MEDIATING ROLE OF LEADERSHIP STYLES BETWEEN CRITICAL SUCCESS FACTORS AND PROJECT SUCCESS: A CASE OF YEMEN'S TELECOMMUNICATION INDUSTRIES

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Al-Madinah International University

2016/1437H

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PBM141BG395

Thesis Submitted in Fulfilment

Of the Requirements for the **Degree of Doctor of Philosophy (PhD) in**
Business Management
Faculty of Finance and Administrative Sciences
Al-Madinah International University

Supervised by:

Prof. Dr. Barjoyai Bardai

MAY 2016/sha'ban 1437

بسم الله الرحمن الرحيم

CERTIFICATION OF DISSERTATION WORK PAGE

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ABSTRACT

This study examines the direct empirical relationship between critical success factors (CSFs) and project success among 250 employees in four telecommunication companies in Yemen, which are Tele-Yemen, MTN Yemen, Y Telecom, and Yemen Mobile. Moreover, the research identifies the significance of project managers' leadership styles as a plausible mediator in the relationship between CSFs and project success. Understanding leadership style offers valuable insights into the factors contributing to increased project success rates. In this study, transformational leadership, transactional leadership, organisational factors, project factors, and project team factors are posited as having an influence on project success rates in telecommunication companies in Yemen. For data analysis and hypothesis testing, SEM tool and several statistical methods such as the maximum likelihood estimate and regression technique were utilised to understand the dimensionality of the variables. The results show that that project team factors (personnel, communication, technical task, trouble shooting, and monitoring, and feedback) positively influenced project success, while project factors (project mission and project plan/schedule) were found to have a negative effect on project success. Regression results also indicated that organisational factors (top management support, client consultation, and client acceptance) have a positive influence on project success. Moreover, transactional and transformational leadership styles were found to be significant mediating factors in the relationship among organisational factors, project factors, and project success in telecommunication companies. Transactional and transformational leadership styles were found to be negative mediating factors in the relationship between project team factors and project success in telecommunication companies. The relationship among leadership styles, critical success factors, and project success suggests that increasing the success rate of projects may be beneficial to the management of telecommunication companies. Based on research findings, theoretical and practical implications were discussed. Limitations and recommendations for future research were also highlighted.

Keywords: leadership styles, organisational factors, project factors, project team factors, and project success.

ACKNOWLEDGEMENTS

DEDICATION

All praise, glory, and honour to God for His everlasting and steadfast love for me throughout my life and throughout this journey of completing my doctorate degree.

With deep gratitude to my parents, Mr. Mustafa Mahyoub and Mrs. Najeebah Ahmed Taha for instilling in me the values of faith, character, virtue, discipline, patience, perseverance, and the encouragement to pursue and achieve my educational goals.

With great appreciation and love to my darling wife, Mrs. Weiam Abdu Sallam for her wonderful love, encouragement, and support throughout this arduous journey. I express my deep gratitude to my siblings, cousins, aunties, uncles, nieces, nephews, in-laws, friends, and extended family relatives for their support and encouragement.

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CHAPTER ONE

INTRODUCTION

1.1   Introduction

Across the global economy, every year organisations spend billions of dollars on projects (Standish Group, 1994-2013; Anantatmula, 2010; Wells, 2012; Crompton and Howard, 2013). The Standish Group estimates that in 2013 alone, global yearly spending for software projects was $750 billion of which the United States accounted for about 40% of the amount or $300 billion, Europe spent about 25% of the amount or $200 billion, Asia accounted for $100 billion, and the rest of the world spent the remaining $150 billion (Standish Group, 2014a). In a recent research conducted by the Standish Group, their 2012 report showed a small increase in project success from 37% in 2010 to 39% in 2012, and about 43% of the projects were challenged while 18% of the projects failed (Standish Group, 2013). According to Thomas and Mullaly (2007), organisations investing in project management need to be assured of a concrete return from their investment.

