

**AN APPRAISAL OF SOFT SKILLS REQUIRED FOR SUCCESSFUL  
PROJECT MANAGEMENT OF CONSTRUCTION PROJECTS**

**By**

**GREG ODEE IKWE**

**DEPARTMENT OF QUANTITY SURVEYING  
FACULTY OF ENVIRONMENTAL DESIGN  
AHMADU BELLO UNIVERSITY, ZARIA**

**MARCH, 2021**

**TITLE PAGE**

**AN APPRAISAL OF SOFT SKILLS REQUIRED FOR SUCCESSFUL PROJECT  
MANAGEMENT OF CONSTRUCTION PROJECTS**

**By**

**GREG ODEE IKWE, BSc QS (ABU) 2016**

**P17EVQS8040**

**A DISSERTATION SUBMITTED TO THE SCHOOL OF POSTGRADUATE  
STUDIES, AHMADU BELLO UNIVERSITY, ZARIA**

**IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF  
MASTER OF SCIENCE DEGREE IN PROJECT MANAGEMENT**

**DEPARTMENT OF QUANTITY SURVEYING,  
FACULTY OF ENVIRONMENTAL DESIGN  
AHMADU BELLO UNIVERSITY, ZARIA**

**MARCH, 2021**

## DECLARATION

I hereby declare that the work in this dissertation titled “**An Appraisal of Soft Skills Required for Successful Project Management of Construction Projects**” has been performed by me in the Department of Quantity Surveying, Faculty of Environmental Design, Ahmadu Bello University Zaria. The information derived from literature has been duly acknowledged in the text and a list of references provided. No part of this work has been presented for another degree or diploma at any institution.

---

Greg Odee Ikwe

---

DATE

## CERTIFICATION

This project dissertation titled AN APPRAISAL OF SOFT SKILLS REQUIRED FOR SUCCESSFUL PROJECT MANAGEMENT OF CONSTRUCTION PROJECTS meets the regulations governing the award of the degree of MSc Project Management of the Ahmadu Bello University, and is approved for its contribution to knowledge and literary presentation.

Dr B.A Kolo  
Chairman, Supervisory Committee

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

DR. A. A. Ali

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

Member, Supervisory Committee

Dr. B.A Kolo  
Head of Department

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

Prof. S .A. Abdullahi  
Dean, School of Postgraduate

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

## **DEDICATION**

I dedicate this dissertation first and foremost to God (the source of all things) who has been there for me throughout (from the very inception to the successful completion). Special dedication goes to my parents (Late Prof. Ikwe Ajogi and Mrs. Linda Ajogi), for their relentless support and compassion towards me and also to the rest of my family members who served as a source of encouragement to me throughout my educational pursuit.

To GOD be the glory!

## ACKNOWLEDGMENT

My greatest acknowledgement goes to God Almighty the Sovereign ruler of the heavens and the earth “*My source and sustainer*” I want to also duly acknowledge Dr. B.A Kolo & Dr. A.A Ali , my supervisors for their immense assistance in terms of guidance, suggestions, encouragement and mentoring throughout the research process, My sincere gratitude goes to my Head of Department at the time of this study in person of Prof. K.J Adogbo and all the academic and non-teaching staff of the Department of Quantity Surveying for creating an enabling environment for the successful completion of my research.

I am also very grateful to all the participants in the questionnaire survey, especially those that participated in the Delphi aspect, for their cooperation and support.

Finally, my appreciation goes to my parents, siblings and friends for their unconditional support and prayers throughout the period of this research work.

## **ABSTRACT**

Modern research has drawn the world's attention towards the project manager's soft skills as cardinal aspects of success in any project, even though the society have become more project-oriented with large volumes in project works being done by organizations, "project results continue to disappoint stakeholders", as such, prior research has paid little attention to the Construction Professionals(CPs) soft skills to assist in successful delivery of projects, soft skills have been recognized as critical competences of project management professionals by various studies. However, most of these studies are conceptual in nature which provided little empirical data. The soft skills required for successful implementation of project management (pm) and the extent to which project managers possess these soft skills are still not known. This study aimed at appraising soft skills required for successful Project Management of construction projects. This study adopted quantitative approach and utilized questionnaire survey for data collection; this study also employed the Delphi survey for establishing the soft skills required for successful project delivery. A total of 360 questionnaires were sent out to CPs and 276 valid responses were retrieved which represent 76.66% response rate. For the two-round Delphi survey involving PMs, 22 experts were identified and contacted, but only 11 participated. The data were analyzed using descriptive statistics and correlation analysis. The results show that CPs possess these soft skills in varying proportions, ranking high on interpersonal skills and motivation skills but low on cognitive skills, experts through Delphi survey revealed the most important soft skills to be leadership, communication and teamwork while cognitive skills is the most required skills for performing the 3 categories of activities the project manager performs through the project life cycle. The quantitative effect of soft skills on project activities was found to be statistically significant after conducting analysis on data obtained from surveys. Therefore, with the empirical evidence, this study confirmed that soft skills of Construction practitioners significantly contribute to project success in the construction industry, Soft skills of project management professionals are necessary for successful project delivery, in conclusion from the practical perspective, this study highlighted a list of critical soft skills that project management professionals need to grasp, more trainings and resources should be made available for developing project management professionals' cognitive skills due to its high demand for project activities and influence on project success.

## TABLE OF CONTENTS

TITLE PAGE.....	i
DECLARATION .....	ii
CERTIFICATION .....	iii
DEDICATION.....	iv
ACKNOWLEDGMENT.....	v
ABSTRACT.....	vi
LIST OF TABLES.....	x
LIST OF FIGURES .....	xi
GLOSSARY OF ABBREVIATIONS .....	xii
<b>CHAPTER ONE</b> .....	<b>1</b>
1.1 Background to the Study.....	1
1.2 Statement of Research Problem .....	3
1.3 Aim and Objectives of the Study. ....	4
1.3.1 Aim .....	4
1.3.2 Objectives .....	4
1.4 Justification .....	4
1.5 Scope and Limitation .....	6
1.5.1 Scope.....	6
1.5.1 Limitation.....	6
<b>CHAPTER TWO</b> .....	<b>7</b>
<b>LITERATURE REVIEW</b> .....	<b>7</b>
2.1 Introduction.....	7
2.2 Project Management .....	7
2.2.1 The history of project management.....	7
2.2.2 The traditional view of project management .....	9
2.2.3 Shifting focus in project management.....	12
2.2.4 Leadership vs. Management .....	13
2.2.5 Leadership skills .....	14
2.2.6 Competence.....	15
2.2.6.2 Construction Practitioners (CPs).....	21
2.2.6.1 Quantity Surveyor (QS) .....	21
2.2.6.3 Architect.....	22
2.2.6.4 Engineer .....	24
2.2.7 Effective project manager skills.....	27
2.3 Soft skills .....	29

2.3.1. The changing paradigms of project management .....	35
2.3.2 The Soft Skill set required by Project Managers .....	38
2.4 Project Success.....	50
2.4.1 An Overview of Project success .....	50
2.4.3. Success Measure in construction industry .....	54
2.5 Soft Skills required for managing construction projects.....	56
2.5.1 Soft skills from the perspective of behaviors .....	56
2.5.2 Soft of project management .....	56
2.5.3 Soft skills and emotional intelligence .....	57
2.5.4 Soft skills and project success.....	58
<b>CHAPTER THREE .....</b>	<b>60</b>
<b>RESEARCH METHODOLOGY .....</b>	<b>60</b>
3.1 Introduction.....	60
3.2 Research Design and Approach .....	60
3.3 Population .....	62
3.4 Sampling Frame .....	62
3.5 Sample Size.....	63
3.6 Sampling Technique .....	65
3.7 Data Collection .....	66
3.7.1 Data Collection Instrument .....	66
3.8 Procedure for Data Collection.....	67
3.9 Methods of Data Analysis.....	68
3.9.1 Desk review/research .....	69
3.9.2 Frequency distribution and percentage .....	69
3.9.3 Mean item score .....	69
<b>CHAPTER FOUR.....</b>	<b>70</b>
<b>DATA PRESENTATION AND ANALYSIS .....</b>	<b>70</b>
4.1 Introduction.....	70
4.1.1 Results of the Administered Questionnaires .....	70
4.2 Characteristics of the Respondents .....	71
4.3 Soft Skills Possessed by Construction Practionerss.....	81
4.4 Correlation analysis .....	83
4.5.1 Summary of skills required on each project activity.....	86
4.5 Discussion of Results.....	87
<b>CHAPTER FIVE .....</b>	<b>91</b>
<b>SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.....</b>	<b>91</b>

5.1 Summary of Findings.....	91
5.2 Conclusion .....	91
5.3 Recommendations.....	93
5.4 Areas of Further Research .....	93
5.5 Contribution to Knowledge.....	93
<b>REFERENCES:</b> .....	95
<b>APPENDICES</b> .....	108
Appendix 1-Questionnaire Survey For Cps .....	109
Appendix 2-Questionnaire Survey For Experts .....	112
Appendix 3- Delphi survey Round 1 .....	113
Appendix 4- Delphi survey Round 2 .....	113
Appendix 5- Delphi Survey Final Round .....	113

## LIST OF TABLES

Table 2.1: Competencies Perspectives.....	17
Table 2.2: Top 20 soft skills in literature.....	37
Table 2.3: Critical soft skills for project Management Professionals.....	47
Table 2.4: Seven soft skills Adopted for this study.....	61
Table 3.1: Population and sampling frame.....	70
Table 3.2: Sampling frame and sample size.....	71
Table 4.1: Summary of Questionnaire Survey.....	78
Table 4.2: Services offered on the project by respondents.....	79
Table 4.3: Time on Project.....	80
Table 4.4: Size of project.....	81
Table 4.5: Complexity of Project.....	81
Table 4.6: Attributes necessary for project success.....	85
Table 4.7: Ranking attributes necessary for Project success.....	86
Table 4.8: Mean Attributes necessary for project success.....	87
Table 4.9 Summary of soft skills possessed by CPs.....	88
Table 4.10 CPs Performance based on Project activities.....	89
Table 4.11 Pearson Correlation Analysis.....	90
Table 4.12: Attributes necessary for project success (Delphi survey) .....	91
Table 4.13 Information about performing project activities.....	92
Table 4.14 summary of skills required on each project activity.....	93

## LIST OF FIGURES

Figure 2.1: Typical Project management paradigm.....	11
Figure 2.2: Kersten keens competency hand.....	16
Figure 2.3: Crawford’s Integrated Model of Competences.....	18
Figure 2.4: Project Management Skills.....	36
Figure 2.5 Project Success in Project Management.....	48
Figure 2.6: Concept of project success.....	52
Figure 2.7: hierarchical framework for project success.....	58
Figure 2.8: Personalities, organizational dynamics, and project success .....	63
Figure 4.1: Nature of project.....	82
Figure 4.2: Cadre in Firm.....	82
Figure 4.3: Working Experience.....	83
Figure 4.4: Ownership of Project.....	83
Figure 4.5: Project Performance.....	84

## **GLOSSARY OF ABBREVIATIONS**

CM: Communication Skills

CMG: Conflict management skills

COG: Cognitive skills

CPs: Construction Practitioners

IS: Interpersonal Skills

LS: Leadership skills

MS: Motivation skills

PM: Project Manager

PMT: Project management

TW: Teamwork

# CHAPTER ONE

## 1.0 INTRODUCTION

### 1.1 Background to the Study

Soft skills have become increasingly important in the construction industry because the industry is rapidly moving from one focused on the delivery of technical services to a service industry that competes in the global marketplace (Carvalho; Rabechini Junior, 2015). Well-rounded professionals (professionals with ‘hard’ as well as ‘soft’ skills) in the built environment are of the utmost importance to provide infrastructure necessary to support economic well-being and quality of life in the modern world, a study indicated that hard skills contribute only 15% to project success, whereas 85% of success is due to soft skills (Watts & Watts, 2008 as cited in John 2009), Modern research not undermining the traditional project management methodologies, tools and techniques (hard skills), has drawn the world’s attention towards the project manager’s leadership skills, which are referred to as human side or soft skills of any manager (Dur, 2017). Contemporary writers have also recognized these soft skills as cardinal aspects of success in any project (Shi & Chen, 2006; Campana, 2010; Esa , Samad & Alias 2014).

Soft skills are still a large and open research area due to the wide range of topics within its boundaries, such as ecodesign integration (Brones & Carvalho, 2014), communication (Carvalho & Rabechini, 2015; Fletcher, Gunning & Coates, 2014; Joseph, Erasmus & Marnewick, 2014) and self-realization, and fulfillment (Taghavi, Taghavi & Taghavi, 2013). The soft side involves the different levels of analysis, i.e., organization, project, and individuals. Soft skills encompasses several issues such as interpersonal relationships and the notion of project ecology (Grabher, 2004), power conflicts, trust, and learning (Söderlund & Maylor, 2012), as well as the organizational context (Sharma & Gupta, 2012; Söderlund &

Maylor, 2012), Soft skills also range from the development and use of generic and all-encompassing constructs, such as emotional intelligence (Goleman, 1995), to many multiple item arrays of soft skill. An example of a multiple item array is seen in Gallivan, Truex, and Kvasny (2004) who define six areas of soft skill as; communication skills, interpersonal skills, leadership skills, organization skills, self-motivation skills and creativity skills. There are many other instances of these kinds of multiple item arrays available in the literature (Chamorro-Premuzic, Arteche, Bremner, Greven, & Furnham, 2010; Hurell, Scholarios & Thompson, 2012).

Although some researches focuses on soft skills, there are some studies that compared soft skills with hard skills (Beukers, 2011; Carvalho & Rabechini, 2015; Joseph, Erasmus & Marnewick, 2014; Karrbom Gustavsson & Hallin, 2014; Yang & Ma, 2014). Most believe that soft skills more strongly influence project success or project performance than hard skills. On the other hand, a few researches, such as Wautelet and Kolp, (2012); Awan et al. (2015) observed a greater influence on the project outcome from hard skills than from soft skills, saying that soft skills are complementary to hard skills, In Yang & Ma (2014), the survey focused specifically on the importance of communication among project team members, also corroborating its significance to the project outcomes. The relationship between communication and project results (Beukers, 2011; Zhang, Zuo and Zillante, 2013; Zhang and Fan, 2013; Henderson, 2008). Beside surveys focusing on project outcomes, soft skills were also part of the subjects in surveys on job requirements (Ahsan, Ho and Khan 2013; Lent and Pinkowska, 2012).

Even though the global society have become more project-oriented (Davis, 2011) with large volumes in project works being done by organizations, “project results continue to disappoint stakeholders” (Huemann et, al., 2014), as such, prior research has paid little attention to the project manager successfully deliver construction projects (TCooke, 2012).

A global review of the 2015 projects survey report by the US Standish Group International, SGI (2015), showed that only 29% projects were successful, 52% challenged and 19% failed, with the CPs highlighted as a major contributor to project success. In previous studies, soft skills have been recognized as critical competences of project management professionals. However, most of these studies are conceptual in nature which provided little empirical data. size of project and complexity has not been taken into account while conducting soft skills assessment, bigger projects have their own complexities and may require different set of soft skills, within the domain of soft skills communication and team building have been studied quite often while there hardly are studies on the project managers' interpersonal skills, problem solving and decision making skills. Several studies have been carried out in the domain of soft skills but the soft skills required for successful implementation of project management and its relationship to specific tasks undertaken by the Project manager has not been studied.

## **1.2 Statement of Research Problem**

According to Okoye *et al.* (2015) the rate at which construction projects fail to achieve its objectives is very alarming. The increasing underperformance of infrastructure projects is a growing concern (Shuab & Davison, 2018). Project managers are ultimately responsible for performance, in a bid to address project underperformance challenges several researches have been carried out on leadership styles, behaviors of leaders, emotional intelligence, technical skills of the project manager.

However, the soft skills required for successful implementation of project management and the extent to which construction Practitioners (CPs) possess these soft skills are not known, although these soft skills are core to a CPs performance, thus this research attempts to fill the gap using empirical evidence, through investigating soft skills required for successful implementation of project management and its relationship to specific tasks undertaken by the project manager.

### **1.3 Aim and Objectives of the Study.**

#### **1.3.1 Aim**

To Appraise Soft Skills required for successful Project Management of Construction projects with a view to determine the extent to which CPs possess them

#### **1.3.2 Objectives**

Objectives of this research are to: -

- I. Identify project management soft skills and tasks required for the successful Implementation of Construction projects.
- II. Determine the soft skills required for successful management of construction projects.
- III. Assess THE extent to which construction practitioners (CPs) possess PM Soft Skills.
- IV. To determine the relationship between CP Soft skills and Project Management Tasks.

#### **1.4 Justification**

The result obtained from this research provides in depth information on the soft leadership skills and how these impact project successes. The research was also able to ascertain in the construction industry the relationship between project manager's soft skills and project activities. This in turn assists the project managers not only in exercising appropriate skills needed for successfully influencing the project outcome, but will also help them in concentrating on developing the necessary project management soft leadership skills necessary to influence project success.

This research focused on investigating the relationship between the project management soft skills and overall project success in the construction industry, in an attempt to help CPs focus, develop and use the soft skills that are seen to be most efficient in project management practice. This can be used to enhance and improve the performance of the CPs, project outcomes and

his leadership style in executing the project. The significance of this study is that the research conducted enhanced the existing body of knowledge on project management soft skills in the construction industry by providing insight into the type of relationship that exists between the project manager soft skills and the impact on project activities and project success since there were no researches in the construction industry investigating this aspect. Therefore, the need of this study comes from the following scientific and practical considerations:

- 1) In literature there is a notable call for more vigorous research into the soft factors of project success.
- 2) There is a need to know the soft skills necessary for successful project delivery in order to enhance successful project delivery
- 3) There is a need to know the core soft skills necessary for project managers to manage projects successfully
- 4) The extent to which construction professionals possess these soft skills need to be known in order to improve project performance.
- 5) The relationship between soft skills and project activities, in terms of how soft skills influence core project activities needs to be known.
- 6) Project managers will be better equipped to understand the soft attributes necessary for leading, delivering projects and meeting project objectives successfully in the currently diverse and complex working environments.

## **1.5 Scope and Limitation**

### **1.5.1 Scope**

This research is mainly focused on Soft skills required for successful Implementation of project management and its relationship to specific tasks undertaken by the Project manager.

This research work focused mainly on construction practitioners who have valuable experience in project management.

### **1.5.1 Limitation**

Despite the achievement of the objectives, this study, unavoidably, had some limitations. First, because of difficulty in constructing a probability sample, a non-probability sample was used in this study. In spite of inherent limitation, this sampling method is appropriate when the respondents are not randomly selected from the entire population, but are selected based on their willingness to participate in the study (Wilkins, 2011). Second, the soft skills and the project activities used in this study are not exhaustive. To reduce the length of the questionnaire and increase the response rate, only the most frequently cited soft skills were further examined in this study. Third, the linguistic terms used in the Likert scale, such as 'very true of me', may lead to some biases in the subjective judgments of the respondents.

# **CHAPTER TWO**

## **LITERATURE REVIEW**

### **2.1 Introduction**

This chapter documents the critical review of the history, evolution and current state of literature in all aspects related to the topic and objectives of this study with the view to having a deep understanding of the subject matter of the study. The review covers concepts such as soft skills; definitions, concepts, models and evolution; construction practitioners, project management and studies related to soft skills and the construction sector.

### **2.2 Project Management**

#### **2.2.1 The History of Project Management**

It could be argued that project management has been practiced since early civilization. Shenhar and Dvir (2007) noted that “since the beginning of civilization, people have been involved in projects”. For example, some of the most famous project of all time, include: the Great Wall of China, the Manhattan Project (which led to the development of the atomic bomb), the Apollo Project, and the Sydney Opera House to name a few. until 1900 projects were generally managed by creative architects and engineers, among these included: Christopher Wren, Thomas Telford (1757-1834) and Isambard Kingdom Brunel (1806–1859). It has been since the 1950s that organisations started applying systemic project management tools and techniques to complex projects (Baker, 2005; Hartley, 2003; Maylor, 1999; and Schwalbe, 2002).

However, as an academic discipline, project management developed from different fields of application, but predominantly construction, engineering and defense. It is recognized that the two forefathers of project management are Henry Gantt, called the father of planning and

control techniques (Lewis, 2003), and is famously known for his use of the Gantt chart as a project management tool. Also, Henri Fayol for his creation of the five management functions, which form the basis for the body of knowledge associated with project and program management (Schwalbe, 2002).

The 1950s marked the beginning of the modern Project Management era. Project management was formally recognized as a distinct discipline arising from the management discipline (Azzopardi, 2007; Baker, 2005; Hartley, 2003, Maylor, 1999).

Furthermore, Verzuh (2005) adds that much of modern project management was defined and developed in the 1950s in the cold war defence and later through the space missions.

Furthermore, Schwalbe (2002), and Shenhar and Dvir (2007b) categorise the late 1960 and 1970s as being the era of space projects (the Apollo project) and the many other defence, military, and construction projects.

In 1969, the Project Management Institute (PMI) was formed to serve the interests of the project management industry (PMI, 2014). In 1981, the PMI Board of Directors authorized the development of what has become A Guide to the Project Management Body of Knowledge (the PMBOK), containing the standards and guidelines of practice that are widely used throughout the profession.

The 1980s and 1990s are characterized by the revolutionary development in the information management sector with the introduction of the personal computer (PC) and associated computer communications networking facilities (Azzopardi, 2007). This development resulted in having low cost multitasking PCs that had high efficiency in managing and controlling complex project schedules. During this period low cost project management software for computers became widely available that made project management techniques more easily accessible (Azzopardi, 2007).

Currently with rapid technological advancement, thriving IT industries, and globalization, project management solutions are in demand across the world as a fundamental force to complete projects within not only a defined scope, time, and cost constraints, but also the recognition that project stakeholders play an important part in successful project (Bista, 2007). Azzopardi (2007) contends that: At present ultra-modern project management systems deliver innovative solutions and its management possesses through the latest tools and techniques, systems and schemes with scientific evidences and statistical explanations, and the recognition of the need to meet the stakeholder's expectations. Schwalbe (2002) further adds that in the early 2000s "people in virtually every industry began to apply different aspects of project management to their projects".

### **2.2.2 The Traditional View of Project Management**

Project Management can be described as the task of applying methods, knowledge, skills, processes, and experience in order to attain project objectives. Traditional project management practices originated in the 1950's through requisition from construction and defense industries to aid planning, controlling, and management of larger 'tangible' projects (Alias et al., 2014). Traditional planning and controlling by management was based mainly on mechanical, non-dynamic, linear structures (Saynisch, 2010). From here ascended the term 'hard' skills as success criteria when managing schedule, cost, and scope (Saynisch, 2010; Alias et al., 2014).

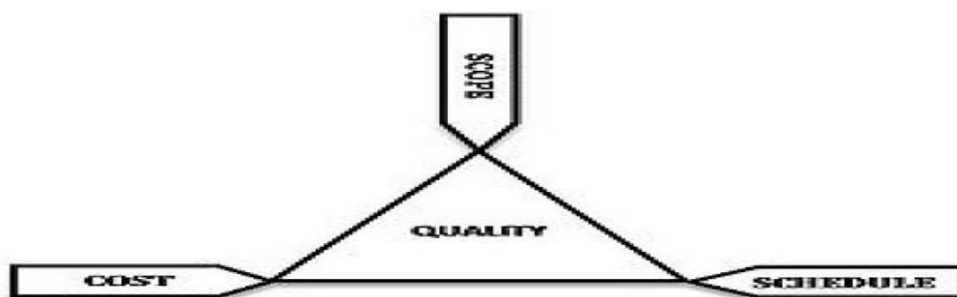
The understanding during this time period was rigorous hierarchical structures controlled by the top was most effective when managing projects (Saynisch, 2010). Sutherland and Ahmad (2011) describe this structure as a 'water fall', where progress flows downward during the numerous stages of the project. These traditional practices mainly derive from the Project Management Institute (PMI) defined processes, phases, knowledge and methods of project management. There are reports suggesting that the Project Management Body of Knowledge (PMBOK) from PMI has been the standard for project management for years and is frequently

applied to projects (Sutherland and Ahmad, 2011). According to the PMI (2017), project management can be categorized into 5 process groups, which are: Initiating, planning, executing, monitoring and controlling, and Closing. Saynisch (2010) suggests that the PMBOK is concentrated on traditional 'Hard' skills such as cost, scope, budget, etc. which are undoubtedly crucial for project managers. However, the rapidly changing environments are causing a large quantity of projects to continue to fail. Some of the factors that are influencing these constant changes include economical, social and global changes, as well as technological developments and innovations. Therefore, traditional project management methods have been questioned whether or not these practices alone are applicable for progressing complex environments (Saynisch, 2010).

