>
<td>Male</td>
<td>38</td>
<td>28/04/2018</td>
<td>GGN, NCR</td>
</tr>
<tr>
<td>KLU Business School</td>
<td>Director - Corporate strategy</td>
<td>Male</td>
<td>32</td>
<td>31/05/2018</td>
<td>Vijayawada, Andhra Pradesh</td>
</tr>
<tr>
<td>Greenko Group</td>
<td>Sr. Vice President - Procurement &amp; Contracts</td>
<td>Male</td>
<td>36</td>
<td>08/05/2018</td>
<td>Hyderabad, Telengana</td>
</tr>
<tr>
<td>Nagarjuna Construction Company Ltd.</td>
<td>Chief General Manager-HR</td>
<td>Male</td>
<td>38</td>
<td>05/05/2018</td>
<td>Hyderabad, Telengana</td>
</tr>
<tr>
<td>Megha Engineering &amp; Infrastructures Ltd</td>
<td>Chief General Manager-HR</td>
<td>Male</td>
<td>24</td>
<td>26/05/2018</td>
<td>Hyderabad, Telengana</td>
</tr>
<tr>
<td>GMR Group</td>
<td>Group Director</td>
<td>Male</td>
<td>40</td>
<td>28/04/2018</td>
<td>New Delhi</td>
</tr>
<tr>
<td>GMR Group</td>
<td>V P (F&amp;A)</td>
<td>Male</td>
<td>25</td>
<td>26/05/2018</td>
<td>New Delhi</td>
</tr>
<tr>
<td>Sanmar Group</td>
<td>Executive Director - HR</td>
<td>Male</td>
<td>31</td>
<td>07/11/2018</td>
<td>Chennai, Tamil Nadu</td>
</tr>
<tr>
<td>GMR International Hyderabad Airport</td>
<td>Chief Human Resource Officer</td>
<td>Male</td>
<td>30</td>
<td>07/05/2018</td>
<td>New Delhi</td>
</tr>
<tr>
<td>IVRCL</td>
<td>Group Head HR</td>
<td>Male</td>
<td>40</td>
<td>28/04/2018</td>
<td>Hyderabad, Telangana</td>
</tr>
<tr>
<td>GMR Group</td>
<td>Chief Financial Officer</td>
<td>Male</td>
<td>26</td>
<td>14/05/2018</td>
<td>Philippines</td>
</tr>
<tr>
<td>L&amp;T Metro Rail (Hyderabad) Limited</td>
<td>HR Lead - L&amp;D</td>
<td>Male</td>
<td>18</td>
<td>14/05/2018</td>
<td>Hyderabad, Telengana</td>
</tr>
<tr>
<td>Keystone Consulting</td>
<td>Business Principal consultant</td>
<td>Male</td>
<td>35</td>
<td>11/12/2018</td>
<td>Hyderabad, Telangana</td>
</tr>
<tr>
<td>RVR Projects Private Limited</td>
<td>Associate Vice President HR</td>
<td>Male</td>
<td>30</td>
<td>24/05/2018</td>
<td>Visakhapatnam, Andhra Pradesh</td>
</tr>
<tr>
<td>GMR International Limited</td>
<td>General Manager - HR</td>
<td>Male</td>
<td>33</td>
<td>15/05/2018</td>
<td>Hyderabad, Telangana</td>
</tr>
<tr>
<td>Blue Tree Consulting</td>
<td>CEO</td>
<td>Male</td>
<td>25</td>
<td>15/12/2018</td>
<td>Hyderabad, Telangana</td>
</tr>
<tr>
<td>GMR</td>
<td>Chief Financial Officer</td>
<td>Male</td>
<td>28</td>
<td>17/05/2018</td>
<td>Hyderabad, Telangana</td>
</tr>
<tr>
<td>MYHOME Group</td>
<td>Sr. General Manager (Projects)</td>
<td>Male</td>
<td>32</td>
<td>17/07/2018</td>
<td>Hyderabad, Telangana</td>
</tr>
<tr>
<td>Aditya Housing and Infrastructure Development Corporation Pvt Ltd</td>
<td>Consultant (Civil Engineer)</td>
<td>Male</td>
<td>45</td>
<td>03/05/2018</td>
<td>Hyderabad, Telangana</td>
</tr>
<tr>
<td>Nagarjuna Construction Company Ltd.</td>
<td>Chief General Manager-HR</td>
<td>Male</td>
<td>28</td>
<td>05/05/2018</td>
<td>Hyderabad, Telangana</td>
</tr>
</tbody>
</table>
Definition of Sample

Based on the literature and subject matter of the research, the population definition is as under:

i. All Infrastructure Companies falling in India are considered as the population for the study.

ii. A maximum of two responses has been obtained from one organization.