Many research findings have shown that the project management field has made considerable achievements and has generated significant value to various organisations through projects and the products that they deliver (Thomas and Mullaly, 2007; Carden and Egan 2008; Andersen, 2010; Standish Group, 2013, 2014b). According to Carden and Egan (2008), the scope and frequency of project management utilisation has rapidly increased in recent years. Gauthier and Ika (2012) also noted that over the past 20 years, the interest in project management increased considerably (Soderlund, 2004a, 2004b; Smyth and Morris, 2007; Smyth, 2009; Turner, 2010). With the increased usage and application of project management, there is also an increase in the demand for effective project management and project performance (Besner and Hobbs, 2006; Chen and Lee, 2007; Darrell, Baccarini and Love, 2010; Hirst and Mann, 2004; Mary, 2011; Mir and Pinnington, 2013). Thus, this research examines the specific and direct relationship between project managers' leadership styles and CSFs in relation to project success. It aims to further contribute to the body of knowledge by evaluating the application of effective project management and project performance, and to explore the specific value that project managers generate through project management, leadership, and performance.

1.2 Background of the Study

Effective project manager leadership is an important success factor for projects (Prabhakar, 2005). In addition, it is important to consider the measure of experience while evaluating performance (Prabhakar, 2005; Wang, Chou, and Jiang, 2005; Hyväri, 2006). Pertinent to measuring and evaluating critical success factors for effective project management, a review of the literature revealed a demand for empirical studies that address both the project success factors and success criteria in the context of the project manager's competencies (Ika, 2009). Likewise, in a recent study conducted by the Standish Group (2013), the report showed that historically, project success rates continued to be lower than 40%, and specifically, there was a small increase in project success from 37% in 2010 to 39% in 2012, and about 43% of the projects were challenged while 18% of the projects failed. Based on these findings, the project success rate has continued to be low. Hence, there remains an important demand to increase project success rate and to find ways to improve effective project management (Cooke-Davis, 2002; Geoghegan and Dulewicz, 2008; Carden and Egan, 2008; Skulmoski and Hartman, 2010; Turner and Zolin, 2012).

Similarly, several studies have indicated that leadership skills, experience, and key success factors are important for effective project management, however, a review of the current literature revealed a lack of empirical studies showing the direct relationship between the project manager's leadership style and key CSFs, and the effect that they have on project success (Turner and Muller, 2005; Hyväri, 2006; Ika, 2009; Anantatmula, 2010). Therefore, based on the indicated gap in literature on the relationship between project manager's leadership style and critical success factors in relation to project success, this research evaluates those specific relationships based on the Bass and Avolio's (1996) leadership theory involving transformational, transactional, and leadership styles based on the project manager's corresponding years of project experience obtained from the demographic questionnaire, CSFs, and project success as evaluated based on the Pinto and Slevin's (1987) project success theory.

Many studies in project management acknowledge the importance of the project manager's leadership skills and the potential contributions that they can have on project performance or outcome. However, a review of the current literature revealed a lack of empirical studies showing the direct relationship between the project manager's leadership style and key CSFs, and the effects that they can have on project success (Turner and Muller, 2005; Hyväri, 2006; Ika, 2009; Anantatmula, 2010).

Turner and Muller (2005) reported that the literature on project success factors did not typically mention the project manager and his or her leadership style or competence as a success factor on projects, and they inferred that this finding was in direct contrast to the general management literature, which views effective leadership as a critical success factor in the management of organisations, and has shown that certain leadership styles can lead to better performance.

Similarly, Anantatmula (2010) noted that, "a grey area exists in literature because the specific leadership roles and responsibilities of the project manager towards project team members and their role in project success is not addressed in project management literature" (p. 13). These research findings added to the fundamental support and demand for further study, and for the current study to explore the specific relationship between project managers' leadership styles, critical success factors, and the effects that they have on project success. Likewise, Hyväri (2006) observed that it is possible to identify critical success factors in project management that are significantly related to the project managers' work experience. In addition, according to Ika (2009), the exercise of lessons learned from measuring CSFs is more productive when we take into account both project success factors and success criteria.