Baker (2005) states that the traditional project management paradigm for a successful project are managed and delivered under the guise of "on time, on budget, and to a specified scope and specifications". These elements are also referred to as the project management triangle, where each side represents a constraint. One side of the triangle cannot be changed without affecting the others. Similarly, Verzuh (2005) posits that project success is defined as "on time, on budget, to high quality with respect to functionality and performance". Furthermore, Verzuh (2005) goes on to state that these are the key components that the project manager must manage to ensure a successful project. Hartley (2003) writes that "time, cost, specifications and resources are the project constraints and form the criteria for the completion of a successful project". Dinsmore (1999) posited earlier and reinforces this view, noting that "traditionally project management literature targeted how to deal with the specifics of the project such as time, cost and specifications". Finally, Shenhar and Dvir 2007 state that the typical traditional paradigm or "project management lens", looks at the project as a sequence of activities that must be completed according to a plan to achieve a specified and documented outcome.

The aforementioned writers and researchers agree that typical paradigm which focused on time, cost, scope and specifications (or quality). Time refers to the amount of time available to complete a project. Cost refers to the budgeted amount available for completing the project. Project quality typically refers to the standards or specifications that the project deliverables must meet. Whilst finally, scope refers to what must be done to produce the project's end result. Verzuh (2005) notes that these four parameters are often competing priorities: increased scope typically means increased time and increased cost, changes to quality could mean increased costs and reduced scope, and a tight budget could mean increased time and reduced scope.

Wideman (2002) offers an opposing view on this traditional paradigm of project management and indicates that “successful project management is characterized as being on time and within-budget, but unfortunately, simply being on time and within budget does not necessarily mean that project has also been successful”. Wideman (2002) view is linked to what he reports “the success or failure of a project is almost entirely dependent upon the people and the management of the soft components”. Figure 2.1 below shows the typical project management paradigm as a model described by many project management writers.



Source: Wideman (2002)

Figure 2.1: Typical project management paradigm

### **2.2.3 Shifting Focus in Project Management**

In the continuously changing and unpredictable world, project management has become extremely important for the delivery of successful projects (Alam et al., 2007). The evolution of society and its markets, technological innovations, organizations and people is challenging to predict (Saynisch, 2010). In just over the past half century, global change has increased drastically. However, Laufer (2012) suggests that despite these immense changes, project management theories have remained unaffected. Laufer (2012) acknowledges a quote by Winston Churchill that relates to current project management theories, “We are shaping the world faster than we can change ourselves, and we are applying to the present the habits of the past”. As projects are becoming larger, with many more components and variables researchers are suggesting a different approach to project management. Koskela and Howell (2002, cited in Laufer, 2012) state, “In the present big, complex, and speedy projects, traditional project management is simply counterproductive; it creates self-inflicting problems that seriously undermine performance”. Following an extensive study of over 3,000 articles, Thomas and Mengel (2008) determined that the evolution of project management requires a new trend where managers need to demonstrate leadership qualities rather than merely management. More recently, several studies have identified that even the most efficient planning, monitoring, and risk management cannot predict and eliminate the unknown problems that arise throughout a projects life cycle (Laufer, 2012).

The increase in project complexity along with the vast number of failing projects has resulted in a significant loss of money (Hardey-Vallee, 2012). This has influenced professionals and scholars to focus their research on what factors are most important to project success, also known as Critical Success Factors (CSF) (Alias et al., 2014). CSFs as defined by Alias et al. (2014) are the inputs that can lead directly or indirectly towards project success. More specifically, CSFs are the characteristics, variables, and conditions that could have a crucial

impact on success if accurately implemented (Alias et al., 2014). Over the past 20 years, CSFs have been implemented in many projects and have gained popularity, especially within construction companies (Chan et al., 2004). Nonetheless, CSFs are not consistent as these factors differ from project to project, therefore the majority of research studies still narrows in on traditional project management processes such as planning, executing, and controlling (Alias et al., 2014; Alam et al., 2007). However, companies are realizing that people are the ones who produce and deliver projects; therefore a more clear understanding of people and management skills is critical for success (Pant and Baroudi, 2007). Practitioners have recognized that the function of project management cannot achieve success with merely technical skills, therefore a focus of interpersonal or ‘soft’ skills have been identified and related to success (Gillard, 2009).

#### **2.2.4 Leadership vs. Management**

It is important to distinguish between management and leadership. It is often assumed that these two go hand in hand, however there is a great distinction between the two. Gillard (2009) provides several differences between the two; management deals with resources, while leadership deals with people, emotions and personalities. Whilst management deals with the present, leadership deals with the future. Lastly, leadership requires a different skill set and knowledge and aims to achieve a different purpose. Cleland (1984) also distinguishes between the two by expressing a leader does the right thing, while a manager does things right. Zulch (2014) suggests that managers have a leadership responsibility, and are specifically chosen for certain projects based on their leadership style. The majority of literature agrees that there is differentiation between management and leadership. However, there is a substantial amount of literature that also suggests these two roles complement each other when combined by project managers (Cleland, 1984). Early research from Davis (1967, cited by Cleland, 1984) pointed out that the planning, organizing, and decision-making by management were inactive cocoons

until leadership triggered motivation and empowerment in team members to guide them towards their goals. Ahmed et al. (2013) goes one step further by stating leadership and management are dissimilar to a certain extent, however they are complementary and cannot function without one another in the current competitive environment.

### **2.2.5 Leadership skills**

It is evident after analyzing various literature studies and academic research that leadership is an important skill for management, and if implemented appropriately and effectively may play a critical role on the success of a project. After reviewing the history and the modern day focus of both leadership and management, similar connections can be drawn.

As already outlined, traditional project management concepts focused on ‘hard’ skills which included planning, organizing, managing, and monitoring the projects scope, budget, and schedule. Over the years, influencing factors such as complexity and a vast number of failing projects, shifted focus as literature started to identify the importance of ‘soft’ skills for project management success. Similarly, the early theories of leadership concentrated on the individual characteristic traits. These theories later evolved and discovered there are several different leadership styles, and these can be effective if applied to the appropriate situation and audience. Most recent concepts have identified the importance of emotional capabilities relating to leadership, rather than intellectual capabilities. Based on these discussions, there are many similar characteristics between ‘soft’ skills and leadership. This has therefore created certain confusion and inconsistency throughout literature. Marando (2012) describes leadership as a trait of ‘soft’ skills. Whereas Crosbie (2016) suggests ‘soft’ concepts are skills of leadership. Other pieces of literature use these two terms synonymously

### **2.2.6 Competence**

According to the Cambridge Advanced Learner's Dictionary "competence is the ability to do something well". Among the many definitions provided by the Oxford English Dictionary, competence is "sufficiency of qualification; capacity to deal adequately with a subject". Both definitions offer a general explanation which is quite representative of the common understanding of the word. However, as noted by Robothan and Jubb (1996) the concept has evolved incorporating different meanings, it has also become one of the most used terms in organizational literature. A good definition of competence is presented by Berglund (1999) in Glader (2001):

"Competence is used to accomplish something. It includes knowledge in all their shapes, but it also includes personality traits and abilities, such as social competence, persistence, stress tolerance and so on. Competence is at first an individual based term, but is however not impossible to also talk about organisational competence. One can then refer back to the complete competence at the individuals in the organisation, or the stored knowledge concerning systems, techniques or the culture".

By analyzing this definition, it can be understood that competence can be looked at from an individual perspective and also from an organizational point of view. In the organizational perspective the firm possesses competence as an institution. This perspective is presented by Söderlund's (2005), who looks at project competence in terms of organizational capability. In his view the organization is deemed to possess PM competence if it is able to generate/select and implement/execute projects in a skillful manner. These two different views are not contradicting, after all an organization is an inanimate character that exists only through its people. Therefore, for an organization to have competence it is essential that the people inside are competent. Nevertheless, there is a difference on how competence is

approached; one perspective looks at the individual parts and the other at the whole. For this thesis we are looking strictly at individual competences of project managers.

An interesting framework found in the literature to look at competence is Kerstin Keen's "competence hand" presented in Figure 2.2 (Glader, 2001).

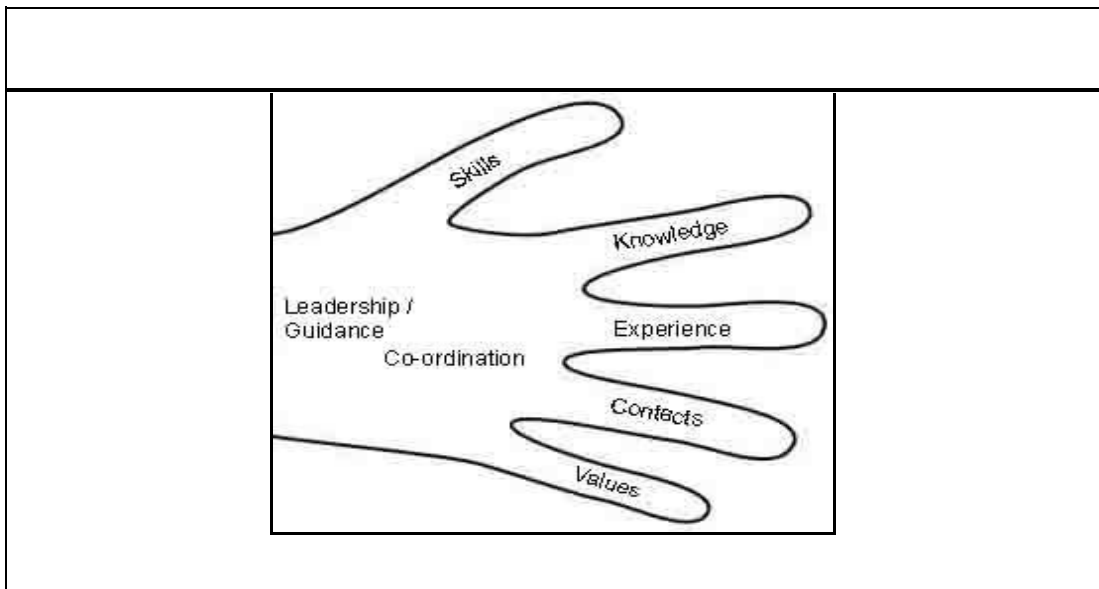


Figure 2.2 - Kerstin Keen's Competence Hand

Source: Glader (2001)

Here it is illustrated how competence involves a number of different aspects, such as: knowledge, skills, experience, contacts and values. The idea of the hand demonstrates how everything works together. The palm of the hand coordinates it all and it represents the individual as he balances his abilities to achieve the desired results. The wrist is the connection to the organization, since people need to be supported and guided in order to fully utilize their competence.

### **2.2.6.1 Competencies Required by a Project Manager**

The PMI (2017) describes the PM as a person assigned by the performing organization to manage the team that is responsible for achieving the project objectives. Also, PMI (2017) brought out some functions of the PM as to lead the project team towards achieving the project objectives and stakeholders' expectations, by working to balance the competing constraints on the project with the resources available. PMI (2017) further gave three competent areas of project management which are technical project management, leadership and strategy & business that are further explained below:

#### **2.2.6.1.1 Technical Project Management Skills**

Technical project management skills are defined as the skills to effectively apply project management knowledge to deliver the desired outcomes for programs or projects. There are numerous technical project management skills. The Knowledge Areas in this guide describe many of these necessary project management skills. Project managers frequently rely on expert judgment to perform well.

According to PMI (2017), the top project managers consistently demonstrated several key skills including, but not limited to, the ability to:

- a) Focus on the critical technical project management elements for each project they manage. This focus is as simple as having the right artifacts readily available. At the top of the list were the following:
  - i. Critical success factors for the project,
  - ii. Schedule,
  - iii. Selected financial reports, and
  - iv. Issue log.
- b) Tailor both traditional and agile tools, techniques, and methods for each project.

- c) Make time to plan thoroughly and prioritize diligently.
- d) Manage project elements, including, but not limited to, schedule, cost, resources, and risks.

#### **2.2.6.1.2 Strategic and Business Management Skills**

Strategic and business management skills involve the ability to see the high-level overview of the organization and effectively negotiate and implement decisions and actions that support strategic alignment and innovation. This ability may include a working knowledge of other functions such as finance, marketing, and operations. Strategic and business management skills may also include developing and applying pertinent product and industry expertise. This business knowledge is also known as domain knowledge. Project managers should be knowledgeable enough about the business to be able to:

- a) Explain to others the essential business aspects of a project;
- b) Work with the project sponsor, team, and subject matter experts to develop an appropriate project delivery strategy; and
- c) Implement that strategy in a way that maximizes the business value of the project.

#### **2.2.6.1.3 Leadership Skills**

Leadership skills involve the ability to guide, motivate, and direct a team. These skills may include demonstrating essential capabilities such as negotiation, resilience, communication, problem solving, critical thinking, and interpersonal skills. Projects are becoming increasingly more complicated with more and more businesses executing their strategy through projects. Project management is more than just working with numbers, templates, charts, graphs, and computing systems. A common denominator in all projects is people. People can be counted, but they are not numbers. A large part of the project manager's role involves dealing with people. The project manager should study people's behaviors and motivations. The project manager should strive to be a good leader, because leadership is crucial to the success of

projects in organizations. A project manager applies leadership skills and qualities when working with all project stakeholders, including the project team, the steering team, and project sponsors.

According to PMI (2017), a PM should acquire the following leadership skills and attributes:

Being a visionary (e.g., help to describe the products, goals, and objectives of the project; able to dream and translate those dreams for others);

1. Being optimistic and positive;
2. Being collaborative;
3. Managing relationships and conflict by:
  - i. Building trust;
  - ii. Satisfying concerns;
  - iii. Seeking consensus;
  - iv. Balancing competing and opposing goals;
  - v. Applying persuasion, negotiation, compromise, and conflict resolution skills;
  - vi. Developing and nurturing personal and professional networks;
  - vii. Taking a long-term view that relationships are just as important as the project;  
and
  - viii. Continuously developing and applying political acumen.
4. Communicating by:
  - i. Spending sufficient time communicating (research shows that top project managers spend about 90% of their time on a project in communicating);
  - ii. Managing expectations;
  - iii. Accepting feedback graciously;
  - iv. Giving feedback constructively; and
  - v. Asking and listening.

5. Being respectful (helping others retain their autonomy), courteous, friendly, kind, honest, trustworthy, loyal, and ethical;
6. Exhibiting integrity and being culturally sensitive, courageous, a problem solver, and decisive;
7. Giving credit to others where due;
8. Being a life-long learner who is results- and action-oriented;
9. Focusing on the important things, including:
  - i. Continuously prioritizing work by reviewing and adjusting as necessary;
  - ii. Finding and using a prioritization method that works for them and the project;
  - iii. Differentiating high-level strategic priorities, especially those related to critical success factors for the project;
  - iv. Maintaining vigilance on primary project constraints;
  - v. Remaining flexible on tactical priorities; and
  - vi. Being able to sift through massive amounts of information to obtain the most important information.
10. Having a holistic and systemic view of the project, taking into account internal and external factors equally;
11. Being able to apply critical thinking (e.g., application of analytical methods to reach decisions) and identify him or herself as a change agent.
12. Being able to build effective teams, be service-oriented, and have fun and share humor effectively with team members.

Although, these are not limited that the PM acquire only these skills, but they are identified as the core competent areas of PM successful delivery. The more skills the PM acquire and demonstrate, the better his/her outcome.

### **2.2.6.2 Construction Practitioners (CPs)**

CPs are professionals or specialist within the construction world. The CPs work together to ensure effective delivery of construction products. The CPs consist of different disciplines such as the quantity surveyor (Q.S), architect, engineer, builder, etc. The construction industry comprises of many stakeholders, such as clients, design professionals, construction professionals and operational teams (for example, in the case of PPP / PFI schemes). The main professionals of the industry in terms of their initial contact with the clientele and participation in the design and construction stages of construction projects include engineers (especially civil, electrical and mechanical), construction engineers, quantity surveyors and architects. Architects are specialists in the development of concepts and design of buildings. During the construction phase, the architects progressively review the plans, drawings and specifications to comply with the client and the legal regulations. While civil engineers care about public constructions (i.e., roads, dams, docks, shipyards and bridges), construction engineers participate in the calculation of the force and forces of the proposed construction. They also prepare structural drawings and specifications from architectural drawings and other relevant contractual documents. Building engineers work to ensure that buildings can safely transport and support the loads they will encounter during operation. Mechanical and electrical engineering is often called service engineering and is an important aspect of modern buildings that contribute up to 30% of the total sum of the contract for a standard building. Engineering services are executed by nominated or national subcontractors.

### **2.2.6.1 Quantity Surveyor (QS)**

According to Cartlidge (2006), a quantity surveyor (QS) is a professional working within the construction industry concerned with construction costs and contracts. Quantity surveyors have this title because they prepare a ‘schedule of quantities, estimates of the material and labour costs that contractors’ tenders can be measured against. Other names for people

employed with quantity surveying qualifications include estimator, cost engineer, cost manager, cost analyst, project coordinator, project cost controller and cost planner.

#### **2.2.6.2.2 Services Provided by Quantity Surveyor**

- a) Cost planning and commercial management throughout the entire life cycle of the project from inception to post-completion
- b) Value engineering
- c) Risk management and calculation
- d) Procurement advice and assistance during the tendering procedures
- e) Tender analysis and agreement of the contract sum
- f) Commercial management and contract administration
- g) Assistance in dispute resolution
- h) Asset capitalisation
- i) Interim valuations and payment assessment
- j) Cost management process
- k) Assessing the additional costs of design variations
- l) Production of company pre-qualification questionnaire (PQQ) documentation in line with company policies.

#### **2.2.6.3 Architect**

An **architect** is a person who plans, designs, and oversees the construction of buildings. To practice architecture means to provide services in connection with the design and construction of buildings and the space within the site surrounding the buildings that have as their principal purpose human occupancy or use. Etymologically, architect derives from the Latin architectus, which derives from the Greek (arkhi-, chief + tekton, builder), i.e. chief builder. Professionally, an architect's decisions affect public safety, and thus an architect must undergo specialized training consisting of advanced education and a practicum (or internship)

for practical experience to earn a license to practice architecture. Practical, technical, and academic requirements for becoming an architect vary by jurisdiction. The terms architect and architecture are also used in the disciplines of landscape architecture, naval architecture and often information technology (for example a network architect or software architect). In most jurisdictions, the professional and commercial uses of the terms "architect" and "landscape architect" are legally protected.

#### **2.2.6.3.2 Professional Practice**

In the architectural profession, technical and environmental knowledge, design and construction management, and an understanding of business are as important as design. However, design is the driving force throughout the project and beyond. An architect accepts a commission from a client. The commission might involve preparing feasibility reports, building audits, the design of a building or of several buildings, structures, and the spaces among them. The architect participates in developing the requirements the client wants in the building. Throughout the project (planning to occupancy), the architect co-ordinates a design team. Structural, mechanical, and electrical engineers and other specialists, are hired by the client or the architect, who must ensure that the work is coordinated to construct the design.

#### **2.2.6.3.3 Design Role**

The architect hired by a client is responsible for creating a design concept that meets the requirements of that client and provides a facility suitable to the required use. In that, the architect must meet with and question the client to ascertain all the requirements and nuances of the planned project. Often the full brief is not entirely clear at the beginning, entailing a degree of risk in the design undertaking. The architect may make early proposals to the client which may rework the terms of the brief. The program or brief is essential to producing a project that meets all the needs of the owner, it is a guide for the architect in creating the design concept.

#### **2.2.6.3.4 Means of Design**

Previously, architects employed drawings to illustrate and generate design proposals. While conceptual sketches are still widely used by architects, computer technology has now become the industry standard. However, design may include the use of photos, collages, prints, linocuts and other media in design production. Increasingly, computer software such as BIM is shaping how architects work. BIM technology allows for the creation of a virtual building that serves as an information database for the sharing of design and building information throughout the life-cycle of the building's design, construction and maintenance

It is generally expected that the design proposal(s) is both imaginative as well as pragmatic, but the precise extent and nature of these expectations will vary, depending on the place, time, finance, culture and available crafts and technology in which the design takes place.

Design of buildings is a very complex and demanding undertaking, no matter what the scale of the project might be. A strong degree of foresight is a prerequisite.

#### **2.2.6.3.5 Alternate Practice and Specialisation**

Recent decades have seen the rise of specialisations within the profession. Many architects and architectural firms focus on certain project types (for example, health care, retail, public housing, and event management), technological expertise or project delivery methods. Some architects specialize as building code, building envelope, sustainable design, technical writing, historic preservation.

#### **2.2.6.4 Engineer**

An engineer is a practitioner of engineering, concerned with applying scientific knowledge, mathematics, and ingenuity to develop solutions for technical, societal and commercial problems. Engineers design materials, structures, and systems while considering the limitations imposed by practicality, regulation, safety, and cost. The word engineer is derived from the Latin words *ingeniare* ("to contrive, devise") and *ingenium* ("cleverness").

The work of engineers forms the link between scientific discoveries and their subsequent applications to human needs and quality of life.

#### **2.2.6.4.1 Roles and Expertise**

**Design;** Engineers develop new technological solutions. During the engineering design process, the responsibilities of the engineer may include defining problems, conducting and narrowing research, analysing criteria, finding and analysing solutions, and making decisions. Much of an engineer's time is spent on researching, locating, applying, and transferring information. Indeed, research suggests engineers spend 56% of their time engaged in various information behaviours, including 14% actively searching for information. Engineers must weigh different design choices on their merits and choose the solution that best matches the requirements. Their crucial and unique task is to identify, understand, and interpret the constraints on a design in order to produce a successful result.

**Analysis;** Engineers apply techniques of engineering analysis in testing, production, or maintenance. Analytical engineers may supervise production in factories and elsewhere, determine the causes of a process failure, and test output to maintain quality. They also estimate the time and cost required to complete projects. Supervisory engineers are responsible for major components or entire projects. Engineering analysis involves the application of scientific analytic principles and processes to reveal the properties and state of the system, device or mechanism under study. Engineering analysis proceeds by separating the engineering design into the mechanisms of operation or failure, analysing or estimating each component of the operation or failure mechanism in isolation, and re-combining the components. They may analyse risk. Many engineers use computers to produce and analyse designs, to simulate and test how a machine, structure, or system operates, to generate specifications for parts, to monitor the quality of products, and to control the efficiency of processes.

#### **2.2.6.4.2 Specialization & Management**

Most engineers specialize in one or more engineering disciplines. Numerous specialties are recognized by professional societies, and each of the major branches of engineering has numerous subdivisions. Civil engineering, for example, includes structural and transportation engineering, and materials engineering includes ceramic, metallurgical, and polymer engineering. Engineers also may specialize in one industry, such as motor vehicles, or in one type of technology, such as turbines or semiconductor materials. Engineering is also an information intensive field, with research finding that engineers spend 55.8% of their time engaged in various different information behaviours, including 14.2% actively seeking information from other people (7.8%) and information repositories such as documents and databases (6.4%).

#### **2.2.6.4.3 Types of Engineers**

There are many branches of engineering, each of which specializes in specific technologies and products. Typically, engineers will have deep knowledge in one area and basic knowledge in related areas. For example, mechanical engineering curricula typically includes introductory courses in electrical engineering and software engineering.

When developing a product, engineers typically work in interdisciplinary teams. For example, when building robots an engineering team will typically have at least three types of engineers. A mechanical engineer would design the body and actuators. An electrical engineer would design the power systems, sensors, and control circuitry. Finally, a software engineer would develop the software that makes the robot behave properly.

### **2.2.7 Effective Project Manager Skills**

The definition of an effective project manager starts by understanding what they do and the kind of skills they demonstrate (El-Sabaa, 2001). Although several authors have tried to determine the specific characteristics, skills and behaviors of successful project managers (Katz, 1974; Beale & Freeman, 1991; Zimmerer & Yasin, 1998; El-Sabaa, 2001; Loo, 2002; Dulewicz & Higgs, 2005; Anantatmula, 2010; Stevenson & Starkweather, 2010; Thal & Bedingfield, 2010; Fisher 2011), little consensus has been reached. Nevertheless, researchers seem to agree on the fact that project managers need more than pure technical skills in order to meet their professional demands (Katz, 1974; Zimmerer & Yasin, 1998; Edum-Fotwe & McCaffer, 2000; El-Sabaa, 2001; Loo, 2002; Morris *et al.* 2006; Stevenson & Starkweather, 2010; Fisher, 2011).

A skill implies an ability which can be developed and which is manifested in performance (Katz, 1974). Edum-Fotwe & McCaffer, (2000) recognized two types of skills: specific and general. The latter which refer to transferable skills essential to effective project management. Katz (1974) suggests that there are 3 developable skills for an effective administrator. Technical skills which refer to the understanding of a specific activity involving methods, processes, procedures or techniques; Human skills which describe the executive's ability to work effectively with others; and Conceptual skills which involve the ability to identify the relationships between the different parts of an organization and its connection to the external environment.