Characteristics of Sample

The characteristic features of the sample are as follows:

All the permanent employees CXOs, CEOs, CFO, CPOs, and COOs are considered as respondents.

Sampling Method

Infrastructure is a growing sector in India. The number of companies is growing every month. Therefore, practically, it is not possible to have the exact number of companies at any given point in time. The researcher points out that this is an ‘Indefinite Universe’. The data has been collected by a purposive sampling method and then samples are classified as per the classification of Infrastructure verticals.
**Sampling Error**

Since the study adopted a convenience sampling method, the chance for non-response error can be eliminated (the questionnaire is given only to the respondent who accepted to fill his/her level of agreement). Proper instruction was given to the respondents in the questionnaire and special care was taken to remove the unfilled and pattern followed questionnaire to overcome response error.

**Testing of Validity, Reliability, and Representativeness of Sample**

**Validity**

Validity is divided into inner validity and outer validity. Inner validity is achieved if the survey used actually measures what is meant to be measured. Furthermore, outer validity is reached when the empirical study is coherent with reality.

Following Analysis (Testing) is done to analyze validity:

a. Expert validity
b. Criterion validity
c. Construct validity

a) **Expert validity**

Experts from infrastructure companies, HR practitioners, business heads, consultants and advisors assessed the designed research framework and questionnaire (instrument). A portion of the final sample filled the questionnaires to assess the
validity of the instrument as well as a research framework. The contents were found to be satisfactory and acceptable to the sample population.

b) **Criterion validity**

The measures are found to be consistent with what is already known and what is expected.

c) **Construct Validity**

The Construct (performance parameters and PCMM) are valid. This has been cross-verified with experts from Infrastructure companies. This survey contains relevant questions related to performance impact which are measured. The sample reflects reality, and therefore researcher strove to get results, which were coherent with reality.

**Comparison of Sample with Ideal Sample**

An ‘Ideal Sample’ has been prepared with the help of Infrastructure company experts with their practical experience. The first step is to convert feedbacks into the sample as follows:

**Steps for Converting Primary Data into Research Sample**

a) Collection of feedback by personal interview and discussion.
b) Checking the correctness and completeness of the feedback.
c) Validating the feedbacks according to sample definition
d) Converting feedbacks into ‘Samples’
e) Preparing the list of samples using the MS Excel sheet

Secondly, the feedbacks are again cross-checked with the ‘Ideal Sample’ for the overall assessment.

The following diagram shows the process of converting response into research sample:

Source: Authors’ Compilation

Questionnaire Development

The questionnaire has been framed on the basis of the objectives of the study. The questionnaire is written in English. All questions are open-ended. To ensure that a comprehensive list of items has been included in the questionnaire, the work of
previous researchers was reviewed. The research framework used by earlier researchers was also considered.

As per research objectives, the questionnaire covers topics such as the impact of PCMM on an individual’s performance, managerial performance and its impact on Business Performance.

**Questionnaire Design**

i. A literature review was done to locate empirical studies done in the area of PCMM, CBPM & BP. Information on competency-based performance measures/management and business performance was obtained from the journals, books, and magazines.

ii. Elements of PCMM, CBPM and BP parameters were identified from earlier empirical studies.

iii. Further narrowing down of 21 competencies and 8 BP parameters was done by discussions with Industry Associations, Senior Professionals from Infrastructure, HR Practitioners and Consultants. This was done to cross-check the validity of the sample on the basis of Criterion (for IT sector) and Construct (performance parameters and PCMM).

The shortlisted 21 competencies are as follows: Drive for Results, Process management, Functional Expertise, Personal Effectiveness, Ability to Influence, Innovation, Team Effectiveness, Customer Service, Self-Development Orientation, Analytical Thinking, Physical Ability, Knowledge, Aptitude, Motivation,
Communication, Leadership, Managerial Ability, Negotiation Skill, Personal Values, Social Skills, Technical Competence.

iv. The questionnaire was designed based on the above competencies and 8 BP parameters as mentioned. A few demographic questions were added. Questions were arranged in a logical sequence. Ambiguous and personal questions were avoided. The meaning and accuracy of the questions were checked thoroughly.

v. Pilot Study: A designed questionnaire was sent to five Infrastructure companies. Feedbacks were received from them. Based on this feedback, the reliability and representativeness of the questionnaire were checked and some unnecessary questions were deleted to simplify the questionnaire. The analysis was conducted on the pilot data. Based on these pilot study feedbacks, the relationship between research questions and objectives was properly established. The research methodology was confirmed. Some corrections were made in the questionnaire to build proper relationships. The final questionnaire was thus made ready (please refer to the Questionnaire).