Therefore, as indicated earlier, a review of literature revealed a lack of empirical studies showing the specific relationship between project managers' leadership styles and critical success factors, and the direct contributions to project success. Hence, the purpose of this study was to fill the gap in literature and to contribute to the body of knowledge in project management by assessing the specific and direct empirical relationship between project managers' leadership styles and CSFs in relation to project success. The findings from this study provide valuable insights about how project managers' leadership styles and key critical success factors relate to project success.

1.2.1 Importance of Project Management in the Yemeni Telecommunication Sector

Telecommunication has registered immense growth in the last few years. The adoption of technology projects is one of the key factors explaining growth discrepancies across countries, particularly in Yemen (Esmat et al., 2014). Technology projects have been an area of dynamic investment in recent years, and until recently the explosive growth of investment in technology projects has been at the centre of the 'new economy' paradigm, shifting Yemen's reliance on growth away from other resources.

Investment in technology projects contributes to capital deepening in all industrial and commercial sectors, thereby assisting in generating economic growth that is more sustainable in the long term.

This study discusses the main reasons that contribute to projects failure within Yemen's telecommunication industries. Many projects have failed in Yemen for different reasons. The authority in Yemen stated that the rate of failure for construction companies was 73%, the rate of failure for corporate companies was 67%, and for limited liability companies 60%. Public shareholding companies represented the lowest rate of project failure, boasting a failure rate of just 11%. The highest rate of project failures was found in projects targeting the agricultural and livestock sector, with a failure rate of 95%. The services sector records showed a failure rate of 92%, while the real-estate sector witnessing a failure of 89%. Finally, the rate of failure for projects in the tourism sector was 62% (Michael, 2009). This thesis has analysed the critical success factors and leadership styles related to project success as practised by project professionals in Yemen as recommended by al-Sabahi et al. (2014), since there is a lack of empirical studies on leadership styles especially the public sector in Yemen (Ahmad and Gelaidan, 2011). Saeed (2011) also recommend examining the type of leadership styles and effectiveness and its effect in Yemeni organisations.

This thesis is justified in part based on previous recommendations such as Ukpai et al. (2013) who stated that there is a need to explore the contributions of the project managers as well as the effect their leadership styles have on project success. Saeed (2011) similarly asserted that leadership styles among organisations in Yemen remains unclear therefore it is strongly recommended to examine leadership and its effectiveness in Yemeni organisations. Leadership style can significantly and positively affect project success which is previously neglected due to some unknown reasons which means the concept needs further attention by researchers to discuss the project managers' leadership styles quantitatively in different industries and sectors (Khan et al., 2014). This study extends Pinto and Slevin's framework who have already created a number of critical success factor frameworks by including leadership styles as a mediator between the critical success factor and project success by extending the use of the framework as a tool to help project managers achieve success.

1.3   Statement of the Problem

Project management is defined as, "the application of knowledge, skills, tools and techniques to activities with- in a project in order to meet or exceed stakeholders' needs and expectations" (PMI, 2013). Today, project management is a major feature within organisations and has become part of their daily operations to accomplish organisational goals. Research literature review revealed a lack of empirical studies showing the relationship between the project manager's leadership styles and critical success factors (organisational factors, project factors and project team factors) and the effects that they have on project success (Al-Sabahi et al, 2014; Anantatmula, 2010; Ika, 2009; Turner and Muller, 2005; Hyväri, 2006).

The general problem is that, in spite of the increased number of project failures in Yemen, it is still somewhat unclear what makes a successful project. Most of the projects in Yemen have failed to meet expectations. Some projects were cancelled before finishing, others were completed but missed deadlines, blown budgets, faced internal resistance, and the list goes on and on (Al-Waraqi and Zahary, 2012). Given this volatile environment, this thesis seeks to identify the factors that contribute to projects success in the Yemeni telecommunication industries and the role of project management concepts for successful projects. The authority in Yemen stated that the rate of projects failure is very high which will have a negative impact for the organisations (Michael, 2009).