Although technical skills that include effective scope management, project planning, scheduling, controlling and contract management (Loo, 2002) are still relevant, through their study, Stevenson & Starkweather, (2010) supported the idea that soft skills are important criteria when it comes to hiring project managers. The focus on interpersonal skills surpassed that of technical expertise as being critical soft skills for project managers. learning about skills

is no guarantee for success. Project managers need to carry out a continuous process of application of the skills, observation of the outcomes and modification of the behaviors to find the best fit (Fisher, 2011). This is consistent with Katz, (1974) statement that “the principal criterion of skillfulness is effective action under varying conditions” and Edum-Fotwe & McCaffer, (2000) belief that essential to a project’s success is that project managers develop the requisite skills that ensure efficient performance of the specific project. Whereas the perception on effective people managers has shifted from the idea that they only require technical or managerial competencies (Fisher, 2011), it is the interrelated technical, human and conceptual skills that are the basis of successful administration (Katz 1974).

Furthermore, authors such as (El-Sabaa, 2001) have recognized that most essential to project managers are the human skills that have great influence on their practices. El-sabaa (2001) suggested that characteristics of human skills include communication, coping with situations, mobilization, delegation of authority, high-self-esteem, enthusiasm and political sensitivity. Dulewicz & Higgs (2005) in their framework also acknowledged the importance of emotional and social dimensions. Competencies such as portraying emotional resilience, influencing others, and showing interpersonal sensitivity are key in their model. In more detail Zimmerer & Yasin (1998) determined different project manager characteristics or behaviors that would have a positive influence of effectiveness of a project. Reinforcing positive behavior, empowering team members, communicating effectively, demonstrating trust and respect and remaining flexible to respond to changes build a profile of a good project manager. For Katz (1974) an effective administrator is skilled in understanding and communicating with others, creates an atmosphere of approval and security, encourages the participation of team members and is sensitive to their needs. Effective managers should demonstrate these skills in every action, taking into account the perceptions of others for decision making processes, and constantly motivating the group. Consistent to the previous characteristics, Beale & Freeman

(1991) state that to achieve success, project managers should demonstrate several human skills. Good leadership and interpersonal skills, high concern for people and high personal drive are among the main characteristics. Moreover, according to their research Stevenson & Starkweather (2010) stated that employers in search of project managers look for effective communication skills across multiple levels, leadership skills, and ability to deal with uncertainty and change.

Fisher (2011) also identified six important skills and behaviors of effective people project managers namely: Understanding behavioral characteristics, leading others, influencing others, showing authentic behaviors, managing conflict, and developing cultural awareness. Finally, Thal & Bedingfield (2010) claimed that conscientiousness and openness of the project manager are found to be strongly correlated with performance; therefore, being imaginative, broad-minded and intelligent, as well as showing optimism, confidence, clear thinking and stability are critical to project managers working in a project environment. According to Fisher (2011), project managers need to make great improvements in the area of people management. Fisher (2011) states that they are able to adopt people skills and their associated behaviors anywhere in the world. Therefore, many authors recommend that project managers engage in continuous training and practice of such competencies (Katz, 1974; Zimmerer & Yasin, 1998; Edum-Fotwe & McCaffer, 2000; El-Sabaa, 2001; Loo, 2002; Müller & J. R. Turner, 2010; Thal & Bedingfield, 2010; Fisher, 2011)

### **2.3 Soft Skills**

Soft skills are “personal attributes that enable someone to interact effectively and harmoniously with other people” (Oxford Dictionaries, 2014). Soft skills are also the ‘intra- and inter-personal skills essential for personal development, social participation and workplace success

There has been growing trend on number of literature covering topics on soft skills. In spite of this, there is no consistency and agreement on different terms used to represent soft competences and no unified list exists. In addition to the nine knowledge areas considered by Koong and Liu (2006), this research looks closer at soft skills, since some authors such as Gardiner (2005) and Cowie (2003) have strengthened the importance of such skills. Also, (Cowie 2003) observed that the nine knowledge areas mainly deal with technical skills, except for project communication management and project human resources management.

Therefore, in this research, literature review of soft skills was conducted and efforts have been made to compile the list of terms for soft skills, which will be used in this study. For this purpose, a number of sources covering topics on soft skills such as Kimmons and Loweree, (1989), Blackburn, (2000), El-Sabba (2001), Cowie, (2003), PMBOK Guide (2017), APM, (2005), Gardiner, (2005), Awan *et al.* (2015) and Zuo, (2018)

From the works of those authors it was possible to group similar terms together. For instance, there are many terms referring to communication skills such as interpersonal communication, effective communication, resolving ambiguity, customer relation etc in the literatures of above mentioned authors. After grouping the terms together a name was given to represent the soft skills in that category, such as communication for this specific example. This methodology has helped to come up with a unique list of seven major soft skills that are quite representative of the literature in the subject, see Table 2.3. In the left side of the table are the 7 soft skills categories that were created based on the literature, in the middle are the grouping of related soft competences, and finally, the last column shows the authors who emphasized similar terms. The list is comprehensive and not exhaustive; it includes the soft competence mentioned by the main authors in the field and is ordered randomly, it does not follow any particular criteria such as importance.

Below a brief description of each soft skills is given. It has been realized that these soft skills are very broad topics and entire books could be written on each one of them. The focus here is to present a brief understanding of what is meant by the terms.

Communication: refers to exchange of information in any form such as oral, written, symbolic etc. (Edum-Fotwe and McCaffer, 2000). Apparently it is one of the areas where project managers spend most of their time during the life of the project. PMBOK Guide (2017) refers to project communication management as an activity that involves collection, distribution, storage, retrieval and disposition of the information in the project. Since project involves a number of internal as well as external stakeholders, project manager's effective communication plays vital role in maintenance of stakeholders' relation. The four components of project communication management process are: Communication planning, information distribution, performance reporting and managing stakeholders (PMBOK Guide, 2017). However, since the focus of the research is on soft interpersonal communication skills aspects of customer relationship, communication with the stakeholders and issues that deal with resolution of ambiguity have also been considered as part of communication. For the purpose of this research, all competences that fit this description are going to be considered as communication competences.

Leadership: helps a project manager lead people and the organization as a whole to achieve project objectives. APM body of Knowledge (2006) defines leadership as "the ability to establish vision and direction, to influence and align others towards a common purpose, and to empower and inspire people to achieve project success." Gardiner (2005) refers leadership to terms such as: shaping goals, obtaining resources, building roles and structures, establishing good communications, seeing the whole picture and moving things forward to a successful conclusion. He further mentions that these skills are different than the ones provided to project managers through training, which mainly have a technical nature. This competence is critical

to a successful PM. In addition to this, the importance of leadership, for example is demonstrated by Müller and Turner (2007), when they linked leadership style with project success. Some of the soft competences categories created have overlapping definitions in the literature. Here we can see that Gardiner (2005) also includes good communication as a part of leadership, however skills related to communication will fall under the communication category for the purpose of this research. Similarly, motivation, which is usually linked to leadership, has been included in Human Resource Management.

**Problem solving:** is a competence that every Project manager should have to resolve issues that arise on daily basis. Problem definition and decision making are the two main parts of the problem solving. First, causes and symptoms are analysed in order to define the problem which could be internal, external, managerial, interpersonal etc (PMI, 2017; APM, 2006; Edum & McCaffer, 2000). The second step is decision making, which refers to the cognitive process that leads to the selection of a best course of action from available alternatives. In this research, aspects of common sense, problem solving and judgement, thinking and taking decision are considered as decision making competence.

**Team working:** “is when people work collaboratively towards a common goal as distinct from other ways that individuals can work within a group” (APM, 2006). Every project involves a number of people from various backgrounds and cultures to perform various project related tasks. This situation requires managerial competence of working along with groups of people, coordinating and facilitating them to get the job done effectively. Consensus, team building, delegation, the ability to encourage maximum inputs from team members, involving the right people, gaining powerful allies, and the use of networking to gain information are consolidated under this heading.

**Organizing:** refers to arrangement of: people, material and support resources to meet the organizational objectives successfully (Gardiner, 2005). Even though by Gardiner’s definition

organizing involves requirement of both hard and soft skills, our focus here will be to the later (i.e. soft organizational skill). Moreover, aspects of organization of people side of project and collaboration will fall in other categories. Organization of people, for example, will be considered under human resource management. The competence of collaborating with other people is part of team working. For this research organizing will have a more general meaning that involves the competence of arranging, preparing and attaining orderly and systemized structure in the results of the tasks performed (adapted from the Oxford English Dictionary).

Flexibility and alertness: is related to the competence of coping with situations. As the project operates in dynamic environment, flexibility is one of the essential competences of project manager. Similarly, alertness refers to the competence that facilitates managers to see quickly, understand and act in a particular situation in projects (Cambridge Advance Learners Dictionary). The following terms have been considered in the same category: adaptability, perspective, ability to work under pressure and the ability to handle multi task.

Creativity and innovation: play an important role in managing projects successfully as they help project managers come up with new solutions to problems. Differently than the problem solving competence, creativity and innovation refers to the new, unique and different while problem solving has a more structured methodology and doesn't necessarily require that a solution be new. However, creativity and innovation can also lead to solving problems, but in a different way. Both creativity and innovation are related to 'out of box thinking' or ability to tackle problems from a different angle. Innovation refers to the new ideas, process or product offering that could be either in the form of product innovation or process innovation, Cooper (1998). It can be said that creativity leads to innovation, creativity deals with idea generation and innovation happens when those ideas are put into practice (Gurteen, 1998). There are some other terms which also represent creativity and innovation such as inventiveness, open mindedness, innovation and change and acting as a change agent.

Human resource management (HRM): is an essential ‘subset’ of PM which involves the process that ensures effective use of human resources (PMI, 2017). These skills is related to dealing with people in project. Project manager require these skills in order to effectively acquire, manage and motivate people to perform effectively. Even though, HRM is a broad topic covering wide varieties of skills such as communication, team working, conflict and negotiation etc, this research treats each of these factors as individual skills to fit within the framework of soft skills. Because HRM is such a broad term only the more formal aspects such as staff recruitment, selection, training and evaluating people will be considered under this heading. Motivation, which is a softer aspect of human resource management, has also been included in this category.

Negotiation and conflict management: can happen both at the formal and informal arena. Negotiation is related to seeking a consensus, resolving differences and aligning views, it has to do with getting people to agree and to accept and agree upon terms and conditions of a certain situation. Conflict management, on the other hand is “the process of identifying and addressing differences that if unmanaged would affect project objectives” (APM, 2006). Where there are people, there are conflicts. As a number of stakeholders are involved in projects this requires project managers to have effective negotiating as well as conflict management competence. PMI (2017) mentions only ‘negotiating’ where as APM (2006) mentions both negotiation and conflict management separately. Both of these terms have been combined in one category for this research. Other terms such as political sensitivity, political factors etc. are also considered under the periphery of negotiation and conflict management.

Positive attitude: Attitude refers to a feeling or opinion about something or someone (Cambridge Advanced Learners Dictionary). It could be negative, positive or neutral. Having positive attitude is one of the essential competences of Project managers. APM (2006) relates positive attitude as behavioral characteristics as a function of values, beliefs, and identity. For

the purpose of this research, it also includes commitment to success, high self-esteem and enthusiasm, trustworthiness, fairness, can do attitude, acting assertively, behaving ethically, coping with authority and managing self.

### **2.3.1. The Changing Paradigms of Project Management**

PM has its roots in technical disciplines such as military, engineering and construction. This has guided the literature to mainly focus on the technical aspects, often neglecting the softer processes such as team building (Zwikael and Bar-Yaseph 2004). As most of the early project managers came from a technical background this was a natural phenomenon, as disciplines such as IT, engineering and designing have little to do with people, or so was thought. Research, such as the one from Edum-Fotwe and McCaffer (2000) and El-Sabaa (2001) show that human skills are very important and should not be underestimated.

The technical focus in the PM discipline can be explained by the strong influence of what is called the hard paradigm (Pollack, 2007). A paradigm refers to a tendency for thought and action that impacts a certain field, or in this case a discipline (Pollack, 2007). The concept of a paradigm was first introduced by Kuhn around the 1960's and basically means a certain way of thinking and doing things; it is a pattern that forms and tends to be followed and too often not questioned. Barker (1992) compares the term to a game, according to him a paradigm lets you know what the game is, what the rules are and how the game should be played. The hard paradigm, refers to concepts that are related to rigor and objectivity, while the soft paradigm tends to highlight learning, participation and is interested in the social process (Pollack's, 2007).

Pollack (2007) analyzed methodically PM literature regarding a number of aspects such as the philosophical basis, tools and techniques and its perspective toward people and participation. The author then compared these aspects with the underlying concepts of each paradigm and

concluded that PM is traditionally rooted in the hard paradigm. The fact is that PM still focuses too much on control and tends to put the project managers in a pedestal, where they are seen as having all the answers; little attention is given to participation and interpersonal issues (Pollack 2007).

Even though PM is rooted in the hard paradigm it has also been observed that the soft paradigm is gaining ground in the field (Pollack, 2007). Muzio et al. (2007) goes as far as saying that the need for soft skills has already clearly been established, but his literature review includes general management literature as opposed to Pollack's study which focused only on PM literature. However, the growing number of literature in the field that pays attention to soft interpersonal issues, shows that it is becoming recognized as an important factor. This can be seen as a paradigm shift, or as Barker (1992) would put it, a change in the game that is played, causing a new set of rules to be established. Not only in the academic literature is this shift observed but also in practice. Bryan Beverly, a software architect and team leader at BAE System, quoted in Brandel (2006) explains that "the perspective, the knowledge base, the skill set and methods traditionally employed by the project manager must change to accommodate the demands of project management in 2006".

A similar shift from a hard to a soft paradigm can be observed in the more general discipline of management. First, it began with Taylorism, a very mechanical hard view of management. It slowly evolved to a softer approach with Maslow's hierarchy of needs and later to quite advance concepts such as Senge's learning organization, where participation and knowledge sharing are essential. In the last decades organizations have realized that their most important assets are the people within. The need for cooperation between employees of different departments, cultures and even geographical locations is essential for gaining competitive advantage (Nahapiet, Gratton, and Rocha, 2005).

This quite simplified overview, where many chapters in history got skipped, in a way shows what is happening to PM. First it started out more technically oriented, focusing on the tools and techniques that help people manage projects. As time evolved the PM community has noticed that this is not enough to successfully manage projects. No matter how good a project manager knows how to elaborate a Gantt chart, develop a budget or create a WBS he still needs to manage people. There are still some unresolved issues in the PM discipline, as projects continue to underperform. The Standish Group survey, conducted in 2015, the chaos report, shows that in the IT industry only 16.2% of information system projects are perceived as successful. Furthermore, 31.1% of those projects are cancelled and never get completed, while an astonishing 52.7% surpass the original cost estimates by 189%. A possible answer to this problem could be to pay more attention to the softer side of PM since the three top causes of failure presented in the report dealt with people issues, they were: user involvement, executive management support and clear statement of the requirements.

Edum-Fotwe and McCaffer (2000), mention that efficient relationship management is essential for successful project delivery. Couillard (1995) also gives a lot of emphasis on human relations; the author sees it as a determinant factor for project success. One research that points to the same direction is the survey done by the Standish Group in 2000 mentioned by Kendra and Taplin (2004). This study concluded that insufficient collaborative working relationship was the main reason behind low success rates in IT projects. Perhaps in PM the people's skills are even more important because of the lack of formal authority most project managers have over team members. As El-Sabaa (2001) mentions, project managers often need to get things done through a distinct number of people even though they possess none or little direct control over them.

El-Sabaa's (2001) research involving one hundred and twenty-six managers of three sectors; information system, electricity and agriculture has provided empirical evidence that soft skills

actually represented the most important skills for those professionals. Differently than this research which uses Gardiner's (2005) framework, El-Sabaa (2001) applied Katz's (1991) model. Out of the three categories of competences which make up this model: (1) human skills, (2) conceptual skill and (3) technical skill, the first one received the highest grade by the participants, who were asked to rate the importance of competences in those categories.

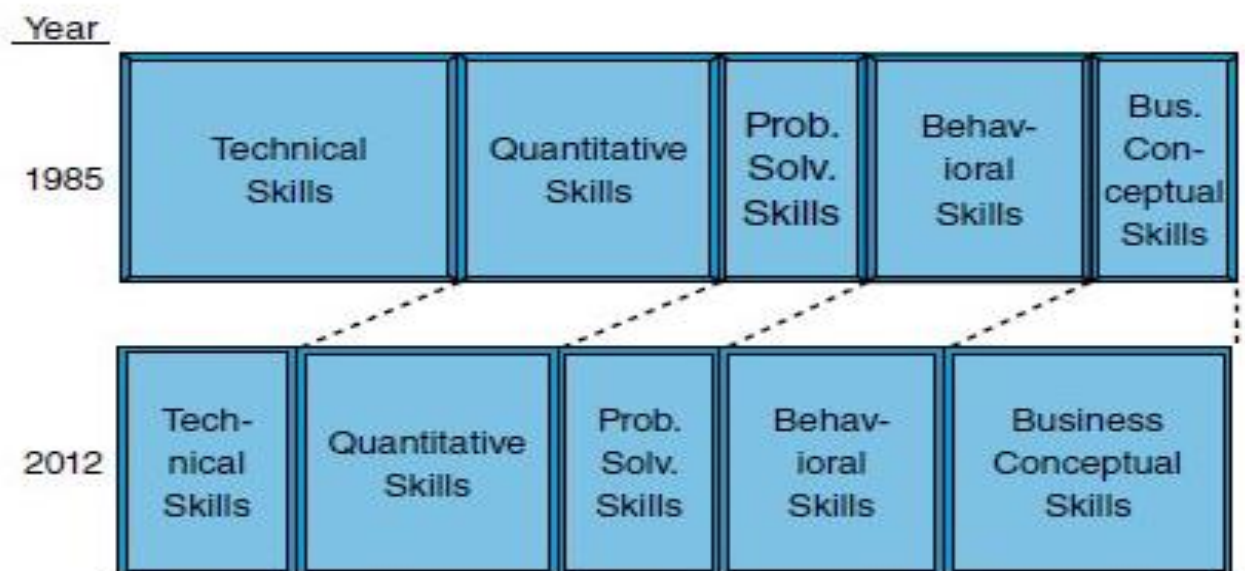
Edum-Fotwe and McCaffer's (2000) research also offers similar empirical evidence that points to the growing importance of soft interpersonal skills even in fields such as the construction industry. Their study aimed to review the development of PM competency in that industry. One of the objectives was to evaluate project manager's perception regarding the competences which contributed to professional performance. They conducted a survey which was answered by 170 practicing project managers. In their findings, it can be seen that out of the 10 most important competences judged by the participants 6 were of non-technical nature. From those 10 competences the top five that contribute the most to professional performance were: leadership, planning and scheduling, delegation, the ability to chair meetings and negotiation. As can be observed, out of the 5 most important competences only one could be considered as technical, while all the others have a softer nature.

### **2.3.2 The Soft Skill set Required by Project Managers**

As mentioned earlier soft skills play an important role in the successful delivery of projects. Newton (2009) mentions that when asked what makes a good project manager, experienced project manager rarely mention understanding of the formal methodologies, hard skills or technical skills (Newton, 2009).

However, till the 1980s due to its engineering and construction character there was a considerable emphasis on the "hard skills" of the discipline development of project management, neglecting research on soft skills (Heerkens and Brennan, 2013). Kerzner (2013)

writes that historically only engineers were given the opportunity to become project managers (Kerzner, 2013). This was because of the common belief that project managers should have a command of technology in order to make all technical decisions themselves as described by Gaddis (1959) in the first written publications about the skills of project managers (Gaddis, 1959).



Source: Kerzner, 2013

Figure 2.4: Historical Development of Project Management Skills,

Due to “a much greater diversity of tasks in different types of organizations in every sector in the economy” project management and with it the abilities and skills of project managers have evolved over the past 50 years as described in Figure 2.4, (Briner, Hastings and Geddes, 2001; Cooke-Davis and Teague, 2009). Today, projects are completed by groups of people working together. The fact that different people with different tasks, personalities and specializations are working together on a common goal and that project managers always have to handle those people is not arguable (Ferraro, 2007). As long as projects are done with teams, project

managers have to have certain interpersonal or soft skills to deal with them accordingly to deliver successful projects.

One part of the research questions and objective 1 of this dissertation is to identify which soft skills set is required by project managers to lead successful projects. Through extensive critical literature research this researcher has identified twenty soft skills required by project managers to be successful and mentioned in the literature. Table 2.1 lists all relevant soft skills in a set and gives information about the soft skills as well as its definition which is taken from the literature mentioning it.

Table 2.1: Project managers' soft skills

Soft Skill	Definition
1. Communication Skill	Effective interaction with team members and stakeholders
2. Empathy / Emotional Intelligence	The capacity to perceive and understand the feelings and attributes of others; put yourself in the position of others; ability to interact with others in a positive manner
3. Leadership Skill	The ability to organize and motivate people to accomplish goals while creating a sense of order and direction; ability to get things done through others; creating supportive, motivated and creative culture/environment
4. General Management Skill	Contributions of different business and technical expertise; management styles and tools; wide knowledge over different areas to align project to the firm's strategy and objectives
5. Overview ability / To look at the big picture	The ability to see how the project fits into the larger strategy and objectives of the firm; need to be able to step back from the immediate pressure of the day and look at the whole situation
6. Conflict-Management Skill / Conflict-Solving Skill	Restore order; understand the determination of conflicts in order to deal with/ solve conflicts
7. Sense of Ownership / personal accountability / taking responsibility	To care about the project/team assignment and take responsibility for failure or mistakes; be answerable for personal actions
8. Networking Skill / Relationship Management	To have an ongoing dialogue with people; to know what is going on and who can help you
9. Team / Team Building Skill	The ability to cooperate with others to meet objectives; to forge a unified team; to provide an atmosphere conducive to team-work
10. Planning and Organizing Skill	Planning of a road map defining how to get from the start to the final result; social architect: understands how the organization works and how to work with it
11. Problem-Solving Skill	The ability to identify key components of a problem to formulate a solution or solutions
12. Political Savvy / Political sensitivity	Dealing with constant changes; dealing with obstacles, working in areas unknown or on new products, services etc.
14. Foresight / Advanced Planning / Proactive	Understand organizational political games; be able to deal effectively with a wide range of people and win their support endorsement
15. Handling Stress	Ability to handle constant change and to deliver under constant pressure
16. Presentation Skills / Reporting Skills / Marketing Skills	The ability to hold an audience and present effectively in front of an audience
17. Sense of Humor	The ability to come across as energetic and optimistic; the ability to raise jokes even during work/class
18. Cultural Awareness / Cultural affinity	Being sensitive to your environment – the country you are working in, the type of organization you are working for and cultural differences
19. Time Management Skill	Ability to finish projects/assignments in time
20. Decision-Making Skill	The ability to analyze all aspects of a situation to gain thorough insight to make decisions

These skills are in accordance with: (Newton, 2009; Gaddis, 1959; Larson and Gray, 2012; Kerzner, 2013; Briner, Hastings and Geddes, 2001; Mantel and Meredith, 2012; PMI, 2013; Muzio et. al.; 2007; Englund and Bucero, 2013; Anantatmula, 2010; Ferraro, 2007; Morris and Pinto, 2007)

The first soft skill in the soft skill set is the communication skill. Being a knowledge area itself in the Bodies of Knowledge, the communication skill has always been an essential soft skill for project managers (PMI, 2013). Gaddis (1959) wrote that “the project manager must expend considerable active effort in learning to communicate adequately with” his/her team members (Gaddis, 1959). Furthermore, the PMI identified communication as one of the single biggest reason for project success or failure (PMI, 2013). It is therefore no wonder, that nearly all literature reviewed mention communication as soft skill required by project managers. Exceptions could only be found in journals or articles focusing on another skill only (for example: Englund and Bucero, 2013). While communication was mentioned most often its definition in Table 2.1, provided by the literature themselves, seems vague. Although Newton (2009) sees communication as a way to talk and receive information through the people communicating with, Briner, Hastings and Geddes (2001) see communication as a way to keep the team and stakeholders informed (Newton, 2009; Briner, Hastings and Geddes, 2001).

Other authors like Mantel and Meredith (2012) mention communication as a soft skill in their list of necessary interpersonal skills to possess as project manager, without giving any specific definitions.

The skill emotional intelligence also named as empathy was mentioned often by the literature. In the last years’ empathy has been an emerging soft skill combining skills having to do with the ability to understand other peoples’ view point and feel what others feel (Farrel, 2012).