The questionnaire is given below:

**Objective I: To explore major human resource competencies that address the changing business environment needs in infra industry:**

1. According to you what are the various competencies you look for developing human resources to manage your evolving business needs?
2. What are the highly relevant competencies which are lacking in the human resources in this industry so that you can focus on those to develop and manage future business demands?

3. Can you please explain what kind of methods/model you adopt in addressing competency gaps?

**Objective II: To understand the role of human resource competencies for organizational performance.**

1. According to you what are the various organizational performance indicators which are the outcomes of employee competencies in general?

2. What are various damages in terms of performance of the organization, if organizations fail to develop the Human Resource Competencies?

3. Do you feel that "competency-based recruitment" and "competency-based performance assessment" add value in building the capabilities of the employees? Please share your experience from the current/last organization you worked.

**Objective III: To examine the implementation of various competencies development models and their influence on human capital development within the organization**

1. What are the various competency models your organization adopts in developing human resources?

2. "The People Capability Maturity Model” PCMM is a tool that helps you successfully address the critical people issues in your organization". Please comment.
**Objective IV: To provide a suitable recommendation to the industry to focus on employee competencies to manage the evolving business environment**

1. Can you please suggest a few recommendations/steps that organizations need to adopt in order to enhance the competencies of the human resources to manage the future business goals?

Respondents were asked to answer each question. The option of ‘NA’ (Not Applicable) was not given to the respondents and all the questions were made mandatory.

First Objective deals with the impact of PCMM on major human resource competencies that address the changing business environment needs in infra industry. The second Objective examines the role of human resource competencies for organizational performance.

Third Objective deals with examining the implementation of various competencies development models and their influence on human capital development within the organization.

Competency-Based Performance Measures have five major elements viz. Defining competencies,
Fourth Objective deals with providing suitable recommendations to the industry to focus on employee competencies to manage the evolving business environment.

**Research Strategy and Data Collection**

This section discusses the research strategy and details of the data collection techniques used for this research study.

**Research Strategy**

The primary data has been collected by the researcher through a Questionnaire Schedule, in a Direct Personal Interview and Discussion method. The interviews were conducted in person, and both a ‘structured’ and an ‘informal’ interview method were used. In the structured part of the interview, the interviewees were asked about the PCMM in which they had participated and respondents were asked to fill up the Questionnaire. After this, a less formal interview was conducted. In the less formal section of the interview, the questions focused on the general impact of PCMM on Business Performance.

This structured approach kept the interview highly focused. Secondly, the variation between interviews could be minimized. The informal interview helped the researcher in correlating the answers given in a structured questionnaire, arriving at the conclusion of correctness and completeness. Many respondents explained the CBPM & PCMM model comprehensively. The researcher could thus get insights
from employees in the organizations and their reporting authorities, who were a part of PCMM.

**Secondary Source**

The methodology followed on screening and selection of articles for identification of the research problem is discussed in this section. Initially, various libraries in India were accessed for the collection of articles related to human competencies. A list of keywords was prepared that would relate the researchable concept “Competencies” (employee competencies, business, environment, human capital, organizational performance, people capability maturity model, core competencies, technical competencies, behavioral competencies, functional competencies, management competencies, etc.).

The search was grounded on all possible combinations of the listed keywords. All the available articles related to the keywords were downloaded and segregated based on the relation between them. The articles were collected from various Journal publishers like Sage publications, Scopus Elsevier, Emerald, Business Communication Quarterly, Rout ledge, Taylor & Francis, Oxford University Press, Wiley online library, Inderscience Publications, World Scientific Publishers, David Publications, Scientific Research, etc. The period of the search was the articles published from 1973 to 2019 that can be grouped together for further segregation.

In this search, articles that contained the word “Competencies” that is related to management were considered. A total of 180 articles were downloaded and on deleting the duplication a final list got reduced to 82. Tranfield et al (2003) stated that
a systematic review is needed to be done by more than one reviewer, which was followed in this study where the articles were reviewed thoroughly by the authors to find the gap in the literature.