Some literature does not particularly mention empathy as soft skill but describe the ability for example as to take other peoples perspective or to be sensitive towards changes in behaviours of the project team members (Kerzner, 2013; Mantel and Meredith, 2012; Morris and Pinto, 2007). The skills having similarities with the two descriptions above were counted as empathic skill by the researcher. Other authors like Newton (2009), Larson and Gray (2012) and Farrel (2012) place emotional intelligence / empathy directly by its name in their list of soft skills a project manager should possess to lead successful. The leaderships soft skill combines many single skills in its definition such as organising, motivating or giving direction (see Table 2.1). As such it is difficult to actually assess if somebody has this soft skill with asking only two questions, as done in the questionnaire. However, due to the consistent citation of the skill's description: to being able to motivate people and to being able to give direction by authors like Kerzner (2013), Mantel and Meredith (2012), Anantatmula (2010) or Zeitoun (2003) and Geoghean and Dulewicz (2008) the researcher decided to ask about those two sub-skills while taking under consideration the limitations to this many-sided soft skill. A problem appearing when analysing the leadership skill is also that many soft skills listed as single soft skill themselves are mentioned as being part of the leadership skill itself. For example the skills management direction, managing conflicts, problem – solving and team building as skills which are leadership skill components (Thamhain, 1991). Many soft skills listed in Table 2.1 overlap with the leadership skill but are still seen as single skills in the soft skill set in some

The conflict-management, decision-making and problem-solving skill often depend on emotional intelligence. Especially for conflict resolution it is important to understand the determinants of conflicts and with it the reasons of the people having these conflicts (Muzio et. al., 2007). Conflicts are inevitable in a project environment, due to issues like incongruent requirements, competition of resources and breakdowns in communications (PMI, 2013a). In

the questionnaire it will be asked, according to the definition in the Table 2.1, if the participants think they have the ability to solve conflicts and to find out the determinants of conflicts.

In case of the decision-making ability, since project managers ultimately have to make the decisions about changes, planning, budgeting or scheduling etc., this soft skill has to be used often. A reluctant person who doesn't like making decisions will have difficulties being in an environment where decisions have to be done regularly (Newton, 2009). Therefore, to find out if the person filling out the questionnaire has this skill, it will be asked if he/she easily makes decisions and can also make decisions when unexpected changes occur.

The problem-solving skill can either refer towards problems between people or problems occurring due to technical as well as situational contexts. Newton (2009) describes this skill as a touch of creativity writing that "there is always more than one way to do anything" and that there is rarely a problem where nothing could be done about (Newton, 2009). As a result, the problem-solving ability is one of the skills required as project manager and is asked in the questionnaire with the questions if the recipient has the ability to identify key components of a problem and if he/she is able to solve problems, when they occur.

The three soft skills are more easily accomplished when a person has a high emotional intelligence because people's behaviour and mind-set has to be considered when solving problems and conflicts and also when decision around people have to be made. As a result, the overlapping of the three soft skills with the empathy skill is identified.

Another of the soft skill is to have an overview of the project and to be able to look at the big picture of the project/organisation (Larson and Gray, 2012). For this soft skill many authors have different definitions which this researcher summarized as overview ability. For example Gaddis (1959) writes that project managers should see "all things as though a project were the center of the corporate universe (Gaddis, 1959). Mantel and Meredith (2012) write that a

“balanced outlook” is needed to lead successful projects and Frame (2002) mentions that project manager need to see the big picture but also pay attention to detail which results into a duality (Mantel and Meredith, 2012; Frame, 2002). Paying attention to detail is mentioned in some literature as soft skill too, but not as often as to be considered one of the twenty soft skills in Table 2.1.

The soft skill ownership or commitment to the project is difficult to be described. Even though many authors such as Newton (2009), Gaddis (1959), Larson and Gray (2012) or Frame (2002) talk about the sense of ownership, they hardly name it as such. They rather describe it in terms of: to care passionately about the project (Newton, 2009) or the project manager is the driver of the projects and establishes momentums (Gaddis, 1959) as well as taking responsibility for the project (Larson and Gray, 2012) or personal accountability (Muzio et. al., 2007). Taking these definitions, the questionnaire asks about if people take responsibility for failure of their team and for personal actions because the “true sign” for a project manager’s commitment is when the person “puts up their hand and takes ownership for things when they go wrong” (Newton, 2009).

Other attitudes of a project manager being in the soft skill set in Table 2.1 are the openness to change, the handling of stress and a sense of humor. These skills show how people deal with certain circumstances and are, when it comes to openness to change and humor, hardly learnable (Kerzner, 2013). It can be assumed that due to their particular character the skills themselves weren’t as often mentioned as others (see Table 2.1). Authors mentioning the ability to be open for change as indispensable skill, because the work of a project manager revolves around constant changes in the project and also changes of technologies, markets, regulations and socioeconomic factors (Thamhain, 1991). Having to crash projects or having less budget as well as people not working on time / in schedule happens often during projects. In the

questionnaire it is therefore asked if the participants can adapt to new situations and don't have problems with working in new environments.

As for the handling of stress, Englund and Bucero (2013) explain that through humour hostility can be reduced, it can deflect criticism, it relieves tension, improves morale and helps communicate different messages (Englund and Bucero, 2013). Newton (2009) also mentions a sense of humour in his soft skill list, because "people enjoy working with somebody who can raise a laugh" (Newton, 2009). As a result people in the questionnaire will be asked if Generation Y students sometimes raise a laugh during work or university.

Lastly, handling stress is in itself necessary because of the constant changes described above. Furthermore, Mantel and Meredith (2012) write that stress arises due to project managers having "too much on their plate" and because many project managers have not developed a reasonable consistent set of procedures and techniques with which they manage their work (Mantel and Meredith). Project managers, as a consequence, learn to handle stress or learn the tools and techniques of project management accurately. As for the questionnaire, participants are asked if they have the ability to deliver under constant pressure to identify their stress handling ability.

A networking skill is needed because the project manager has to get people onto his/her project team and has to have a pool/group of people to get help and input from during the project life (Newton, 2009). It is as well necessary to build up strong, durable links with the key stakeholders (Briner, Hastings and Geddes, 2001). This said, the questionnaire determines if it is easy for the recipient to have an ongoing dialog with people and if they have a pool of people they can already ask for information which shows their networking skill and test if the participants are introverted and could endanger communication and networking processes in the project.

The PMI (2013a) defines team building as the “process of helping a group of individuals bound by a common purpose, to work with each other” (PMI, 2013a). The team of a project manager is often randomly chosen from the technical abilities of the team members and often team members do not even know each other. It is the project manager’s task to build a team spirit and to provide an atmosphere conducive to team work (Kerzner, 2013). As one of the twenty soft skills of the required soft skill set of project managers it will be asked in the questionnaire if the person, taking the survey, is able to work together with others to meet a common objective, in this case the project scope, and if he/she is able to form a unified team spirit.

Advanced planning also called foresight or being proactive is another soft skill for which the literature doesn’t have one common definition. While Gaddis (1959) defines this skill as heading off respectively advanced planning to avoid crisis, Larson and Gray (2012) see it as proactive, the ability to take action before it is needed to prevent small concerns from escalating (Gaddis, 1959; Larson and Gray, 2012). Lastly Taylor (2010) examines that a proactive skill means working on plans that are beyond the timeframe of which needs to be done immediately with an emphasis on problem prevention (Taylor, 2010). The similarity, taking action/plans before something may happen, in those descriptions is noticeable and leads to the question asked in the questionnaire: is the recipient often making plan B’s in case something goes wrong.

Another skill resembling the networking skill is the soft skill of political sensitivity. Even though this skill is mentioned four times in different literatures the question whether this skill is part of a person’s character or attitude and not learned through experience must be asked. To be able to understand political games at work one has to experience them. Moreover political games at university are different from the ones in a workplace. Due to this fact, it will only be asked if recipients understand the dynamics of power within their company/university and if they are ready and able to win the support of people (Heerkens and Brennan, 2013). Being able

to win support and to understand the power games within their current environment will give participating Generation Y student's an advantage when working in a project manager position.

The presentation skill and time management skill are skills which can be acquired through schooling. In 1959 Gaddis wrote that projects have to be sold and resold and that "the project manager must always be able to make an effective presentation often on short notice" (Gaddis, 1959, pp. 29-36). Briner, Colin and Hastings (2001) write that a project is like a product and needs to be well packaged and marketed which involves organising presentations and explaining the project (Briner, Colin and Hastings, 2001). In the survey it will therefore be asked if the participant is able to hold the attention of an audience and if he/she is able to present effectively on short notice. Besides the presentation skill, time management is about the project manager's ability to be able to budget their time wisely and to adjust their priorities (Larson and Gray, 2012). Since the time management skill can be accomplished through training the questionnaire only asks whether the recipient is able to finish project/assignments on time.

Cultural awareness considers the possibility of a project manager's work to be in a foreign country and for him/her to work with an international team and members from all over the world (Ingason and Jonasson, 2009). When working in another country the behaviors, perception of time or motivational factors can be different from the one the project manager is used to (Kumbier and Schulz von Thun, 2011). For him/her it is therefore necessary to know about cultural differences and ways of doing business in the country he/she is working in and have certain knowledge about the team member's original cultural background to deal with misunderstandings (Dzenowagis, 2008). As a result, in the survey the question: I am careful in multicultural/diverse environments, will be asked.

With all of these soft skills that has been reviewed, it can be seen that when adding knowledge of project management tools and techniques to the soft skill set in Table 2.1 as well as being able to apply them effectively, a project manager should be able to lead projects successfully.

Of course, looking at the soft skill set itself, even the literature writes that only someone with “superhuman powers” possesses and is able to use all of the soft skills effectively (Larson and Gray, 2012). Even though the list measures the soft skills needed it can be expected that project managers who don’t possess all of these skills are also able to lead successful projects. Nevertheless, it can be assumed that it is more likely for a project manager to succeed the more of these soft skills he/she masters.

17 critical soft skills were further considered through modern literature with regards the construction industry and they are presented below.

Table 2.2 Critical Soft skills for project management cited in previous studies

Critical soft skills for project management		Literatures												N
S/no	Soft skills	1	2	3	4	5	6	7	8	9	10	11	12	
1	Teamwork and collaboration	√	√		√	√	√	√	√	√	√	√	√	11
2	Leadership	√	√			√	√			√	√	√		8
3	Effective communication	√	√				√	√	√	√	√	√	√	9
4	Conflict management	√	√	√	√	√					√	√	√	8
5	Achievement motivation	√	√				√		√	√	√	√	√	8
6	Cognitive skills	√	√	√	√		√	√	√	√		√	√	10
7	Interpersonal skills		√	√	√	√	√							5
8	Self-control		√		√	√		√			√			5
9	Negotiation	√	√							√			√	4
10	Social awareness	√			√	√		√						4
11	Building trust		√			√				√				3
12	Influencing		√		√						√			3
13	Adaptability		√				√		√		√			4
14	Empathy		√		√	√								3
15	Coordination		√										√	2
16	Delegation		√										√	2
17	Perceived role and responsibilities		√										√	2

Literatures: 1. PMI (2008); 2. IPMA (2006); 3. Ahadzie *et al.* (2008); 4. Boyatzis (2011); 5. Golemon *et al.* (2004); 6. Dainty *et al.* (2004); 7. Zaharim *et al.* (2012); 8. Musa *et al.* (2012); Carvalho & Rabichini (2015); Zuo (2018); Edum-Fotwe and McCaffer (2000); 10. Fisher (2011); 11. Hyväri (2006); 12. Belassi and Tukul (1996)

Table 2.2 consist of soft skills required for project management professionals as identified through literature based showing the frequency of mentions and citations by several authors using the frequency of mention as a yardstick, seven of the most frequently cited skill was identified for further investigation for this study, the skills are shown in Table 2.3.

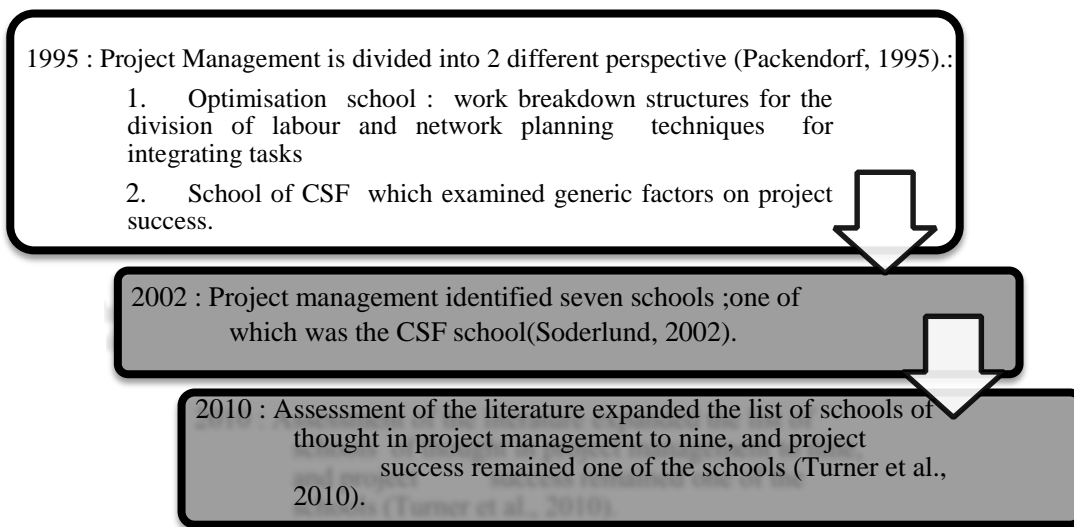
Table 2.3 Seven (7)soft skills adopted for this study

S/no	Soft skills
1	Teamwork and collaboration
2	Leadership
3	Effective communication
4	Conflict management
5	Achievement motivation
6	Cognitive skills
7	Interpersonal skills

## 2.4 Project Success

### 2.4.1 An Overview of Project Success

Nowadays, companies are increasingly using projects in their daily work to achieve company goals. The only way organizations can be driven to achieve excellence is by keeping an eye on competition and world best practice in all aspects of the business (Bendell, 1998).Recently more and more organizations are recognizing that translating corporate strategies into actions requires project management. Consequently, it is vital that projects are successful (Baccarini, 1999). Since a decade ago, project success undoubtedly remains a central concern, and much has been written and said about this specific issue (Cooke-Davies, 2002). The subject of project success is at the heart of project management and it is considered top priorities of project managers and project stakeholders (Müller & Jugdev, 2012) which can be illustrated as in Figure 2.4.



**Figure 2.4: Project success in Project Management**

(Source: Muller & Jugdev, 2012)

One interesting observation to note is that the topic of project success has been focus of many studies and yet the construct of project success is so rarely agreed upon (Pinto & Slevin, 1987). Things get worse when the specific ambiguity surrounding project success presents significant problems for researchers and has provoked lively debate (Ika, 2009). In this respect, the research is often criticized for being underdeveloped and not founded on a solid theoretical and conceptual groundwork (*e.g.*, Shenhar & Dvir, 1996). Thus, before the following sections explore in depth the concept of project success, it would be a great input to glance through example of studies that have been conducted in relation to project success.

#### **2.4.2 Defining the project success**

As defined by the Oxford Dictionary (2013), success is “the accomplishment of an aim; a favourable outcome.” The success of a project is traditionally measured by time, budget, and requirements criteria. Meanwhile, according to Chan and Chan (2004) and Turner (1999), most of the studies which have been conducted around 1980s and 1990s on the topic of project success are determined on the basis of time, cost and quality. Somehow, Pariff and Sanvido (1993) defined project success as an intangible perspective feeling that

varies with management expectations, persons and project phases. In the early 2004, Nguyen *et al.*, (2004) expressed project success is an accumulation of factors such as completion on time, within budget, according to specification and customer satisfaction. Otherwise, at the project level, project success is defined as duration, monetary cost and performance (Bellasi & Tukel, 1996; Atkinson, 1999; Navvare & Schaan, 1990). In the most recent research, defining and measuring success lead to discussions on efficiency and effectiveness at the organizational, team, and individual levels (Müller & Jugdev, 2012). In detail, efficiency is to “do things right,” or to maximize output for a given quantity of inputs or resources, and effectiveness is to “do the right things,” or to attain the project’s goals and objectives (Ika, 2009). Unfortunately, the definition of project success represent an enormous challenge to investigators due to the concept of success which remains very broad, vague and ambiguous (Ika, 2009). Similarly, Wells (1998) also criticized on the definition of project success where little attention has been paid to defining success except what could be said in the most general terms.

However, a more recent study by Beringer *et al.*, (2013), it was shown an average project success is defined along the three familiar dimensions of the project management triangle: cost, schedule and quality (Gardiner & Stewart, 2000).

Meanwhile, accepted well-known criteria for measuring project success falls within budget, on time and according to specifications for a successful project delivery (Lechler & Dvir, 2010; Pinto & Prescott, 1990; Shenhar *et al.*, 2001). Thus, it is not practical to set criteria to measure success for all projects (Howsawi, 2011). It is worth mentioning at this juncture that the definition of project success for this study will be explained more in-depth in later topic after the discussion on the component of project success in the following section.

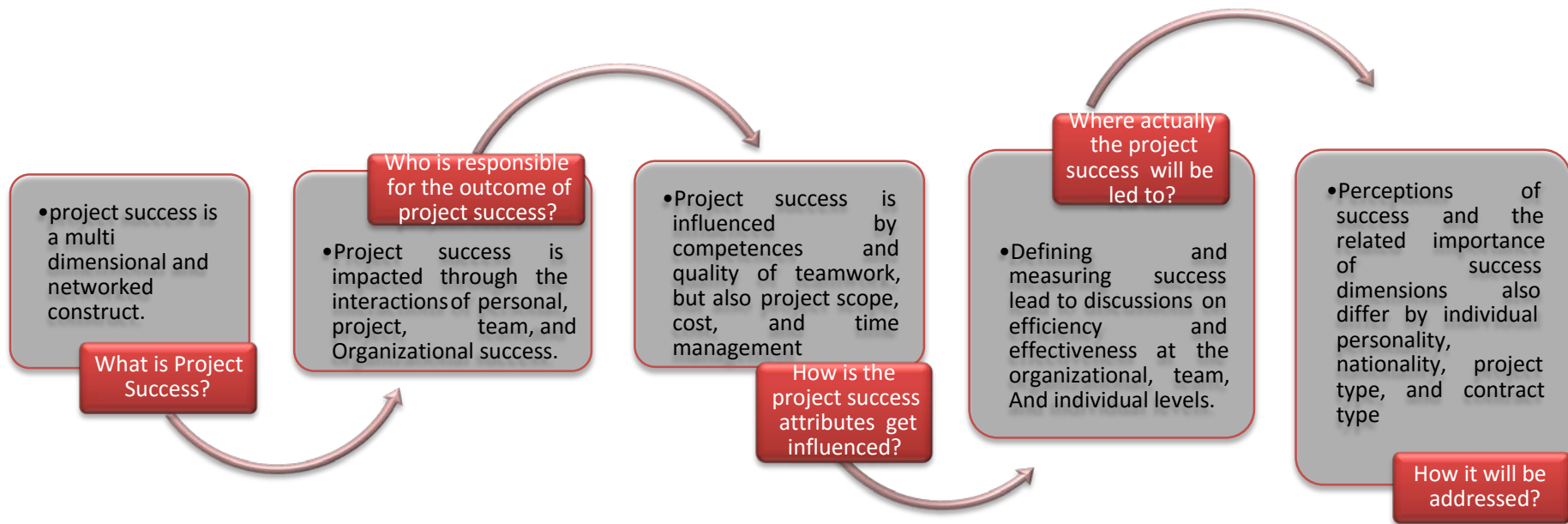


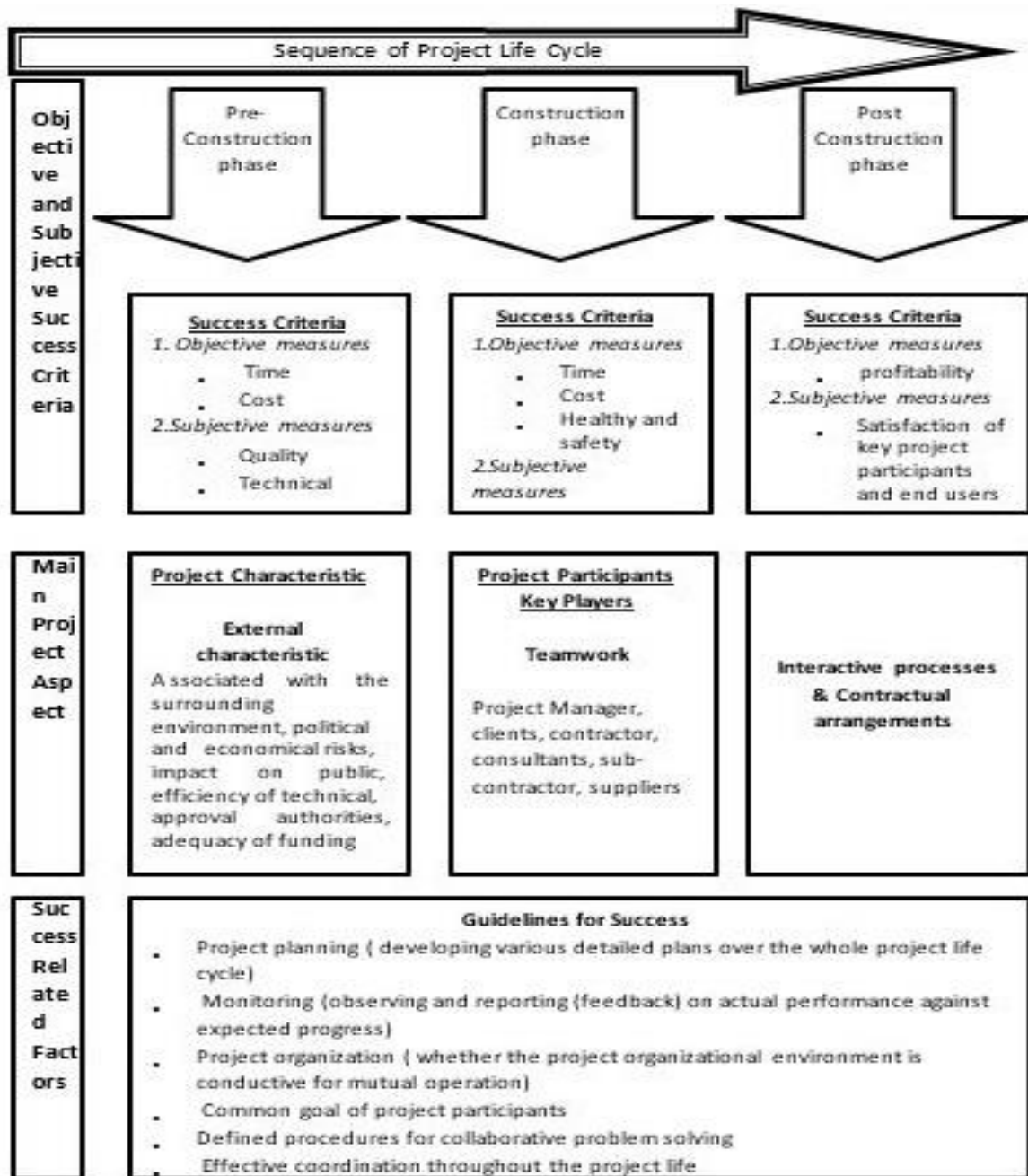
Figure 2.5: Concept of Project Success

### **2.4.3. Success Measure in Construction Industry**

In the construction industry, project success is among the top priorities of key players such as project managers and project stakeholders. Within the industry, the topic has remained as an ambiguously defined concept with a noticeable deficiency of a general consensus as to how it should be defined (Liu & Walker, 1998). There is a large and growing body of literature explores the concept of success and develop different frameworks for measuring the success of construction projects (Al-Tmeemy *et al.*, 2011). However further research is required because the existing criteria models and frameworks were criticized for not being able to integrate with the needs of the construction industry for new business strategies (Al-Tmeemy *et al.*, 2011) . Thus, the following reviews tend to provide example of studies undertaken on project success from construction industry perspective to allow a good understanding of the subject before the study attempts to bridge this gap by proposing a new framework that comprises of the success criteria from different perspective.

Back in 1999, Lim & Mohamed's research to explore the criteria of project success has identified construction project success from macro and micro viewpoints. The authors have categorized users and stakeholders in the macro viewpoint while developer and contractor in micro viewpoint. The macro perspective dealt with the users and stakeholders' satisfaction whereas the micro dealt with the attributes in the construction phase such as time, cost, performance, quality and safety. Even though the authors have proposed a comprehensive framework in assisting better understanding of the concept of project success, but the study might be more persuasive if the authors have considered viewpoint of strategic goals of the construction company (Al-Tmeemy *et al.*, 2011).

Meanwhile, during the same timeline, Baccarini (1999) proposed Logical Framework Method (LFM), which encompasses two components, project management success and product success.



Source: Elattar 2009

Figure 2.6: Hierarchal Framework for Project success

## **2.5 Soft Skills Required for Managing Construction Projects**

### **2.5.1 Soft skills from the perspective of behaviors**

Soft skills can be examined from the perspective of human behaviours. Ahadzie *et al.* (2008) indicated that contextual performance behaviours were more critical than task-related performance behaviours. That is, contextual behaviours may have much influence on the organisational, social and psychological environment. Similarly, Fisher (2011) identified the most important skills an effective project manager as: understanding behavioural characteristics, leading others, influencing others, authentic behaviour, conflict management, and cultural awareness. Meanwhile, 15 behavioural competences of project personnel are identified in the IPMA competence Baseline (IPMA, 2006). In the Project Manager competency Development Framework, project management professionals' competencies are also demonstrated by assessing their behaviours (PMI, 2008). These frameworks indicate that a mixture of hard and soft skills is required for project management.

### **2.5.2 Soft of Project Management**

Existing studies on the construction industry have established the changing role of project management professionals and how they are required to perform functions outside the traditional scope of project management. Edum-Fotwe and McCaffer (2000) pointed out that the construction management professionals should acquire a broad range of knowledge and skill elements. Those skills can be broadly divided into specific skills and general skills.

Specific skills refer to knowledge and lead directly to the construction projects while general skills provide much of the foundation for developing the project management skills including leading, communicating, negotiating, and problem-solving. From another perspective, Ahadzie *et al.*

(2008) argued that behavioral measures can assist construction project management professionals in contributing more effectively to projects. Behavioral competencies can be grouped into two main types: task performance behaviors and contextual performance behaviors. Whilst the former contributes to the technical functions and are job-specific, the contextual behaviors refer to job-related acts that assist in organizational effectiveness.

Correspondingly, professional associations do pose an influence on the thinking of scholars and management professionals, such as through the Project Manager Competency Development Framework (PMI, 2008), the APM Competence Framework (APM, 2006), and the IPMA Competence Baseline for Project Management (IPMA, 2006). These frameworks provide detailed insights into developing the competency of project managers for both hard and soft skills. These guidelines have highlighted a common issue that insufficient interactions amongst project stakeholders are detrimental to project success. Hard skills might be addressed by means of professional qualification. However, it remains unclear whether interpersonal skills are equally important for selecting project managers (Creasy and Anantatmula, 2013).

### **2.5.3 Soft Skills and Emotional Intelligence**

Soft skills originate primarily from an underlying but interconnected emotional intelligence (Golemon *et al.*, 2004; Zhang *et al.*, 2013). Golemon *et al.* (2004) argued that emotional intelligence were twice as important as technical skills for jobs at all levels. Their emotional intelligence model is a mixture of personality traits and emotional competencies including self-awareness and social competencies that can be learned and could result in an outstanding performance in the workplace. In addition, Pant and Baroudi (2008) asserted that the tacit knowledge, such as subjective, cognitive and experiential learning, was closely linked to emotional

intelligence. Similarly, Boyatzis (2011) defined various dimensions of project managers' emotional competencies, i.e. emotional, social, and cognitive intelligence.

As shown in Table 2.3, teamwork, leadership, communication, conflict management, achievement motivation, and cognitive are highlighted as the most important soft skills in previous studies.

#### **2.5.4 Soft Skills and Project Success**

Awan (2015) Purpose of this study is to identify and assess the impact of project managers' communication, interpersonal, coordination, team building and delegation, problem finding, analyzing, solving skills on project success while concurrently assessing the impact of team work as moderating variable on association between project managers' soft leadership skills and project success. This study gathered views of 178 individual associated with organizations related to projects. Non-probability convenience sampling technique was used for drawing samples from population. Descriptive statistics, correlation and regression analysis was used to analyze the data. This study indicates that a statistically significant positive relationship exist between each of identified soft leadership skills and success of project and moderation impact of team work on soft leadership skills. The study amply highlights the importance of project managers' coordination skills and problem finding, analyzing and solving skills. It is hoped that results of this study will provide organizations and individual's related to projects with key skills especially soft leadership skills to focus and successfully execute the projects.

Zuo (2018) The objectives of this study was to identify the soft skills of construction project management; and to investigate the influence of these soft skills on project success factors in the Vietnamese construction industry, a questionnaire survey was conducted with 108 project

management professionals from the Vietnamese construction industry. Partial least square structural equation modelling was employed in data analysis, Four-dimension structure of project success factors were confirmed in this study, Results also showed soft skills of project managers significantly contributed to project success factors and hence the project success.

There may be geographical limitation on the conclusions drawn from the findings. Similarly, the sample size was still small, despite a relatively high response rate, In addition, the majority of the respondents were contractors and clients as other project players were reluctant to respond to the survey, The study provides an understanding of the relationship between soft skills and project success factors, Although there have been studies focused on soft skills of project management and project success factors, few have attempted to analyze the effects of these soft skills on critical success factors. Thus, this study adds significantly to the existing research on both project management skills and project success factors.

These researches studied soft skills with regards construction projects the extent to which project managers possess soft skills are still not known and some important soft skills were not considered in these studies which will have great effect on successful project management implementation.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

Research methodology represents an important step in the completion of the research as it seeks to show and discuss the research design and methodology employed, including the rationale for the research design and procedure used which provides an understanding of the research process followed against the research aim which in this case, is to appraise soft skills required for successful project management implementation in the construction industry.

This chapter deals with the way the research was carried out as well as the tools that were used to conduct the investigation, so as to address the research problem and achieve the objectives of the research which were set out in chapter one. In this chapter, the research design, study population, sample size and sampling techniques are discussed. The chapter also covers data collection instruments used for eliciting required data and the analytical tools used for analysis.

#### **3.2 Research Design and Approach**

Kothari and Garg (2014) described research design as the conceptual structure within which an investigation is conducted. Research design has also been described as the procedure employed for conducting any investigation with a view to pushing behind the frontier of ignorance (Adebakin, 2015). In other words, it is a pathway for executing scientific investigation. It is the blueprint for data collection, measurement and analysis. This study adopted two-tier cross-sectional survey research design that involved construction practitioners. The method was preferred because it provides a platform for taking account of the attributes (behaviours, opinions, beliefs, abilities and knowledge) of a definite individual, group or situation at a point in time.

Research design describes a (flexible) set of assumptions and considerations leading to specific contextualized guidelines that connect theoretical notion and elements to dedicated strategy of inquiry supported by methods and techniques for collecting empirical material (Jonker & Pennink, 2010). It has also been described as the plan in getting a research problem down to the conclusion and it explains procedures to be followed before arriving at the understanding of a phenomenon (Haruna, 2017). It is of relevance to understand the philosophical stance of a research as it helps to clarify research designs, broaden the ability and ease recognizing which design will best suit the purpose of the study (which design will work and which will fail) as well as create designs outside the past experience of the researcher (Easterby- Smith et al. 2003). The nature of a research topic, its aims and objectives and the resources available largely determines its design (Creswell, 2003). The study in this case is to appraise Soft Skills Required for successful Project Management implementation in the Construction Industry, of which its theoretical orientation has been dealt with judiciously in chapter 2. Given that theories in the field of Soft skills are still being established, the study test and build on existing theories through a computerized analysis of statistical results obtained and further interpreting findings.

A quantitative research approach was adopted for this study. According to Teddlie and Tashakkori (2009), quantitative research approach involves the analysis of numerical data and using techniques that enable the description of phenomena of interest and seeking significant differences between groups or amongst variables. Grove, Burns and Gray (2014) also define quantitative research as a formal, objective, rigorous and systematic process conducted to describe, examine and test relationships, causes and effects, and interactions among variables.

The study adopted quantitative research method since quantitative research principles emphasizes positivism as it seeks to gather factual data and to study relationship between facts and how such

facts and relationship accord with theories and findings of previously executed research. The Quantitative Approach analyses interactions, statements and transcripts with the intention of identifying patterns, links, beliefs and trends. The concepts to be assessed in this study are expressed on a nominal scale which involves exploring behaviours and the most suitable method for this would be a Sample survey through the selection of an unbiased sample. This will enhance credibility and reliability of information collected, and it is believed that this method would benefit the study in attaining its objectives.

### **3.3 Population**

Olayiwola *et. al.* (2006), described population as the larger group from which a sample is selected for study. Esan and Okafor (1995) describe population as the aggregate of all units in a target universe. Population is the group of interest to the researcher. It is the group or individuals to which the results or outcome of the study become generalizable. Unit of analysis for this study and the target population for this study is construction practitioners (CPs) particularly architects, engineers and quantity surveyors (QS). According to Architects Registration Council of Nigeria (ARCON) report, there are about 3,651 registered architects in the country as at 2019. Also, Council for Regulation of Engineering in Nigeria (COREN) provides that there are 42,835 registered engineers in the country. The Quantity Surveyors Registration Board of Nigeria (QSRBN) as at 2019 provides that there are 3,271 registered members.

### **3.4 Sampling Frame**

In statistics, a sampling frame is the source material or device from which a sample is drawn (Särndal, Swensson and Wretman, 2003). It is a list of all those within a population who can be sampled, and may include individuals, households or institutions. This is usually relevant in order to ensure an optimum sample size is obtained, which will adequately represent the whole population from which the sample will be drawn. The relevant regulatory bodies indicated that

some of the professionals may have moved to other countries, may be dead or may have become professionally inactive; and may thus not be reachable. The sampling frame of active professionals were further obtained from the various professional bodies and are shown in Table 3.1.

Table 3 1 Population and Sampling Frame

<b>S//No</b>	<b>Professional</b>	<b>Population</b>	<b>Sampling Frame</b>
1	Architects	3,651	3,285
2	Engineers	42,835	36,409
3	Quantity Surveyors	3,271	2,944
	<b>Total</b>	<b>49,757</b>	<b>42,638</b>

### 3.5 Sample Size

Esan and Okafor (1995) describes a sample as a sub-set of a population selected to meet specific objectives. They further added that the sample must as much as possible have essential characteristics of the target population. The sample size of each research seeks to reduce the target population to a manageable and meaningful size without losing the traits and characteristics of the whole population. The sample of a study may be the same as the population under investigation in situations where members of the population are very rare. However, in situations where members of the population under investigation are common, it becomes imperative to compute a sample of the population to be included in the survey without biasing the study’s findings (Mathers, Fox and Hunn, 2009).

For the survey involving CPs, it was clear from the survey population stated earlier that the CPs are known and hence there was need to determine a sample that was representative of their populations.

The sample size was computed using the formula established by Yamane (1967); and shown below as equation 1.

$$n = \frac{N}{1+N(e)^2} \dots\dots\dots 1$$

Where: **n** = required sample size, **N** = sample frame and **e** = level of precision.

Groove et al. (2014) suggests that a level of precision of 5-10% be used in social sciences while 10-15% precision level can be used for studies in other fields(construction, Manufacturing etc). Mute (2006) corroborated that precision level of 15% be used for large populations. The precision levels of 10% was adopted for the three population categories of CPs identified of this study i.e (Architects, Engineers and Quantity Surveyors). The sampling frame of active professionals and computed sample sizes are shown in Table 3.2.

Table 3 2 Sampling Frame and Sample size

<b>S//No</b>	<b>Professional</b>	<b>Sampling Frame</b>	<b>Sample size</b>
1	Architects	3,285	97
2	Engineers	36,409	100
3	Quantity Surveyors	2,944	97
	<b>Total</b>	<b>42,638</b>	<b>294</b>

Therefore, the total sample size required is 294. However, because Salkind (1997) recommended that “when mailing out surveys or questionnaires, it is pertinent to increase the sample by 40%-50% to account for lost mail and uncooperative subjects”. Thus, a total of 360 questionnaires were administered to respondents in the following proportions 127 to Architects, 146 to Engineers and 127 to Quantity Surveyors instead of 294 computed as the sample size, 360 were shared to cover for possible errors or inability to retrieve some of the questionnaires shared.

For the Delphi study, both the criteria for selecting the Delphi panel members as well as determining the adequate number to be engaged in a study are often ambiguous. Hsu and Sandford

(2007) assert that the most important criteria for selecting Delphi panel are expertise in the area of investigation as well as other factors that facilitates the expert to provide valid opinions on the study. In determining the number of Delphi panel to be employed, Hsu and Sandford (2007) cited Deelbecq, Van de Ven and Gustafson (1975) that suggested that between 10-15 experts are sufficient for an investigation in an area that is homogenous. Romano ((2010) suggested 10 experts while Ludwig (1997) revealed 15-20 experts, for this study 15-20 experts were surveyed according to Ludwig, These Experts are construction Professionals who have managed constructions as project managers, having atleast 10 years' experience in managing large, medium size and complete projects.

### **3.6 Sampling Technique**

The way in which a sample of individuals or subjects are selected to be research participants is critical. It determines the population to which we may generalize our research findings and the extent of existence of bias. According to Groove et al. (2014), sampling technique is about how the participants of the research are reached. Kothari and Garg (2014) identified two major types of sampling techniques; probabilistic (simple, systematic, stratified and sequential) and non-probabilistic (convenience, purposive, etc).

For this study, because two sets of data were to be collected, two sampling techniques were applicable. For the survey involving construction practitioners, convenience sampling method was used. The relevant CPs were targeted during national events involving the respective groupings such as workshops, assemblies and annual general meetings. Convenience sampling was used because it was quick, inexpensive, and convenient.

Snowball sampling (or chain sampling, chain-referral sampling, referral sampling) is also a non-probability sampling technique where existing study subjects recruit future subjects from among

their acquaintances. Thus, the sample group grows like a rolling snowball. Snowball sampling technique was used for the survey that involved project managers where the few known seasoned PMs made referrals to other successful PMs. Going by the nature of the engagement of professionals in the Nigerian construction industry, any of the construction professional can be appointed as a PM for a construction project. Thus, architects, quantity surveyors and engineers were targeted for this second aspect of the study. They are referred to as experts in the Delphi survey in this work because of their knowledge and experiences (to qualify to be surveyed they must have handled project management positions on projects for at least 5 years).

### **3.7 Data Collection**

Ogunleye (2006) defines questionnaire as an instrument used for getting answers to a set of questions by using a format which the respondent fills by himself. According to Osuala (2005), the questionnaire is often divided into two parts. The first part normally is a section which determine some general information about the respondents. The section required such details of the services offered on the project they were providing information on, nature of project, years of experience, complexity of the project, etc. The second part possesses the questions relating to the subject matter of inquiry which involves soft skills and project activities. The data used for this research was collected using two different set of questionnaires.

#### **3.7.1 Data Collection Instrument**

The first set of questionnaires was administered to CPs. The design of questionnaire has three sections as A, B and C. The data used for this research was collected with the aid of a structured questionnaire that has been divided into three sections as shown in appendix 1. Section A sought for the general information about the respondents, section B focuses on the extent to which CPs

possess soft skills using a 6 point Likert rating scale where each. While section C contains items that measure the activities on a project that requires these soft skills.

The second set questionnaire was given to experts that had excelled in Project management practice via Delphi survey, which is usually done in usually between two to four rounds (termed iteration). The questionnaire had two sections that is A and B. Section A contained Attributes (soft skills) that are to be ranked according to the level of importance. The experts were asked to rank seven soft skills being considered in this study in the order they believe it contributes to project success. Section B of the questionnaire asked the experts to indicate the top 3 soft skills required for each project activity, fifteen project management activities were set against seven soft skills. These activities were gotten from the three aspects of PMt which are business & strategy, technical aspect and relationship management. The data was summarised into means and coefficients were established for each of the soft skills based on the three aspects of PMt. The sample questionnaires for the first and second Delphi survey are attached as Appendixes II and III.

### **3.8 Procedure for Data Collection**

The first questionnaires, which were targeted at the CPs, were self-administered by the researcher and with some help from assistants these assistants helped get questionnaires across to CPs within their professional circle. The various CPs were targeted on professional WhatsApp groups, offices and site meetings. The questionnaires were typically issued out personally to the CPs and the completed questionnaires subsequently returned afterwards the same day or a few days later.

The second set of questionnaires, used for the Delphi component, were distributed to the Project Managers via electronic means (email) through snow balling approach and physical contact tracing as a means towards determining the soft skills required for successful project management implementation. This involved the use of PDF interactive questionnaires that were fillable by

entering relevant information or on the click of relevant boxes on a computer screen, saved and returned to the researcher electronically and also hard copy questionnaires to the experts that were physically assessable. The responses were subsequently collated by the researcher. The use of electronic means made the distribution of questionnaires to PMs that were geographically dispersed possible within relatively short period of time. The total number of rounds is usually determined at the point when consensus is reached by the participating panel (Yeung et al., 2007). It encompasses feedback mechanisms that reveal assessment of previous round and a platform for the participating experts to reconsider earlier opinions made (Xu et al., 2010). After analysing the first round of the survey results, the summary and the original response of each participant were sent back as second round survey to give them a chance to either stand by their first choice or change their entries having viewed the summary of the opinions of the other participants. For the purpose of this study, consensus was established after the second round of the survey.

### **3.9 Methods of Data Analysis**

The method of analysis is essential in order to accurately process the data collected from the field. This entails the deployment of appropriate scientific method for achieving the objectives of a study or enquiry. Both descriptive and inferential statistical analysis were conducted on the data using SPSS Version 22 software package. The descriptive statistical tools were used to calculate mean item scores for the CPs responses based on the seven soft skills assessed. The frequency tool was used to calculate the percentages of the CPs responses on what attributes affect project success. The inferential tools used include tools for comparing mean values of responses of the respondents using some certain parameters (such as disciplines, working experience, project management (PMt) activities, PMt training etc) as independent variables.

### **3.9.1 Desk review/research**

This is also referred to as secondary research; and involves review of existing literature. Travis (2016) emphasized that the essence of desk review is to identify and harmonise the nitty-gritty of a research objective. This methodology was adopted in order to properly articulate the concept of softskills and to enable appropriate contextualisation of the concept in line with the aim of the study.

### **3.9.2 Frequency distribution and percentage**

The frequency distribution entails counting of selected variables while percentage involve rating of distributions to the maximum of 100. The higher the percentage rating, the higher or, the more significant the importance attached to such factors(s). The essence of percentage is to allocate a value ranging from 0 to 100 (where 100 is the highest possible value) using factor size and total size. This was employed to analyse the background information about the respondents, and were presented in table form.

### **3.9.3 Mean item score**

This involves assigning numerical values on any given scale and determination of the weighted average. For items that were on 6-point Likert scale, the MIS was computed using the formula

$$\text{MIS} = \frac{7n_7+6n_6+5n_5+4n_4+3n_3+2n_2+1n_1}{n_7+n_6+n_5+n_4+n_3+n_2+n_1}$$

where  $n_1$  = number of respondents who answered extremely low; and  $n_6$  = number of respondents who answered extremely high.

In measuring the Soft skills of the CPs, the mean scores of the items under each sub-section and the average of the mean scores of the sub-sections were computed.

## CHAPTER FOUR

### DATA PRESENTATION AND ANALYSIS

#### 4.1 Introduction

This section deals with data presentation which engages the use of bar charts and pie charts in its presentation, and it also attempts to establish pattern using percentages (%), Mean, Mode and Correlation. The results are clearly presented in tables (distribution tables) and charts to show the percentages in individual variables and the remark as being giving to each.

A total of 360 questionnaires were administered. 286 questionnaires were retrieved which is 79.4%, 10 questionnaires were considered invalid and 276 questionnaires were analyzed which is 76.66%.

##### 4.1.1 Results of the Administered Questionnaires

The analysis of collected data was carried out through simple descriptive analysis using the SPSS 20 to arrive at good results.

The illustration in Table 4.1 showed that a total of 79.40% of the administered questionnaires were retrieved and 76.66% were analyzed from a total of 360 administered while 11.20% were not retrieved.

**Table 4.1 Summary of Questionnaire Survey**

No of questionnaires administered	Number Retrieved	% Retrieved	Number Analyzed	% Analyzed
360	286	79.4	276	76.66

**Source: Field survey (2019).**

**Table 4.2 Services offered on the Project by the respondents**

	Frequency	Percent
Architecture	65	23.55
M & E Engineering	12	4.30
Structural Engineering	78	28.30
Quantity Surveying	85	30.80
Project Management	36	13.10
<b>Total</b>	<b>276</b>	<b>100.0</b>

**Source: Field survey (2019).**

Respondents were asked to respond to questions based on a recent project they were part of, the first of which was services they offered on that project majority of the respondents 30.80% offered Quantity Surveying services on the project they provided information on, 28.3% offered structural engineering service, 23.55% offered architectural services, 10.9% offered Project management service, 4.4% M&E engineering and 2.2% other services, meaning responses were well diversified on different types of project.

#### **4.2 Characteristics of the Respondents**

Table 4.2 shows the general information about the respondents to the questionnaires administered to the CPs. It highlights information regarding services offered on project by the respondents, nature of project, their years of working experience, ownership of project, size of project, complexity of project, time on project, status of project and on which factors were projects considered successful.

**Table 4.3 Time on project**

	Frequency	Percent
Less Than 5 Months	24	8.7
6-11 Months	108	39.1
1-2 Years	72	26.1
Greater Than 2 Years	72	26.1
<b>Total</b>	<b>276</b>	<b>100.0</b>

**Source: Field survey (2019).**

8.7% of respondents had spent less than five months on the project they were providing information based on, 39.1% had spent 6-11 months on the project, 26.1% had spent 1-2 years on the project they were responding based on and 26.1% had spent greater than 2 years on the project they were responding based on.

**Table 4.4 Status Of Project**

	Frequency	Percent
Completed	90	32.6
On-Going	168	60.9
Suspended	6	2.2
Abandoned	6	2.2
Terminated	6	2.2
<b>Total</b>	<b>276</b>	<b>100.0</b>

**Source: Field survey (2019).**

Status of project was surveyed, 32.6% of projects that respondents responded based on were completed, 60.9% ongoing, 2.2% suspended, 2.2% abandoned and 2.2% terminated.

**Table 4.5 Size of Project**

	Frequency	Percent
Small	36	13.0
Medium	90	32.6
Large	96	34.8
Very Large	54	19.6
<b>Total</b>	<b>276</b>	<b>100.0</b>

**Source: Field survey (2019).**

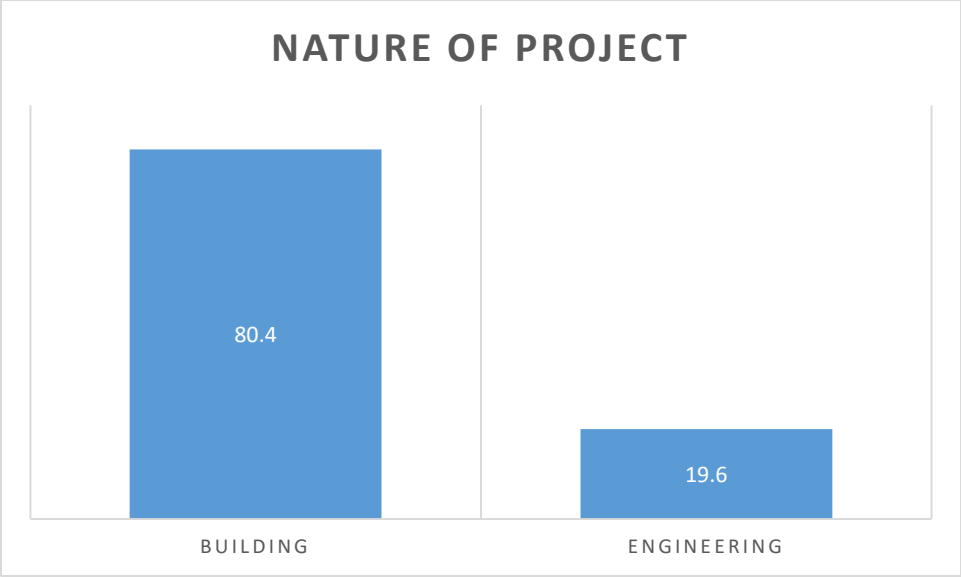
13% of the projects surveyed were small sized projects, 32.6% were medium sized, 34.8% were large projects and 19.4% very large projects.

**Table 4.6 Complexity of project**

	Frequency	Percent
Not Complex	24	8.7
Somewhat Complex	132	47.8
Complex	90	32.6
Very Complex	30	10.9
<b>Total</b>	<b>276</b>	<b>100.0</b>

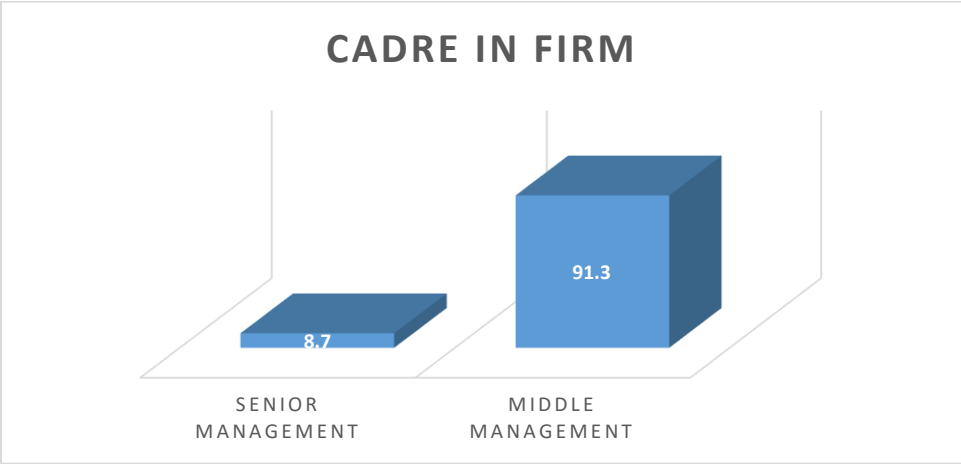
**Source: Field survey (2019).**

CPs were asked to describe the complexity of the project they were responding based on, 8.7% believed the project was not complex, 47.8% indicated the project was somewhat complex, 32.6% of projects were complex and 10.9% very complex.