*Primary Source*

Twenty depth interviews were conducted in this study. The researcher acted as a moderator and the full discussion was recorded through a video/Audio recorder and One on One. The specific seating arrangement was practiced to have a clear view of the participants and to have voice clarity. Initially, the participants were given information on, for what and why this discussion is conducted along with instructions on how to contribute to discussions. They were clearly told that the session would be recorded and used only for research purposes. The moderator initiated the discussion, later followed the “soft laddering” technique to get maximum information on each topic given in a semi-structured questionnaire. The discussion ended when the moderator felt that the points discussed are repeated and no new codes are emerging.

*Data Analysis Tools*

In the present study, a qualitative approach was used to analyze the data. In the qualitative approach, text analysis was performed using Rstudio and NVIVO software tools to identify the research gap from the literature. Mendeley software tool (Metasearch engine) was used for the literatures review process for managing and sharing of research articles.
Ethical Consideration

Thus in this study, all the process was carefully undertaken to fulfill ethical values. During Focus Group Discussions (FGD), it was noted that there was no discrimination in age, gender, and power among the participants. Further, during in-depth interviews a formal request was sent to the purposively selected experts in the field and based on their convenience the interview was conducted. The questions were designed in such a way that it would not create restlessness among the respondents to reply. Further, an assurance was given to participants in both the qualitative study that their name would not be printed in any form without their approval and secondly, assurance was given on the video/audio recording that it would be used only for this research study. With respect to experts’ opinion surveys 1 and 2, similar kind of assurance was given especially to the practitioners so that they would give unbiased responses. With respect to the qualitative study, all the questionnaires were with a cover letter explaining the need for this survey and instructions were given both in experts’ opinion surveys and study surveys on how to fill the questionnaire. Special care was taken to overcome gender, age, occupation and income level bias. Since it was a convenience sampling method adopted for this study only those respondents who were ready to fill the form were approached to get their level of agreement.

Expected Research Outcomes and Constraints

This section discusses the expected research outcomes. It also introduces some research constraints that have been identified for this research study.
Practical Outcomes

The practical outcomes of the research involve an improved understanding of the impact of PCMM on Business Performance within the infrastructure industry. The impact is seen from an individual, managerial and organizational perspective. Organizations that are using the PCMM model can get a better understanding and may extend this model to all the divisions and projects. Organizations that are not using the PCMM model may think of using it. PCMM models have been found to be complex in nature, based on previous research. The present study can thus help to establish some key areas that need attention in the PCMM model in the infrastructure sector.

Theoretical Outcomes

It has been found from many research projects and thorough literature review that no research on PCMM has been conducted prior to this research study in the infrastructure sector. Thus, this research will add to the growing body of knowledge on PCMM in the Infrastructure industry.

Research Constraints

Following are the few research constraints identified with this research study:
- Lack of earlier research regarding CBPM in Infrastructure sector companies.
- This research study primarily focuses only on Infrastructure industry and no other sector companies have been considered.
- The organization’s policy prohibits the sharing of PCMM information with the researcher. This limits the accessibility to the researcher.
- The decision of using the PCMM model depends upon the size of the organization. Large organizations have gone for the PCMM approach. Small and Medium businesses have not gone for it. Understanding of PCMM model will be poor in these companies.

**Framing of Hypotheses**

Since the objective of this study is to systematically study the relationship between PCMM and Business Performance in the Infrastructure industry, this researcher conjectures that organizations will derive the best results by adopting a PCMM model. This conjecture has been elaborated and framed in the form of the next set of 2 propositions, in addition to the first set of 3 propositions. The 5 propositions as summarized below:

**Proposition 1:**

Competency-based performance measures (management) are positively related to an individual’s performance

**Proposition 2:**

Competency measures (management) have a strong relationship with Organizational performance than traditional human capital measures

**Proposition 3:**

Competency-based performance measures (management) are positively related to business performance

**Proposition 4:**
The impact of each element of PCMM (i.e. defining competencies; recruitment and selection; training and development; performance appraisal and employee reward) is equal to Business Performance.

Proposition 5:

The impact of PCMM on each Business Performance parameters (i.e. Cost reduction, Revenue Growth, Market share, Customer satisfaction, Innovation, Project Delivery Process, Employee Retention, and Employee productivity) is equal.

Conclusion

This chapter outlined the research approach that was adopted for this research study. The aim of this chapter is to examine the validity of the study on the Competencies of the employees and how the employee competencies are impacting business results. Based on the research articles covered in the previous chapters, objectives and research models were developed. Qualitative approaches have been selected for this research problem. The data collection technique used is an in-depth interview method. The focus of the study is Infrastructure organizations. The current research is an attempt to improve understanding of the relationship/impact of employee competencies on business performance.