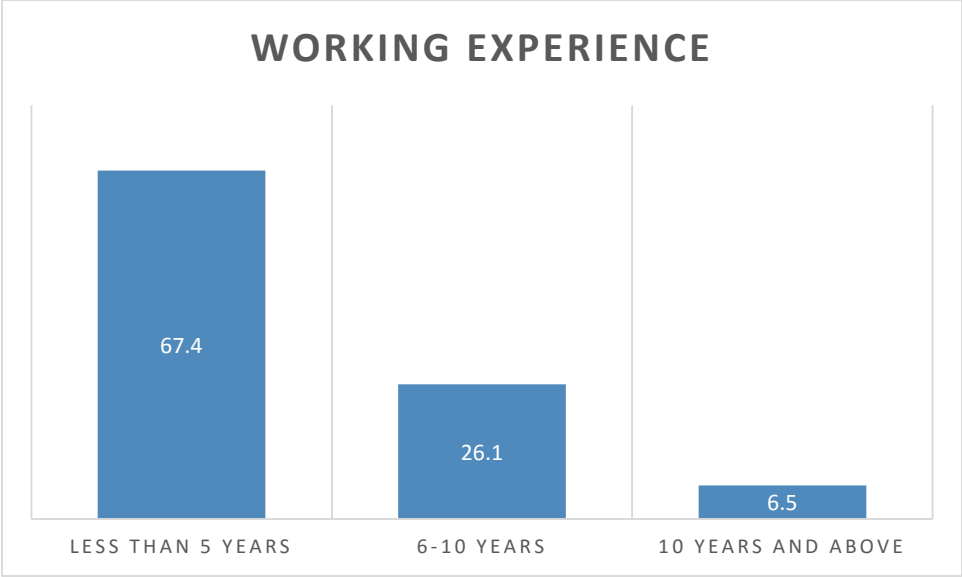
**Figure 4.1-Nature of Project**

Amongst the projects surveyed for which respondents provided information 80.4% were building projects and 19.6% of projects were engineering projects.



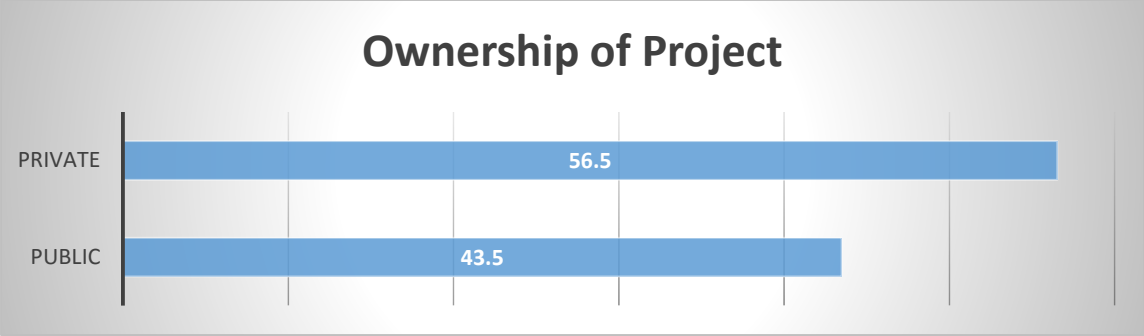
**Figure 4.2 -Cadre in Firm**

91.3% of respondents were in the middle management cadre of the organization or firm they were working in while 8.7% were in senior management.



**Figure 4.3- Working experience**

67% of respondents have less than 5 years’ work experience on projects, 26% had 6-10 years’ work experience on construction projects while 7% of respondents had 10 years’ experience and above.



**Figure 4.4- Ownership of Project**

56.5% of the respondents worked on projects that were private own while 43.5% of the projects were public projects.

### 4.3 Attributes necessary for project success

Table 4.7 shows the attributes (soft skills) of professionals, the soft skills are organized into questions for professionals to self-assess. The first column shows series of questions for self-assessment. The second column shows a drop down of the total sum of answers given by the likert scale 1 to 6 where 1 represents very untrue of me (VU), 2- Untrue of me (UM), 3- Somewhat Untrue of me (SU), 4- Sometimes True of me (ST) and 5-True of me (TM) 6-Very true of me (VT). The result reveals a distribution in percentages of what respondents believe of themselves. This entails that; construction professionals possess these soft skills in varying measures

**Table 4.7 Attributes necessary for project success**

<b>ATTRIBUTES NECESSARY FOR PROJECT SUCCESS</b>						
	<b>VU</b>	<b>UM</b>	<b>SU</b>	<b>ST</b>	<b>TM</b>	<b>VT</b>
Providing appropriate project Information at the right time	2.2	2.2	19.6	47.8	28.3	-
Maintaining self-control in hostile environments	-	-	4.3	19.6	45.7	30.4
Taking a holistic view of project most times.	-	6.5	4.3	32.6	45.7	10.9
Relating with people from different backgrounds without bias	2.2	6.5	4.3	15.2	30.4	41.3
Ensuring that project vision, goals and objectives are clear	-	2.2	4.3	23.9	41.3	28.3
Giving credit to others where due	-	-	2.2	8.7	50	39.1
Ensuring that team atmosphere are comfortable and enjoyable	-	-	6.5	19.6	43.5	30.4
Maintaining formal lines of communication	2.2	2.2	10.9	21.7	34.8	28.3
Quickly resolving conflicts within team members	4.3	-	10.9	17.4	37	30.4
Applying complex concepts when needed to solve problems	8.7	8.7	10.9	28.3	32.6	10.9
Building good relationships with others on the project	4.3	2.2	10.9	-	45.7	37
Influencing project participants when required	-	4.3	8.7	19.6	41.3	26.1
Emphasizing reward systems that encourage better performance	-	-	19.6	23.9	37	19.6
Ensuring everyone participates and is heard in group discussions	2.2	2.2	4.3	28.3	43.5	19.6
Promoting the use of constructive feedback	2.2	2.2	8.7	23.9	43.5	19.6
Balancing competing and opposing goals	-	8.7	4.3	32.6	47.8	6.5
Relating multiple related issues to understand project problems	2.2	4.3	2.2	30.4	43.5	17.4
Developing/nurturing personal and professional networks	2.2	-	4.3	13	58.7	21.7
Setting milestones to measure achievement of project goals	2.2	2.2	13	19.6	30.4	32.6
Getting team members back on track after a major setback	-	-	13	21.7	50	15.2
Harmonizing team members efforts towards project success	-	-	2.2	28.3	39.1	30.4

ATTRIBUTES NECESSARY FOR PROJECT SUCCESS	DESCRIPTION OF SELF				
	VM	UM	SU	ST	TM
Providing appropriate project Information at the right time	2.2	2.2	19.6	47.8	28.3
Maintaining self-control in hostile environments	VU	UM	4.3	19.6	45.7
Taking a holistic view of project most times.	VU	6.5	4.3	32.6	45.7
Relating with people from different backgrounds without bias	2.2	6.5	4.3	15.2	30.4
Ensuring that project vision, goals and objectives are clear	VU	2.2	4.3	23.9	41.3
Giving credit to others where due	VU	UM	2.2	8.7	50.0
Ensuring that team atmosphere are comfortable and enjoyable	VU	UM	6.5	19.6	43.5
Maintaining formal lines of communication	2.2	2.2	10.9	21.7	34.8
Quickly resolving conflicts within team members	4.3		10.9	17.4	37.0
Applying complex concepts when needed to solve problems	8.7	8.7	10.9	28.3	32.6
Building good relationships with others on the project	4.3	2.2	10.9		45.7
Influencing project participants when required	VU	4.3	8.7	19.6	41.3
Emphasizing reward systems that encourage better performance	VU	UM	19.6	23.9	37.0
Ensuring everyone participates and is heard in group discussions	2.2	2.2	4.3	28.3	43.5
Promoting the use of constructive feedback	2.2	2.2	8.7	23.9	43.5
Balancing competing and opposing goals	VU	8.7	4.3	32.6	47.8
Relating multiple related issues to understand project problems	2.2	4.3	2.2	30.4	43.5
Developing/nurturing personal and professional networks	2.2		4.3	13.0	58.7
Setting milestones to measure achievement of project goals	2.2	2.2	13.0	19.6	30.4
Getting team members back on track after a major setback	VU	UM	13.0	21.7	50.0
Harmonising team members efforts towards project success	VU	UM	2.2	28.3	39.1

*Source: Field survey (2019)*

**Table 4.8 Ranking Attributes necessary for project success**

		<b>N</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>
TW	Allowing every team member make inputs where necessary	276	1	7	5.54
MS	Being always optimistic and positive	276	1	7	4.13
IS	Expressing self-e.g. belief, thoughts in a non-destructive manner	276	1	7	4.02
LS	Mentoring team members towards their development	276	1	7	3.93
COG	Applying lessons learned to resolve current project issues	276	1	7	3.65
CM	Promoting informal lines of communication	276	1	7	3.57
CMG	Recognizing conflicts at the onset and set measures to address them	276	1	7	3.07

*Source: Field survey (2019).*

Respondents (construction practitioners) were asked to rank soft skills in the order they perceived them to be important, TW- teamwork skills, MS- Motivation skills, IS- Interpersonal skills, LS- Leadership skills, CS- Cognitive skills, CM- Communication skills and CMS- Conflict management skills, Respondents ranked teamwork skills the highest with a mean ranking of 5.54 and conflict management skills the lowest with mean ranking of 3.07.

**Table 4.9 Mean of the Attributes Necessary for Project Success**

		N	Mean
MS1	Giving credit to others where due	276	5.26
CMG1	Maintaining self-control in hostile environments	276	5.02
IS1	Building good relationship with others on the project	276	5.02
TW1	Harmonizing team members efforts towards project success	276	4.98
TW2	Ensuring that team atmosphere are comfortable and enjoyable	276	4.98
CM1	Providing appropriate project information at the right time	276	4.93
IS2	Developing/nurturing personal and professional networks	276	4.91
IS3	Relating with people from different backgrounds without bias	276	4.89
LS1	Ensuring that project vision, goals and objectives are clear	276	4.89
LS2	Influencing project participants when required	276	4.76
CMG2	Quickly resolving conflicts within team members	276	4.74
LS3	Setting milestones to measure achievement of project goals	276	4.72
CM2	Maintaining formal lines of communication	276	4.70
TW3	Getting team members back on track after a major setback	276	4.67
TW4	Ensuring everyone participates and is heard in group discussion	276	4.67
CM3	Promoting the use of constructive feedback	276	4.63
COG1	Relating multiple related issues to understand project problem	276	4.61
MS2	Emphasizing reward systems that encourage better performance	276	4.57
COG2	Taking a holistic view of project most times	276	4.50
CMG3	Balancing competing and opposing goals	276	4.39
COG3	Applying complex concepts when needed to solve problems	276	4.00

*Source: Field survey (2019).*

Table 4.9 gives the mean ranking of the attributes (soft skills) CPs possess, a summary table has been given in Table 4.10, where each statements above have been broken down into skills which they originally represent.

### 4.3 Soft Skills Possessed by Construction Practitioners

**Table 4.10** summary of soft skills possessed by CPs

<b>Skills</b>	<b>Avg mean</b>
Leadership	4.79
Teamwork	4.83
Motivation	4.91
Interpersonal skills	4.94
Conflict management	4.72
Communication	4.75
Cognitive skills	4.37

*Source: Field survey (2019).*

From Table 4.10 it can be seen that Cps possess soft skills in varying measures, they possess motivation skills the highest with a mean score of 4.91 and cognitive skills the least with a mean score of 4.37 amongst the seven soft skills being assessed.

**Table 4.11 CPs performance based on Project activities**

Project activities	1. Description of yourself			2. Description of how the project was managed		
	PR	AV	EX	PR	AV	EX
Engaging stakeholders on the essential and core business aspects of the project	10.9	37.0	52.2	6.5	56.5	37.0
Focusing on critical elements e.g. schedule, financial reports, issue log etc	8.7	39.1	52.2	15.2	43.5	41.3
Managing conflicts by building trust, satisfying concerns, and seeking consensus	13.0	37.0	50.0	17.4	58.7	23.9
Working with client and others to develop appropriate project delivery strategy	13.0	30.4	56.5	13.0	39.1	47.8
Applying both traditional and agile tools, techniques and methods in managing projects	17.4	41.3	41.3	13.0	54.3	32.6
Communicating by managing expectations, accepting and receiving feedbacks	10.9	43.5	45.7	15.2	43.5	41.3
Implementing strategies in ways that maximizes the business value of the project	10.9	30.4	58.7	8.7	43.5	47.8
Making time to plan thoroughly and prioritizes diligently	10.9	39.1	50.0	13.0	54.3	32.6
Having a holistic view of the project, taking into account internal and external factors	15.2	43.5	41.3	10.9	47.8	41.3
Understanding how strategic and business related factors can affect the project	-	58.7	34.8	13.0	47.8	39.1
Managing project elements e.g. schedule, cost, resources, risk, quality etc	10.9	43.5	45.7	8.7	54.3	37.0
Building project teams, understanding and empathizing with team members	10.9	41.3	47.8	13.0	58.7	28.3

*Source: Field survey (2019).*

Table 4.11 shows fifteen (15) major activities that the project manager performs all through a typical construction project lifecycle, respondents were asked to describe how they performed personally on the project and how the project performed, respondents were asked to describe their

performance and project performance with PR-Poorly, AV-Averagely and EX-Excellently, these responses are shown in percentages in the table above overall respondents performed fairly on projects and projects performed well where respondents possessed these soft skills.

#### 4.4 Correlation analysis

A correlation analysis was carried out to establish the relationship between CPs soft skills; Individual performance and project performance

**Table 4.12 Relationship between CPs Soft Skills, Individual Performance and Project Performance**

		<b>Individual performance</b>	<b>Project performance</b>
Leadership	Pearson Correlation	.846	1.000*
	Sig. (2-tailed)	.358	.013
Teamwork	Pearson Correlation	.971	.679
	Sig. (2-tailed)	.154	.525
Motivation	Pearson Correlation	.788	.997
	Sig. (2-tailed)	.422	.051
Interpersonal skills	Pearson Correlation	.797	.998*
	Sig. (2-tailed)	.413	.042
Conflict management	Pearson Correlation	.976	.936
	Sig. (2-tailed)	.141	.230
Communication	Pearson Correlation	.826	1.000*
	Sig. (2-tailed)	.382	.011
Cognitive skills	Pearson Correlation	.997*	.792
	Sig. (2-tailed)	.047	.418

\*. Correlation is significant at the 0.05 level (2-tailed).

\*\*. Correlation is significant at the 0.01 level (2-tailed).

Pearson correlation analysis was carried out to see the relationship between soft skills, individual performance and overall project performance, as shown in the table above there was significant

relationship between soft skills and individual performance and overall project performance with leadership, interpersonal and communication skills having the greatest influence on project performance and cognitive skills having the greatest influence on individual performance

**Table 4.13 Ranking of soft skills Necessary for Project Success**

		<b>Respondents (experts)</b>	<b>MOD E</b>
<b>ATTRIBUTES NECESSARY FOR PROJECT SUCCESS</b>		<b>N</b>	
CM	Promoting informal lines of communication	11	2
CMG	Recognizing conflicts at the onset and set measures to address them	11	5
COG	Applying lessons learned to resolve current project issues	11	4
IS	Expressing self-e.g. belief, thoughts in a non-destructive manner	11	6
LS	Mentoring team members towards their development	11	1
MS	Being always optimistic and positive	11	7
TW	Allowing every team member make inputs where necessary	11	3

*Source: Field survey (2019).*

Through the Delphi survey the experts were asked to rank soft skills in order of importance, eleven (11) experts were surveyed and they ranked leadership skill first and motivation skill the least.

#### 4.4 Information about Performing Project Activities

Through the Delphi survey experts were asked to select the top three soft skills required for performing project management activities, after two rounds there was a consensus as shown in Table 4.14

**Table 4.14 Information about Performing Project Activities**

Below are activities that influences project success. To each of them kindly indicate the top 3 soft skills required to effectively perform them, indicate "1" for the skill that you believe is most influential "2" for the next followed by "3".	Communication skills	Leadership skills	Conflict Management skills	Motivation Skills	Teamwork Skills	Cognitive Skills	Interpersonal Skills
Engaging stakeholders on the essential and core business aspects of the project	1	2					3
Focusing on critical elements e.g. schedule, financial reports, issue log etc		3			2	1	
Managing conflicts by building trust, satisfying concerns, and seeking consensus		3	1				2
Working with client and others to develop appropriate project delivery strategy	3	2			1	1	3
Applying both traditional and agile tools, techniques and methods in managing projects	2				3	1	
Communicating by managing expectations, accepting and receiving feedbacks	1	2					3
Implementing strategies in ways that maximizes the business value of the project	3	2				1	
Making time to plan thoroughly and prioritizes diligently	2	3				1	
Having a holistic view of the project, taking into account internal and external factors	2				3	1	
Understanding how strategic and business related factors can affect the project	2					1	3
Managing project elements e.g. schedule, cost, resources, risk, quality etc	3				2	1	
Building project teams, understanding and empathizing with team members			3	2	1		

**Source: Field survey (2019).**

The generic project management activities identified from literature and used for this study include: business & strategy, technical aspect and relationship management, Table 4.14 outlines

the top 3 soft skills required for each activity according to the experts, with 1 the highest and 3 the lowest amongst the three for each activity.

#### 4.5.1 Summary of Skills Required on each Project Activity

A further breakdown of soft skills required per project activity in summarized form from Table 4.14 is presented in Table 4.15.

Table 4.15 Summary of Skills Required on each Project Activity

	<b>Skills required per activity</b>	<b>Most required skill per activity</b>
Business aspect activity	Communication, Leadership and Interpersonal Skills	Communication
Business aspect activity	Teamwork Skills, Leadership Skills And Communication Skills	Teamwork Skills
Business aspect activity	Cognitive Skills, Leadership and Communication	Cognitive Skills
Business aspect activity	Cognitive, Leadership and Interpersonal Skills	Cognitive Skills
Relationship/leadership aspect activity	Conflict Management, Interpersonal Skills and Leadership	Conflict Management
Relationship/leadership aspect activity	Communication, Leadership and Interpersonal Skills	Communication
Relationship/leadership aspect activity	Cognitive Skills, Leadership and Communication	Cognitive Skills
Relationship/leadership aspect activity	Cognitive, Communication and Team Work	Cognitive Skills
Technical aspect activity	Cognitive Skills, Teamwork and Leadership	Cognitive Skills
Technical aspect activity	Cognitive Skills, Teamwork and Communication	Cognitive Skills
Technical aspect activity	Cognitive, Communication and Leadership	Cognitive Skills
Technical aspect activity	Cognitive, Teamwork and Communication	Cognitive Skills

*Source: Field survey (2019).*

The various activities were grouped into different aspects of the project which includes business, relationship and technical, the top three skills required for each activity were selected by a panel

of experts, cognitive skill was the most frequently selected for project activities across the various aspects by experts followed by communication skills, all seven soft skills were required in the different activities the PM has to perform through the project life cycle.

#### **4.5 Discussion of Results**

Soft skills are related to the ability to work in a team (Zhang et., al. 2013) and the ability to control and to persuade members to work in the expected direction (Kilkelly, 2011). With reference to Table 4.9 CPs possess soft skills such as interpersonal skills, motivation skills and team work skills with mean rankings of 4.94, 4.91 and 4.83 respectively. Furthermore, the results of experts Delphi survey on the soft skills revealed that communication, leadership and team ability were three most ranked soft skill, as presented in Table 4.10. In previous studies, soft skills have been recognized as critical competences of project management professionals. However, most of these studies are conceptual in nature which provided little empirical data. This study offers empirical evidence that project managers' soft skills contribute toward successful project management implementation.

The results from the survey of construction practitioners showed that there was statistically significant relationship between project managers' soft skills, individual performance and project performance, which in turn helps to achieve the project success as shown in Table 4.3. leadership and communication skills had the highest influence on project performance while cognitive skills had the highest influence and relationship to personal performance.

Leadership skill and communication skills received the highest mean ranking according to experts as presented in Table 4.10. Geoghegan and Dulewicz (2008) suggested that leadership competency of project managers made certain contribution to the project success. They further highlighted critical dimensions of leadership such as: managing resources, self-awareness, critical analysis,

and sensitivity. However, Yang *et al.* (2011) argued that teamwork had moderating effect on the association between leadership competency and project success. Vo and Hannif (2012) pointed out that project managers had acquired some forms of shared leadership behaviors, such as being people-oriented. These leadership behaviors, thus, would create shared values and minimize differences in the multidisciplinary and multicultural project environment. The project manager who is accountable for project delivery will have a positive and significant impact on project outcomes (Thi and Swierczek, 2010).

Similarly, effective and efficient communication plays a critical role in project management, the experts ranked communication skills as the second most important soft skill as presented in Table 4.9. A large amount of information is generated in a typical construction project. This is especially the case in complex projects. Therefore, it is a challenge to communicate this information amongst various project stakeholders timely and accurately. Henderson (2008) argued that the communication competency of project managers had significant impact on the project team's productivity and satisfaction. Effective communication helps to achieve team cohesiveness, mutual understanding and a sense of ownership in the project (Yang *et al.*, 2011). Luu *et al.* (2008) stated that the poor performance of project teams resulted from a lack of communication and subsequent slow decision-making. Thus, effective communication skill is of great importance to project success.

Teamwork skills received a high mean ranking according to the Delphi survey results presented in Table 4.14. Aiming for collaborating with others towards the shared goal, teamwork has attracted a wide attention in project management research and practice. However, there have been arguments with regards teamwork as shown in recent studies. Zhang *et al.* (2013) classified teamwork as one component of emotional intelligence. Their survey with project managers in the

Chinese construction industry showed that there is no statistical significant relationship between teamwork and project performance. Suprpto *et al.* (2015) argued that teamwork played a mediating role in the impacts of rational factors on the project performance. Yang *et al.* (2011) suggested that the relationship between teamwork and project success was moderated by the project type. It is interesting to note that previous studies in the context of Vietnam have highlighted the teamwork related issues. Nguyen *et al.* (2007) asserted that one of critical challenges to project teams was ineffective teamwork. This was echoed by Vo and Hannif (2012) who noted that Vietnamese managers did not tend to value collaboration-related behaviors, such as sharing power and delegation, which was a source of conflict and detrimental to the project success.

Cognitive skill is also a vital competence of project managers; it was the most required skills to perform the various aspects of project activities based on responses received. According to Huang *et al.* (2015), specific cognitive skills moderated the relationship between exploitation learning and project efficiency. However, Ahadzie *et al.* (2008) argued that the cognitive skills did not have direct impacts on the job performance of project managers. Rather, such influence is mediated by job knowledge (Ahadzie *et al.*, 2008). Decision-making and problem-solving skills, which build on cognitive skill, were regarded as the second and third most important skill of project management professionals respectively (Thi and Swierczek, 2010). One of critical issues associated with managing construction projects is the ineffectiveness of decision-making. The decision-making process is not only dependent on the project team but also achieved through the involvement of senior management. Excessive changes in orders, slow decision-making processes, and interference have been frequently cited as causes of project failure (Nguyen *et al.*, 2004).

Achievement motivation skills also received a high mean ranking of 4.91 from Construction practitioners. It has been well recognized that motivation plays a crucial role in achieving project success. Therefore, project managers should recognize the need to motivate and support other team members to cope with project challenges. Schmid and Adams (2008) argued that three common sources of de-motivation in the context of project management were: lack of top management support, personnel conflicts amongst project team members, and change of project scope. A number of approaches are available for project motivation, such as economic approach, social approach, and psychological approach. Kim *et al.* (2015)'s study showed that achievement was one of critical psychological factors that motivate foreign labors to perform in the Korean construction industry. However, it is worth noting that formal monetary motivation is still widely used in the construction industry. Kim *et al.* (2015) revealed that economic factors (e.g. salary, incentives, welfare) were more influential than social and psychological factors in terms of project motivation. By contrast, this study suggested that attention needs to be paid to the achievement motivation skills, i.e. competent project management professionals are driven by competition, achievement and success. Indeed, current achievement and future opportunities could provide more motivations to project team members (Seiler *et al.*, 2012).

Interpersonal skills are also vital as there is a large number of stakeholders involved in a typical construction project, with the project manager saddled with the responsibility of harmonizing the inputs of various project participants from different backgrounds. It is also not unusual that these stakeholders do not share the same vision and have different goals to achieve. Such conflict has been recognized as a critical barrier to achieve high efficiency and optimal performance in construction projects (Rajeh *et al.*, 2015). To manage these conflicts properly, it is imperative to establish trust-based relationship among project stakeholders and to distribute resources fairly (Al-

Sibaie *et al.*, 2014). The common approach to manage conflicts varies in different cultures. Therefore, cultural factors need to be taken into account when developing conflict management strategies.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 Summary of Findings**

1. Seven core soft skills; Leadership, communication, Cognitive, motivation, Interpersonal skills, Teamwork and conflict management, were identified from literature.
2. CPs possess interpersonal skills (4.94), motivation skills highest (4.91), Conflict management (4.72) and cognitive skills the lowest (4.37).
3. All the soft skills identified from literature and were all confirmed to be used for various project activities.
4. Cognitive skill is the most required soft skill for project activities which covers Business aspect, technical and Relationship aspect.
5. Leadership & communication skills were ranked the highest amongst the soft skills by the experts, while motivation was ranked the lowest.
6. For completed projects surveyed in which CPs possessed soft skills the results showed a positive relationship between soft skills and project performance
7. The more complex the project the more the soft skills required to successfully deliver it, as shown from the relationship between soft skills and project performance.
8. There exists a positive relationship between CPs soft skills, project activities and project success

#### **5.2 Conclusion**

This study identified the soft skills commonly used in the management of construction projects, the extent to which CPs possess these soft skills and established the relationship between these soft skills of project managers and project performance thus the aim and objectives of this study

were achieved. Through literature review 20 soft skills were identified categorized under seven categories and the relationship to the 15 project management activities under three categories (Business, Relationship and Technical) were confirmed with empirical evidence. In addition, the quantitative effect of soft skills on project activities was statistically significant. Therefore, with the empirical evidence, this study confirmed that soft skills of project managers significantly contribute to the project success in the construction industry. Soft skills of project management professionals are necessary for successfully project implementation, meaning construction practitioners that have developed soft skills will contribute significantly to making construction projects implementation more successful in the Nigerian construction industry.

This study provides an understanding of the soft skills for project management in the construction industry and their quantitative effect on project success which was unknown. Firstly this study confirmed the seven (7) soft skills identified from literature had influence on project performance and the 15 project activities proposed by Larson and Gray, (2011), Secondly, No studies before this have attempted to investigate the relationship between soft skills of project management and project activities. This study significantly contributes to the literature relating to project management, through empirically testing the quantitative effect of soft skills on project activities, as this study has highlighted the most important soft skills; the extent to which CPs possess them and their relationship to various project activities.

From the practical perspective, this study highlighted a list of critical soft skills that project management professionals need to grasp, CPs did not rank very high on Cognitive skills which was the most required soft skill considering the complex nature of modern projects, CPs did not rank high on Conflict management skills also, these two skill sets are very core to project

management implementation and a low ranking on these will negatively affect project performance and the construction industry.

### **5.3 Recommendations**

It is recommended that CPs should make concerted efforts to develop core soft skills required for project management implementation by engaging in trainings that develop these skills. Consequently, industry practitioners can customize their own project management guide book in a bid to enhance the likelihood of project success. For instance, more trainings and resources could be made available for developing project management professionals' cognitive skills due to its high demand for project activities and influence on project success.

### **5.4 Areas of Further Research**

Future research should investigate the influence of moderating factors, such as project size and complexity, and project governance relationships between soft skills and project success. In addition, future research could be undertaken to examine the empirical effect of specific soft skill on specific project success, additional most especially soft skills not explored in this study can also be researched.

### **5.5 Contribution to Knowledge**

- I. This research contributed to comprehending the significance that project management soft skills play on the success or failure of projects.
- II. This study analyzed the CPs soft skills that had on the project success and defined the relationship between the project managers' soft skills and the project performance.

- III. This study highlighted the importance of construction practitioner's soft skills and determine its level of application in the construction industry and its importance in achieving high performance levels.
- IV. It Contributes to the development of the Project management soft skills which contributes to delivering projects successfully while meeting clients' expectations and Help other researches to further analyze the project manager soft skills, and its importance either on the same industry or for other industries.
- V. Help the construction practitioners educating institution, organizational decision makers and project managers working for project organizations to see the benefits of improving the project managers' soft skills, and give recommendation of using the most effective way of developing the CPs soft skills.

## REFERENCES:

- Adebakin, A. B. (2015). Does Internship Experience Beget Academic Relevance and Employment Prospects: An Assessment Of Graduate Interns From A Nigerian University, *Bulgarian Journal of Science & Education Policy*, 9(1).
- Ahadzie, D. K., Proverbs, D. G. and Olomolaiye, P. (2008), "Towards developing competency-based measures for construction project managers: Should contextual behaviours be distinguished from task behaviours?", *International Journal of Project Management*, 26 (6), 631-645.
- Ahmed, R., Azmi, N. and Masood, M. (2013). The Essence of Project Leadership is Significant to Project Management *Research Journal of Recent Sciences*, 2(5), 44-48
- Alam, M., Gale, A., Brown, M. and Kidd, C. (2007) 'The development and delivery of an industry led project management professional development programme: A case study in project management education and success management', *International Journal of Project Management*, 26, 223-237
- Alias, Z., Zawawi, E. and Yusof, K. (2014) 'Determining Critical Success Factors of Project Management Practice: A conceptual framework', *Procedia – Social and Behavioral Sciences*, 153, 61-69
- Al-Tmeemy, S. M. H. M., Abdul-Rahman, H., & Harun, Z. (2011). Future criteria for success of building projects in Malaysia. *International Journal of Project Management*, 29(3), 337-348.
- Andersen, E. S.; Birchall, D.; Jessen, S. A.; Money, A. H. (2006) Exploring project success. *Baltic Journal of Management*, 1(2), 127–147.
- Anantatmula, V.S., (2010) Project Manager Leadership Role in Improving Project performance. *Engineering Management Journal*, 22(1), pp.13–22.

- APM (2006), *APM Competence Framework*, Association for Project Management, Buckinghamshire, UK.
- Atkinson, R. (1999). Project management: Cost, time and quality, two best guesses and a phenomenon, it's time to accept other success criteria. *International Journal of Project Management*, 17, 337–342.
- Awan, M. H., Ahmed, K. and Zulquanain, W. (2015). Impact of Project Manager ' s Soft Leadership Skills on Project Success, *Journal of poverty, investment and Development*, 8, 27–47.
- Azzopardi, S. (2007). The evolution of project management. Retrieved 1 June 2019 from <http://www.pmforum.org/library/papers/index.htm>
- Baccarini, D. (1999). The logical framework method for defining project success. *Project Management Journal*, 30(4), 25-32.
- Baker, W. (2005). *Manage Projects Effectively*. Sydney, NSW. Pearson Education.
- Barker, J. (1992). *Paradigms: The Business of Discovering the Future*. New York: HarperCollins Publisher.
- Beale, P. & Freeman, M., (1991). Successful Project Execution: A Model. *Project Management Journal*, 12(4), 23–30.
- Belassi, W., & Tukel, O. I. (1996). A new framework for determining critical success/failure factors in projects. *International Journal of Project Management*, 14(3), 141-151.
- Bendell, T., Boulter, L., Kelly, J. (1998). *Benchmarking for Competitive Advantage*. London: Pitman Publishing.
- Beringer, C., Jonas, D., & Kock, A. (2013). Behavior of internal stakeholders in project portfolio management and its impact on success. *International Journal of Project Management*, 31(6), 830-846.
- Beukers, M. W. (2011). project characteristics, challenges and training needs. *Drug Discovery Today*. *Project management of life-science research projects*, 16 (3-4), 93–98.
- Blindenbach-Driessen, F., Jan van den, E. (2006). Innovation in project-based firms: The context dependency of success factors. *Research Policy*, 35, 545–561.
- Brandel, M. 2006. The New Project Manager: Being a project manager today is a lot different than it was just a few years ago. *Computerworld*, 10 April p.1, 46-47. Available from: <http://www.computerworld.com/action/article.do?command=viewArticleBasic&articleId=110268> [Accessed on 28 Sep 2019].

- Briner, W., Hastings, C. and Geddes M. (2001) *Project Leadership*. 2nd edn. Aldershot, England: Gower.
- Belout, A., & Gauvreau, C. (2004). Factors affecting project success: The impact of human resource management. *International Journal of Project Management*, 22(1), 1-12.
- Brones, F., and Carvalho, M. M. (2014): integrating literature toward a systemic ecodesign model. *Journal of Cleaner Production*, 96, 44–57.
- Bryde, D. J. and Robinson, L. (2005). Client versus contractor perspectives on project success criteria. *International Journal of Project Management*, 23, 622–629.
- Boyatzis, R. E. (2011), "Managerial and leadership competencies a behavioral approach to emotional, social and cognitive intelligence", *Vision: The Journal of Business Perspective*, 15 (2), 91-100.
- Byrd, T.A., D.E. Turner. An Exploratory Analysis of the Value of the Skills of IT Personnel: Their Relationship to IS Infrastructure and Competitive Advantage. *Decision Sciences* 32(1) 21-54.
- Campana, J. (2010). The Soft Skills of Project Management : A view from Diploma graduates Thesis submitted for the award of Master of Education Queensland University of Technology Faculty of Education.
- Carstens, A. (2016). Cultivating the soft skills of future construction managers through restorying construction workers ' career narratives, *The Journal for Transdisciplinary Research in Southern Africa* 4, 1–9.
- Carvalho, M. M. and Rabechini Junior, R. (2015) Impact of risk management on project performance: the importance of soft skills. *International Journal of Production Research*, 53(2) 321–340.
- Chamorro-Premuzic, T., Arteche, A., Bremner, A., Greven, C., & Furnham, A. (2010). Soft skills in higher education: Importance and improvement ratings as a function of individual differences and academic performance. *Educational Psychology*, 30, 221–241.
- Chan, A., Scott, D. and Chan, A. (2004). Factors affecting the success of a construction project', *Journal of Construction Engineering Management*, 130 (1) 153-155
- Chan, E. S. K., and Swatman, P. M. C. 2000. Electronic Commerce Careers: a Preliminary Survey of the Online Marketplace. In: *13th International Bled Electronic Commerce Conference*, 19-21 June 2000, Slovenia, 1-17.
- Cleland, D. (1995) 'Leadership and the project-management body of knowledge', *International Journal of Project Management*, 13 (2) 83-88

- Cooke-Davies, T. (2002). The “real” success factors on projects. *International Journal of Project Management*, 20(3), 185-190.
- Crawford, L. (2005). Senior management perceptions of project management competence. *International Journal of Project Management*, 23(1), 7 -16.
- Creasy, T. and Anantatmula, V. S. (2013) ‘From every direction: how personality traits and dimensions of project managers can conceptually affect project success’, *Project Management Journal*, 44 (6), 36-51.
- Creswell, J. W. (2005). *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research*. 2nd edition. Upper Saddle River, NJ. Merrill Prentice Hall
- Creswell, J. (2003). *Research design: Qualitative, quantitative and mixed methods approaches* (2nd ed.). Thousand Oaks, CA: SAGE Publications.
- Crosbie, R. (2005). Learning the soft skills of leadership, *Industrial and Commercial Training*, 37, 45-51
- Couillard, J. (1995). The role of project risk in determining project management approach. *Project Management Journal*, 26(4), 3-15.
- Cowie, G. (2003). The importance of people skills for project managers. *Industrial and Commercial Training*, 35(6), 256-258.
- Deepa, S. S., & Seth, M. (2013). Do Soft Skills Matter? – Implications for Educators Based on Recruiters' Perspective. *IUP Journal of Soft Skills*, 7(1), 7-20.
- De Wit, A. (1988), "Measurement of project success", *International Journal of Project Management*, 6 (3) 164-170.
- Dur, L. (2017). A Review of the Soft Side in Project Management : concept , trends , and challenges, (June). <https://doi.org/10.15675/gepros.v12i2.1644>
- Dulewicz, V. & Higgs, M., 2005. Assessing leadership styles and organisational context. *Journal of Managerial Psychology*, 20(2), 105–123.
- Dyett, V. (2011). *Roles and Characteristics of the Project Manager in Achieving Success across the Project Life Cycle*. Unpublished Ph.D., Lynn University, Ann Arbor.
- Dzenowagis, A. (2008) ‘Intercultural Communication in Global Business’, *PMI Global Congress 2008*, Australia: Sydney, pp. 1-8.
- Easterby-Smith, M., R. Thorpe, and Lowe, A (2003) *Management Research: An Introduction* (2nd edition), London ,Sage Publication Ltd.

- Easterby-Smith, M., Thorpe, R. and Jackson, P.R. (2008) *Management Research*. 3rd edn. England: Sage Publications Ltd.
- Easterby-Smith, J. Burgoyne & L. Araujo (2009) Organizational Learning and the Learning Organization (London: Sage) 1-23.
- Esa, M., Samad Z. A. & Alias A. B. (2014). Preparing Project Managers to Achieve Project Success - Human Related Factor, *International Journal of Research in Management & Technology* 4(2), 104–110.
- Esan, E.O & Okafor, R.O (1995). Testing statistical hypotheses. In: Basic Statistical Methods. JAS publishers, Lagos. 116-155.
- Edum-Fotwe, F.T. & McCaffer, R., 2000. Developing project management competency : perspectives from the construction industry. *International Journal of Project Management*, 18,111–124.
- Englund, R.L. and Bucero, A. (2013) ‘Developing Your Humor Skills for Project Success’, *PMI Global Congress 2013*, USA: New Orleans, pp. 1-10.
- Elattar, S. M. S. (2009). Towards developing an improved methodology for evaluating performance and achieving success in construction projects. *Scientific Research and Essay*, 4, 549-554
- El-Sabaa, S. 2001. The skills and career path of an effective project manager. *International Journal of Project Management*, 19(1), 1-7.
- Farrel, R. Z. (2012) ‘Power to the People Skill’, *PM Network*, 26 (11), pp. 62-65. Business Source Complete, EBSCOhost [Online]. (Accessed: 10 May 2014).
- Ferraro, J. (2006) ‘Project Manager as Generalist: Project Manager as Obsolete!’, *PMI Global Congress 2006*, Washington: Seattle, 1-7.
- Fisher, E., 2011. What practitioners consider to be the skills and behaviours of an effective people project manager. *International Journal of Project Management*, 29(8), pp.994–1002.
- Fletcher, S. M.; Gunning, J. G.; Coates, R. (2014) Soft skills of senior contracts managers in Northern Ireland. *Proceedings of Institution of Civil Engineers: Management, Procurement and Law*, 167 (1), 35–45.
- Frodell, M. (2008). Swedish construction clients' views on project success and measuring performance. *Journal of Engineering, Design and Technology*, 6, 21–32.
- Gallivan, M., Truex, D., & Kvasny, L. (2004). Changing patterns in IT skill sets 1988-2003. *ACM SIGMIS Database*, 35, 64–87.

- Gaddis, P. (1959) 'The Project Manager', *Harvard Business Review*, 37 (3), pp. 89-97. Business Source Complete, EBSCOhost [Online]. (Accessed: 17 April 2019).
- Gale, S. (2007) 'Bridging the Gap', *PM Network*, 21 (3), pp. 26-31. Business Source Premier, EBSCOhost [Online]. (Accessed: 14 April 2019).
- Gale, A., and Brown, M. 2003. Project management professional development: An industry led programme. *Journal of Management Development*, 22(5), 410-425.
- Gardiner, P. D., & Stewart, K. (2000). Revisiting the golden triangle of cost, time and quality: the role of NPV in project control, success and failure. *International Journal of Project Management*, 18(4), 251-256.
- Gardiner, P. 2005. *Project Management: A Strategic Planning Approach*. Hampshire: Palgrave Macmillan.
- Geoghegan, L., Dulewicz, W. (2008). Do Project Managers' Leadership Competencies Contribute to Project Success? *Project Management Journal*, 39(4), 58–67.
- Gillard, S. (2009). Soft Skills and Technical Expertise of Effective Project Managers. In *Issues in Informing Science and Information Technology*. 6,723-729.
- Glader, A. (2001). *Learning and competence development – The study of competence development in large Swedish organizations*. (Master). Umea School of Business and Economics.
- Goleman, D. (1995). *Emotional intelligence*. New York, NY: Bantam Books.
- Golemon, D., Boyatzis, R. and McKee, A. (2004), *Primal Leadership: Learning to Lead with Emotional Intelligence*, Harvard Business School Press, Boston, MA.
- Grabher, G. (2004) Learning in projects, remembering in networks? Communitarity, sociality and connectivity in project ecologies. *European Urban and Regional Studies*, 11 (2), 103–123
- Grove, S. K., Burns, N., & Gray, J. (2014). *Understanding nursing research: Building an evidence-based practice*. Elsevier Health Sciences.
- Hair, J. F., Ringle, C. M. and Sarstedt, M. (2012), "Partial least squares: The better approach to structural equation modeling?", *Long Range Planning*, 45 (6), 312–319.
- Hardy-Vallee, B. (2012) 'The Cost of Bad Project Management' [Online] (Accessed on 18 August 2019) Available from <http://www.gallup.com/businessjournal/152429/cost-bad-project-management.aspx>
- Hartley, S. (2003). *Project Management: A competency-based approach*. Sydney, NSW. Prentice-Hall.

- Haruna, A. F. (2017). Analysis of the relationship between organisational culture and innovation in nigerian quantity surveying firms. *Unpublished M.Sc. thesis. Ahmadu Bello University, Zaria.*
- Heerkens, G.R. and Brennan, M.V. (2013) "Next Generation" Project Management Must-Haves: Project Business Savvy and Project Political Savvy', *PMI Global Congress 2013*, Louisiana: New Orleans, 1-7.
- Henderson, L. S. (2008), "The impact of project managers' communication competencies: Validation and extension of a research model for virtuality, satisfaction, and productivity on project teams", *Project Management Journal*, 39 (2), 48-59.
- Huang, Y.-C., Ma, R. and Lee, K.-W. (2015), "Exploitative learning in project teams: Do cognitive capability and strategic orientations act as moderator variables?", *International Journal of Project Management*, 33 (4), 760-771.
- Howsawi, E. M., Eager, D., and Bagi, R. (2011). *Understanding Project Success: the Four-Level Project Success Framework*. Paper presented at the International Conference on Industrial Engineering and Engineering Management.
- Ika, L. A. (2009). Project Success as a Topic in Project Management Journals. *Project Management Journal*, 40(4), 16-19.
- Ingason, H.T. and Jónasson, H. I. (2009) 'Contemporary knowledge and skill requirements in project management', *Project Management Journal*, 40 (2), 59-69.
- IPMA (2006), *ICB-IPMA Competence Baseline Version 3.0*, International Project Management Association, Nijkerk, The Netherlands.
- Jetu, F., & Riedl, R. (2012). Determinants of Information Systems and Information Technology Project Team Success: A Literature Review and a Conceptual Model. *Communications of The Association For Information Systems*, 30455-482.
- John, J. (2009). Study on the nature of impact of soft skills training programme on the soft skills development of management students. *Pacific Business Review*, October/December, 19-27
- Jonker, J. & Pennink, B. (2010). The essence of research methodology: A Concise Guide for Master and PhD Students in Management Science. *Springer Heidelberg Dordrecht*, London New York
- Joseph, N.; Erasmus, W.; Marnewick, C. (2014) The Idle State of Information and Communication Technology Project Management. *Journal of African Business*, 15(3), 184–196.
- Jugdev, K., & Müller, R. (2005). A Retrospective Look At Our Evolving Understanding Of Project Success. [Article]. *Project Management Journal*, 36(4), 19-31.

- Katz, R.L., (1974). Skills of an effective administrator. *Harvard Business Review*, pp.43–72.
- Kendra, K. and Taplin, L. (2004). Project Success: A Cultural Framework. *Project Management Journal*, 35(1), 30-45.
- Kerzner, H. (2013) *Project Management: A Systems Approach to Planning, Scheduling, and Controlling*. 11th edn. New York: Van Nostrand Reinhold.
- Kimmons, R. L., and Loweree J. H. 1989. *Project Management: A Reference for Professionals*, New York: Marcel Dekker, Inc.
- Kothari, C.R., & Garg, G. (2014). *Research Methodology: Methods and Techniques* (3rd Edition). New Delhi, New Age International (P) Limited.
- Kumbier, D. and Schulz von Thun, F. (2011) *Interkulturelle Kommunikation: Methoden, Modelle, Beispiele*. Hamburg: Rowohlt Taschenbuch Verlag.
- Larson, E.W. and Gray, C.F. (2011) *Project Management: The Managerial Process*. 5th edn. Boston: McGraw-Hill/Irwin.
- Laufer, A. (2012) ‘Mastering the Leadership Role in Project Management: Practices that Deliver Remarkable Results’, Publishing as FT Press, Upper Saddle River, New Jersey
- Lewis, J. (2003). *The Project Manager’s Pocket Survival Guide*. Chicago, USA. McGraw-Hill.
- Lewis, J. (2000). *Project planning, scheduling and control: A hands-on guide to bringing projects in on time and on budget*. 3rd edition. Chicago, USA. McGraw-Hill.
- Loo, R., (2002). Working towards best practices in project management: a Canadian study. *International Journal of Project Management*, 20(2), 93–98.
- Luu, V. T., Kim, S.-Y. and Huynh, T.-A. (2008), "Improving project management performance of large contractors using benchmarking approach", *International Journal of Project Management*, 26 (7), 758-769
- Mantel, S. J. and Meredith, J. R. (2012) *Project Management: A Managerial Approach*. 8th edn. New York: Wiley.
- Mathers, N., Fox, N. and Hunn, A., 2007. Surveys and questionnaires. The NIHR RDS for the East Midlands / Yorkshire and the Humber.
- Marando, A. (2012) ‘Balancing Project Management Hard Skills and Soft Skills’, *Master of Science in Management of Projects and Programs*

- Maylor, H. (1999). *Project Management*. 2nd edition. London, UK. Financial Times Pitman Publishing. Oxford English Dictionary Online. 2007. Oxford University Press. Available from: <http://dictionary.oed.com/> [Accessed 19 Sep 2019].
- Mayo, W. D. (2013). Soft-Side Leadership. *Leadership Excellence*, 30(8), 16-19.
- Miranda, T. (2006). Necessary Skills for Project Management: Job Description Analysis. Unpublished, Research Skills Project. School of Management and Languages. Heriot-Watt University. E Merna, K., & Laila, K. (2018). Leadership In Construction : Identifying Core Competences Of Project Manager Of Sustainable buildings, Conference paper (March), 0–20.
- Mouchi, G., Rotimi, J. O., & Ramachandra, T. (2011). The skill sets required for managing complex construction projects, *Business Education & Accreditation* 3(1), 89–100. edinburgh.
- Morris, P.W.G. and Pinto, K. (2007) *The Wiley Guide to Project Organisation & Project Management Competencies*. USA: John Wiley & Sons, Inc.
- Müller, R., & Jugdev, K. (2012). Critical success factors in projects: Pinto, Slevin, and Prescott – the elucidation of project success. *International Journal of Managing Projects in Business*, 5(4), 757-775.
- Munns, A. K., Bjeirni, B.F. (1996). The role of Project Management in Achieving Project Success. *International Journal of Project Management*, 14(2), 81-82.
- Muth, J. E. (2006). *Basic Statistic and Pharmaceutical Statistical Applications* (2nd ed.). Boca Raton, Florida, USA: Champman and Hall/CRC
- Muzio, E., Fisher, D., Thomas, E., and Peters, V (2007). Soft Skills Quantification (SSQ) for project manager competencies. Retrieved 17 March 2019 from <http://www.pmforum.org/library/papers/index.htm>
- Nahapiet, J., Gratton, L. and Rocha, O. 2005. Knowledge and relationships: when cooperation is the norm. *European Management Review*, 2, 3-14.
- Navarre, C., Schaan, J.L. (1990). Design of Project Management Systems from Top Management's Perspective *Project Management Journal*, XXI(2).
- Newton, R. (2009) *The Project Manager: Mastering the Art of Delivery*. 2nd edn. Harlow, England: Financial Times/Prentice Hall.
- Nguyen, L. D., Ogunlana, S. O., & Lan, D. T. X. (2004). A study on project success factors in large construction projects in Vietnam. *Engineering, Construction and Architectural Management*, 11(6), 404-413.

- Ogunleye, O. S. (2006): “Challenges of Poverty Alleviation in Nigeria” *The Social Sciences* 1 (3); 194-197.
- Okoye (2015) Evaluation Of Management Challenges Facing Construction Practice In Nigeria. *International Journal of Application or Innovation in Engineering & Management*, 4(1), 19–28.
- Olayiwola, L.M., Adeleye, A., Jiboye, A.D., (2006). Effect of sociocultural factors on housing quality in Osogbo, Nigeria. *International Symposium on Construction in Developing Economies: New issues and challenges*. Santiago, Chile. January, 18–29.
- Osuala, E. C. (2005). *Research Methodology*. Enugu: New Generation Books.
- Oxford Dictionaries (2014) ‘Soft Skills’. Available at: <http://www.oxforddictionaries.com/definition/english/soft-skills> (Accessed: 20 May 2019).
- Pant, I. and Baroudi, B. (2007) ‘Project management education: The human skills imperative’, *International Journal of Project Management*, 26, 124-128
- Pariff, M. K., Sanvido, V.E. (1993). Checklists of critical success factors for building projects. *Journal of Management in Engineering*, 9(3), 243-248.
- Pinto, J. K., Slevin, D. P. (1987). Balancing strategy and tactics in project implementation. *Sloan Management Review*, 33-41.
- Pollack, J. 2007. The changing paradigms of project management. *International Journal of Project Management*, 25(3), 266-274.
- PMBOK® Guide. 2004. *A Guide to the Project Management Body of Knowledge*, 3<sup>rd</sup> Edition. Pennsylvania: Project Management Institute.
- PMI (2017), *A Guide to the Project Management Body of Knowledge (PMBOK® Guide)*, Project Management Institute, Newtown Square, PA.
- PMI (2013) *A Guide to the Project Management Body of Knowledge (PMBOK Guide)*, (5th Edn), Project Management Institute, Newtown Square, Chapter
- PMI (2008), *Project Manager Competency Development (PMCD) Framework*, Project Management Institute, Newtown Square, PA.
- Project Management Institute. (2008). *Project Management Professional (PMP) Credential Handbook*. Pennsylvania, USA. Project Management Institute.

- Project Management Institute. (2004). A Guide to the Project Management Body of Knowledge. Pennsylvania, USA. Project Management Institute
- Rad, P., Anantatmula, V. (2010). *Successful project management practices*. Bingley, UK: Emerald Group Publishing.
- Rajeh, M., Tookey, J. E. and Rotimi, J. O. B. (2015), "Estimating transaction costs in the New Zealand construction procurement: a structural equation modelling methodology", *Engineering, Construction and Architectural Management*, 22 (2) 242-267.
- Robotham, D. and Jubb, R. 1996. Competences: measuring the unmeasurable. *Management Development Review*, 9(5), 25-29.
- Rodrigues, A., & Bowers, J. (1996). System dynamics in project management: A comparative analysis with traditional methods. *System Dynamics Review*, 12(2), 121-139.
- Saynisch, M. (2010) 'Beyond Frontiers of Traditional Project Management: An Approach to Evolutionary, Self-Organizational Principles and the Complexity Theory', *Project Management Journal*, 41, 21-37
- Schmid, B. and Adams, J. (2008), "Motivation in project management: The project manager's perspective", *Project Management Journal*, 39 (2) 60-71.
- Schlick, J. (1988). Developing project management skills. *Training and Development Journal*, 42(5), 20-28.
- Schwalbe, K. (2002). Information Technology: Project Management. 2nd edition. Boston, USA. Course Technology.
- Seiler, S., Lent, B., Pinkowska, M. and Pinazza, M. (2012), "An integrated model of factors influencing project managers' motivation—Findings from a Swiss Survey", *International Journal of Project Management*, 30 (1) 60-72.
- Shenhar, A., and Dvir, D. (2007a). Reinventing Project Management: The Diamond Approach to Successful Growth and Innovation. Boston, USA. Harvard Business School Press.
- Shenhar, A., and Dvir, D. (2007b). Project Management Research – The Challenge and Opportunity. Retrieved 3 June 2019 from <http://www.pmforum.org/library/papers/index.htm>
- Shenhar, A., Dvir, D. (1996), "Toward a typological theory of project management", *Research Policy*, 25 (4) 607-32
- Shi, Q., Chen, J., 2006. The Human Side of Project Management – Leadership Skills, available at <http://www.pmi.org/Knowledge-Center/Research-Completed-Research/Human-Side-of-Project-Management-Leadership%20Skills.aspx> [accessed on 23 April, 2019]

- Simon, P. and Murray, R. 2007. Hard plus soft equals success; from theory to practice. *Project Manager Today*, (May).
- Soderlund, J. (2002). Building theories past of project management: Past research and questions for the future. Retrieved 2 July 2019 from <http://www.pmforum.org/library/papers/index.htm>
- Söderlund, J.; Maylor, H. (2012) Project management scholarship: Relevance, impact and five integrative challenges for business and management schools. *International Journal of Project Management*, 30 (6), 686–696.
- Stevenson, D.H. & Starkweather, J.A., 2010. PM critical competency index : IT execs prefer soft skills. *International Journal of Project Management*, 28(7), 663–671.
- Sutherland, J. and Ahmad, N. (2011) ‘How a Traditional Project Manager Transforms to Scrum: PMBOK vs. Scrum’, *Scrum Inc.*, Salt Lake City
- Suprpto, M., Bakker, H. L. and Mooi, H. G. (2015), "Relational factors in owner–contractor collaboration: The mediating role of teamworking", *International Journal of Project Management*, 33 (6) 1347-1363.
- Taghavi, M.; Taghavi, H.; Taghavi, M. (2013) Research project leadership stipulation system. *Campus-Wide Information Systems*, 30 (4) 266–287.
- Teddie, C., & Teshakkori (2009). *Foundations of mixed methods research: integrating quantitative and qualitative approaches in social and behavioral sciences* Los Angelis, CA, Sage.
- Thal, A.E.J. & Bedingfield, J.D., 2010. Successful project managers : an exploratory study into the impact of personality. *Technology Analysis amd Strategic Management*, 22(2), 243–259.
- Thamhain, H.J. (1991) ‘Developing project management skills’, *Project Management Journal*, 22 (3), 39-44.
- Thi, C. H. and Swierczek, F. W. (2010), "Critical success factors in project management: implication from Vietnam", *Asia Pacific Business Review*, 16(4) 567-589.
- Thomas, J. and Mengel, T. (2008) ‘Preparing project managers to deal with complexity – Advanced project management education’, *International Journal of Project Management*, 26 304-315
- Turner, J. (1999). *A Handbook of Project-based Management*. In Zhang, W. (2009). *The Relationship Between The Relationship Between Project Manager Leadership Style And Project Success* Wisconsin: University of Wisconsin-Platteville.

- Turner, J. R., Müller, R. (2005). The Project Manager's Leadership Style As A Success Factor On Projects: A Literature Review. *Project Management Journal*, 36(1), 49-61.
- Verma, G. K. & Beard, R. N. (1981) What is Educational Research: perspectives and techniques of research (Aldershot: Gower).
- Verzuh, E. (2005). *The Fast Forward MBA in Project Management, 2nd Edition*. New Jersey: John Wiley & Sons, Inc.
- Wan Maimun Wan Abdullah. (2010). *Critical factors in project success : a study of public sector construction projects in Malaysia*. University Malaya, Kuala Lumpur.
- Wautelet, Y.; Kolp, M. (2012) e-SPM: An Online Software Project Management Game. *International Journal of Engineering Education*, 28 (6), 1316– 1325.
- Wood G. L, Haber J (1998) Nursing Research. Methods, Critical Appraisal, and Utilization. St. Louis: Mosby
- Yamane, T. (1967). *Elementary sampling theory*. Prentice Hall, UK
- Yang, L. R., Huang, C. F., & Wu, K. S. (2011). The association among project manager's leadership style, teamwork and project success. *International journal of project management*, 29(3), 258-267.
- Yang L. F. Y. & Ma, Y. (2014) Effect of competency and communication on project outcomes in cities in China. *Habitat International*, 44, 324–331.
- Zhang, L., & Fan, W. (2013). Improving performance of construction projects: A project manager's emotional intelligence approach. *Engineering, Construction and Architectural Management*, 20(2), 195-207.
- Zimmerer, T. & Yasin, M., (1998). A leadership profile of American project managers. *Project Management Journal*, 29(1), 1–13.
- Zwikael, O. and Bar-Yoseph, B. (2004). Improving the capabilities of project team management using the Gestalt cycle of experience. *Team Performance Management*, 10 (7), 137-144.
- Zulch, B. (2014) 'Leadership communication in project management', *Procedia – Social and Behavioral Sciences*, 119, 172-181
- Zuo, J., Zhao, X., Nguyen, Q. B. M., Ma, T., & Gao, S. (2018). Soft skills of construction project management professionals and project success factors: A structural equation model. *Engineering, Construction and Architectural Management*, 25(3), 425–442. <https://doi.org/10.1108/ECAM-01-2016-0016>

## **APPENDICES**

## Appendix 1-Questionnaire Survey For Cps

Department of Quantity Surveying,  
Faculty of Environmental Design,  
Ahmadu Bello University,  
Zaria.  
August, 2019.

Dear Respondent,

### REQUEST FOR PARTICIPATION IN A QUESTIONNAIRE SURVEY

I am a research student in the faculty of Environmental Design in Ahmadu Bello University, Zaria, conducting a research on an Appraisal of Soft Skills Required For Successful Project Management In Construction Projects. I solicit your participation in filling out the attached questionnaire.

The following questionnaire will require about 15 minutes to complete, **please respond based on a project you worked on**. All information gathered shall be used purely for research purpose and shall be treated with confidentiality.

Thank you for taking your time to participate in the research, if you require more information or have questions please contact me via the email address or phone number below.

The questionnaire consists of four sections:

**Section A:** General information

**Section B:** Information about respondent and Project

**Section C:** Information on performing Project Activities

Carefully read the instructions just above each section of the Questionnaire before filling it.

Thank you for participating

Sincerely,  
IKWE GREG

[ikwegreg@gmail.com](mailto:ikwegreg@gmail.com); 07063161419.

**Section A - General Information** (Tick only one option for each)

**Service Provided:** Architecture [ ] M & E Engineering [ ] Structural Engineering [ ] Quantity Surveying [ ] Project Management [ ] Any Other [ ] \_\_\_\_\_

**Years of Working Experience:** Less than 5 years [ ] 6 - 10 years [ ] 11 - 16 years [ ] 17 - 20 years [ ] Greater than 20 years [ ]

**Cadre in firm:** Executive/Director [ ] Senior Management [ ] Middle Management [ ]

**Ownership of Project:** Public [ ] Private [ ] **Nature of Project:** Building [ ] Engineering [ ]

**Size of Project:** Small [ ] Medium [ ] Large [ ] Very Large [ ]

**Complexity of Project:** Not Complex [ ] Somewhat Complex [ ] Complex [ ] Very Complex [ ]

**Time on Project:** Less than 5 months [ ] 6 - 11 months [ ] 1 - 2 years [ ] Greater than 2 years [ ]

**Status of Project:** Completed [ ] On-going [ ] Suspended [ ] Abandoned [ ] Terminated [ ]

**On which of these is/was the project successful?** Tick as appropriate. Cost [ ] Time [ ] Quality [ ]

**Section B - Information about Respondent**

To what extent does each of the statements below describes you. Circle the option that best describes your choice using the following scale: Very untrue of me - VU; Untrue of me - UM; Somewhat untrue of me - SU; Somewhat true of me - ST; True of me - TM; Very true of me - VT

ATTRIBUTES NECESSARY FOR PROJECT SUCCESS	DESCRIPTION OF SELF					
	VU	UM	SU	ST	TM	VT
Providing appropriate project Information at the right time						
Maintaining self-control in hostile environments						
Taking a holistic view of project most times.						
Relating with people from different backgrounds without bias						
Ensuring that project vision, goals and objectives are clear						
Giving credit to others where due						
Ensuring that team atmosphere are comfortable and enjoyable						
Maintaining formal lines of communication						
Quickly resolving conflicts within team members						
Applying complex concepts when needed to solve problems						
Building good relationships with others on the project						
Influencing project participants when required						
Emphasizing reward systems that encourage better performance						
Ensuring everyone participates and is heard in group discussions						
Promoting the use of constructive feedback						
Balancing competing and opposing goals						
Relating multiple related issues to understand project problems						
Developing/nurturing personal and professional networks						
Setting milestones to measure achievement of project goals						
Getting team members back on track after a major setback						
Harmonizing team members efforts towards project success						

Below are seven (7) attributes that facilitates efficient project delivery in construction. Kindly rank ALL OF THEM in order of priority, giving the attribute you have the highest strength in '1' and the one you have the lowest strength '7'.

**ATTRIBUTES NECESSARY FOR PROJECT SUCCESS**

**RANKINGS**

Promoting informal lines of communication

Recognizing conflicts at the onset and set measures to address them

Applying lessons learned to resolve current project issues

Expressing self e.g. belief, thoughts in a non-destructive manner

Mentoring team members towards their development

Being always optimistic and positive

Allowing every team member make inputs where necessary

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Section C - Information about Performing Project Activities** (Circle options are appropriate)

For Section B and Section C kindly provide information about a most recent project you were/are involved with

Below are activities that influences project success. To each of them kindly indicate how well: 1. You would perform them if you were managing the project; 2. It was performed by those managing projects. Use the following scale for 1 and 2: Poorly - Pr; Averagely - Av; Excellently - Ex

**1. Description of yourself**

**2. Description of how the project was managed**

Engaging stakeholders on the essential and core business aspects of the project

Pr Av Ex Pr Av Ex

Focusing on critical elements e.g. schedule, financial reports, issue log etc

Pr Av Ex Pr Av Ex

Managing conflicts by building trust, satisfying concerns, and seeking consensus

Pr Av Ex Pr Av Ex

Working with client and others to develop appropriate project delivery strategy

Pr Av Ex Pr Av Ex

Applying both traditional and agile tools, techniques and methods in managing projects

Pr Av Ex Pr Av Ex

Communicating by managing expectations, accepting and receiving feedbacks

Pr Av Ex Pr Av Ex

Implementing strategies in ways that maximizes the business value of the project

Pr Av Ex Pr Av Ex

Making time to plan thoroughly and prioritize diligently

Pr Av Ex Pr Av Ex

Having a holistic view of the project, taking into account internal and external factors

Pr Av Ex Pr Av Ex

Understanding how strategic and business related factors can affect the project

Pr Av Ex Pr Av Ex

Managing project elements e.g. schedule, cost, resources, risk, quality etc

Pr Av Ex Pr Av Ex

Building project teams, understanding and empathizing with team members

Pr Av Ex Pr Av Ex

## Appendix 2-Questionnaire Survey For Experts

Department of Quantity Surveying,  
Faculty of Environmental Design,  
Ahmadu Bello University,  
Zaria.  
August, 2019.

Dear Respondent,

### REQUEST FOR PARTICIPATION IN A QUESTIONNAIRE SURVEY

I am a research student in the faculty of Environmental Design in Ahmadu Bello University, Zaria, conducting a research on an Appraisal of Soft Skills Required For Successful Project Management In Construction Projects. I solicit your participation in filling out the attached questionnaire.

The following questionnaire will require about 10 minutes to complete, **please respond based on a project you worked on**. All information gathered shall be used purely for research purpose and shall be treated with confidentiality.

Thank you for taking your time to participate in the research, if you require more information or have questions please contact me via the email address or phone number below.

The questionnaire consists of two sections:

**Section A:** Information on attributes responsible for Project delivery

**Section B:** Information on performing Project Activities

Carefully read the instructions just above each section of the Questionnaire before filling it.

Thank you for participating

Sincerely,  
IKWE GREG

[ikwegreg@gmail.com](mailto:ikwegreg@gmail.com); 07063161419.

## **Guidance notes – Definitions and Description of Soft skills**

### **Soft skills:**

Soft skills are the ‘intra- and inter-personal skills essential for personal development, social participation and workplace success’.

### **Seven soft skills being assessed on this Questionnaire and a brief description of them**

#### **Communication Skills**

This skill is required for sharing information and considering the needs of stakeholders; including oral communication and written communication.

#### **Leadership Skills**

These skills help in guiding, encouraging productivity and motivating with a compelling vision, wielding and using a range of tactics for persuasion.

#### **Conflict Management Skills**

These involves resolving disagreements between and with stakeholders;

#### **Motivational skills**

These involves actions or strategies that elicit a desired behavior or response by a stakeholder.

#### **Teamwork-building**

cultivating and maintaining a network of relationships, with cooperation and teambuilding. These skills include team structure design skills, identifying the ability of different project team members, delegation skills and integration skills.

#### **Cognitive Skills**

Cognitive functioning is a term referring to a human’s ability to process, Cognitive skills are the core skills the brain uses to think, read, learn, remember, reason, and pay attention, it aids decision making and problem solving and highly required for complex projects.

#### **Interpersonal Skills**

These skills include being able to deal with people of different backgrounds, which means the skill of developing relationships with different kinds of people when needed.

Below are seven (7) attributes that facilitates efficient project delivery in construction. Kindly rank ALL OF THEM in order of priority, giving the attribute with the highest strength '1' and the one that is considered lowest strength '7'.

ATTRIBUTES NECESSARY FOR PROJECT SUCCESS	RANKINGS
Promoting informal lines of communication	_____
Recognizing conflicts at the onset and set measures to address them	_____
Applying lessons learned to resolve current project issues	_____
Expressing self e.g. belief, thoughts in a non-destructive manner	_____
Mentoring team members towards their development	_____
Being always optimistic and positive	_____
Allowing every team member make inputs where necessary	_____

**Section B - Information about Performing Project Activities** (Circle options are appropriate)

Below are activities that influences project success. To each of them kindly indicate the top 3 soft skills required to effectively perform them, indicate "1" for the skill that you believe is most influential "2" for the next followed by "3".	Communication skills	Leadership skills	Conflict Management	Motivation Skills	Teamwork Skills	Cognitive Skills	Interpersonal Skills
An example has been provided below to guide you. E.g Encouraging team members to focus on team activities rather than individual goals.	3	1			2		
Engaging stakeholders on the essential and core business aspects of the project							
Focusing on critical elements e.g. schedule, financial reports, issue log etc							
Managing conflicts by building trust, satisfying concerns, and seeking consensus							
Working with client and others to develop appropriate project delivery strategy							
Applying both traditional and agile tools, techniques and methods in managing projects							
Communicating by managing expectations, accepting and receiving feedbacks							
Implementing strategies in ways that maximizes the business value of the project							
Making time to plan thoroughly and prioritizes diligently							
Having a holistic view of the project, taking into account internal and external factors							
Understanding how strategic and business related factors can affect the project							
Managing project elements e.g. schedule, cost, resources, risk, quality etc							
Building project teams, understanding and empathizing with team members							

### Appendix 3- Delphi survey Round 1

Below are seven (7) attributes that facilitates efficient project delivery in construction. Kindly rank ALL OF THEM in order of priority, giving the attribute with the highest strength '1' and the one that is considered lowest strength '7'.

ATTRIBUTES NECESSARY FOR PROJECT SUCCESS	RANKINGS
Promoting informal lines of communication	2
Recognizing conflicts at the onset and set measures to address them	5
Applying lessons learned to resolve current project issues	4
Expressing self e.g. belief, thoughts in a non-destructive manner	6
Mentoring team members towards their development	1
Being always optimistic and positive	7
Allowing every team member make inputs where necessary	3

#### Section B - Information about Performing Project Activities *(Circle options are appropriate)*

Below are activities that influences project success. To each of them kindly indicate the top 3 soft skills required to effectively perform them, indicate "1" for the skill that you believe is most influential "2" for the next followed by "3".

	Communication skills	Leadership skills	Conflict Management Skills	Motivation Skills	Teamwork Skills	Cognitive Skills	Interpersonal Skills
Engaging stakeholders on the essential and core business aspects of the project	40%(1)	25%(2)	4%(3)	5%(2)		6%(2)	20%(3)
Focusing on critical elements e.g. schedule, financial reports, issue log etc	5%(2)	20%(3)			25%(2)	45%(1)	
Managing conflicts by building trust, satisfying concerns, and seeking consensus	10%(1)	15%(3)	50%(1)		5%(2)		20%(2)
Working with client and others to develop appropriate project delivery strategy	25%(3)	28%(2)			42%(1)		5%(3)
Applying both traditional and agile tools, techniques and methods in managing projects	25%(2)				20%(3)	35%(1)	
Communicating by managing expectations, accepting and receiving feedbacks	45%(1)	35%(2)		5%(1)	5%(2)		10%(3)
Implementing strategies in ways that maximizes the business value of the project	22%(3)	25%(2)		18%(3)		35%(1)	
Making time to plan thoroughly and prioritizes diligently	20%(3)	20%(2)			5%(2)	50%(1)	5%(2)
Having a holistic view of the project, taking into account internal and external factors	25%(2)				10%(3)	55%(1)	10%(4)
Understanding how strategic and business related factors can affect the project	25%(2)				5%(2)	55%(1)	15%(3)
Managing project elements e.g. schedule, cost, resources, risk, quality etc		20%(3)			25%(2)	45%(1)	10%(3)
Building project teams, understanding and empathizing with team members			20%(3)	25%(2)	45%(1)		10%(2)

## Appendix 4- Delphi survey Round 2

Below are seven (7) attributes that facilitates efficient project delivery in construction. Kindly rank ALL OF THEM in order of priority, giving the attribute with the highest strength '1' and the one that is considered lowest strength '7'.

### ATTRIBUTES NECESSARY FOR PROJECT SUCCESS

### RANKINGS

Promoting informal lines of communication	2
Recognizing conflicts at the onset and set measures to address them	5
Applying lessons learned to resolve current project issues	4
Expressing self e.g. belief, thoughts in a non-destructive manner	6
Mentoring team members towards their development	1
Being always optimistic and positive	7
Allowing every team member make inputs where necessary	3

### Section B - Information about Performing Project Activities (Circle options are appropriate)

Below are activities that influences project success. To each of them kindly indicate the top 3 soft skills required to effectively perform them, indicate "1" for the skill that you believe is most influential "2" for the next followed by "3".

	Communication skills	Leadership skills	Conflict Management Skills	Motivation Skills	Teamwork Skills	Cognitive Skills	Interpersonal Skills
Engaging stakeholders on the essential and core business aspects of the project	44%(1)	30%(2)					26%(3)
Focusing on critical elements e.g. schedule, financial reports, issue log etc		20%(3)			30%(2)	45%(1)	
Managing conflicts by building trust, satisfying concerns, and seeking consensus		20%(3)	50%(1)				30%(2)
Working with client and others to develop appropriate project delivery strategy	25%(3)	33%(2)			42%(1)		
Applying both traditional and agile tools, techniques and methods in managing projects	25%(2)				20%(3)	35%(1)	
Communicating by managing expectations, accepting and receiving feedbacks	45%(1)	35%(2)					20%(3)
Implementing strategies in ways that maximizes the business value of the project	25%(3)	35%(2)				40%(1)	
Making time to plan thoroughly and prioritizes diligently	30%(2)	20%(3)				50%(1)	
Having a holistic view of the project, taking into account internal and external factors	35%(2)				10%(3)	55%(1)	
Understanding how strategic and business related factors can affect the project	25%(2)					55%(1)	20%(3)
Managing project elements e.g. schedule, cost, resources, risk, quality etc	25%(3)				30%(2)	45%(1)	
Building project teams, understanding and empathizing with team members			25%(3)	30%(2)	45%(1)		

## Appendix 5- Delphi Survey Final Round

Below are seven (7) attributes that facilitates efficient project delivery in construction. Kindly rank ALL OF THEM in order of priority, giving the attribute with the highest strength '1' and the one that is considered lowest strength '7'.

ATTRIBUTES NECESSARY FOR PROJECT SUCCESS	RANKINGS
Promoting informal lines of communication	2
Recognizing conflicts at the onset and set measures to address them	5
Applying lessons learned to resolve current project issues	4
Expressing self e.g. belief, thoughts in a non-destructive manner	6
Mentoring team members towards their development	1
Being always optimistic and positive	7
Allowing every team member make inputs where necessary	3

### Section B - Information about Performing Project Activities *(Circle options are appropriate)*

Below are activities that influences project success. To each of them kindly indicate the top 3 soft skills required to effectively perform them, indicate "1" for the skill that you believe is most influential "2" for the next followed by "3".

	Communication skills	Leadership skills	Conflict Management Skills	Motivation Skills	Teamwork Skills	Cognitive Skills	Interpersonal Skills
Engaging stakeholders on the essential and core business aspects of the project	1	2					3
Focusing on critical elements e.g. schedule, financial reports, issue log etc		3			2	1	
Managing conflicts by building trust, satisfying concerns, and seeking consensus		3	1				2
Working with client and others to develop appropriate project delivery strategy	3	2			1	1	3
Applying both traditional and agile tools, techniques and methods in managing projects	2				3	1	
Communicating by managing expectations, accepting and receiving feedbacks	1	2					3
Implementing strategies in ways that maximizes the business value of the project	3	2				1	
Making time to plan thoroughly and prioritizes diligently	2	3				1	
Having a holistic view of the project, taking into account internal and external factors	2				3	1	
Understanding how strategic and business related factors can affect the project	2					1	3
Managing project elements e.g. schedule, cost, resources, risk, quality etc	3				2	1	
Building project teams, understanding and empathizing with team members			3	2	1		