Previous research has not considered leadership styles. Muller and Turner (2010) stated that research on the leadership styles of project managers in projects is scarce. For Saeed (2011) leadership style among Yemeni organisations still not clear leading to the strong recommendation to examine leadership and its effectiveness in Yemeni organisations. Ahmad and Gelaidan (2011) mentioned that leadership style is a vague concept requiring further study. This gap motivates this study. Unlike previous research, this work has taken into consideration project professionals in the Yemeni telecommunication industries in order to investigate project factors and project team factors and how they are related with leadership styles for successful projects in Yemen.

I am very curious to know whether leadership style have anything to do with the project success. Especially, I want to know whether leadership style can be a good mediating factor in the success of a project.

This research study aimed to fill the gap in literature by assessing the specific and empirical relationship between critical success factors (organisational factors, project

factors and project team factors) in relation to project success with effect of project managers' leadership styles as mediator. The research aims to provide solutions to the mentioned gap by extending the leadership styles as mediator to the model of Pinto and Selivn (1987). The underlying model employed in this research will help to better comprehend the relationships of these variables with the intention to use the model as a tool to help project managers succeed in projects within the Yemeni telecommunication industries.

I plan to use about 500 project managers in Yamani's telecommunication industry as my respondents to administer a research instrument in the fieldworks. I anticipate that the research findings prove that leadership styles play an important role in determining project success in the telecommunication.

1.4   Purpose of the Study

This study evaluates the effects of the project managers' leadership styles and CSFs in relation to the measured project success or outcome. In addition to solving this research problem, the study aims to contribute to the scientific knowledge base by providing direct empirical evidence and factual support for the improvement of project success rate, and a more in depth and better understanding of the value that project managers contribute to project success. This study also establishes grounds for further research on this topic. The study applies Bass and Avolio's (1996) leadership theory, Pinto and Slevin's (1987) project success theory to examine the relationship between the project managers' leadership styles and their corresponding measured project outcomes.

In the study, the project managers' leadership styles and CSFs represent the independent variables (IVs), while project success represents the dependent variable (DV). The results of the study provide valuable insights on how the project managers' leadership styles and CSFs relate to the measured project outcome.

1.5   Rationale

In order to evaluate the extent to which the project manager's leadership style and critical success factors contribute to project success, the proposed research design, approach, and methodological model were constructed and deemed consistent and applicable with the aim of the study. This study built on various seminal studies that have shown that certain leadership styles can affect employees' level of effort exerted

at work, satisfaction, exhaustion, and productivity. According to Ika (2009), the exercise of lessons learned from measuring CSFs is more productive when we take into account both project success factors and success criteria.

In support of this study, Turner and Muller (2005) reported that the literature on project success factors did not typically mention the project manager and his or her leadership style or competence as a success factor on projects. They inferred that this finding was in direct contrast to the general management literature, which views effective leadership as a critical success factor in the management of organisations, and has shown that certain leadership styles can lead to better performance. Similarly, Anantatmula (2010) pointed out that, "a grey area exists in literature because the specific leadership roles and responsibilities of the project manager towards project team members and their role in project success is not addressed in project management literature" (p. 13). Thus, this study was proposed and deemed scientifically necessary to fill the gap in literature by assessing the direct empirical relationship between project managers' leadership styles and critical success factors.

1.6   Research Aims and Objectives

The researcher's overall aim for this study is to extend the current critical success factors framework used for projects to include the project manager's leadership styles as a mediator between the critical success factor and project success.

The objectives of this study are:

1- To investigate the relationship between organisational factors and project success.

2- To investigate the relationship between project factors and project success.

3- To investigate the relationship between project team factors and project success.

4- To investigate the relationship between leadership style and project success.

5- To investigate the extent to which leadership styles and critical success factors contribute to project success.

1.7   Research Questions

In line with the above research objectives, this thesis poses the following research questions:

1. Is there a relationship between organisational factors and project success?
2. Is there a relationship between project factors and project success?
3. Is there a relationship between project team factors and project success?
4. Is there a relationship between leadership styles and project success?
5. To what extent does the leadership styles and critical success factors contribute to project success?

1.8   Rough Conceptual Model
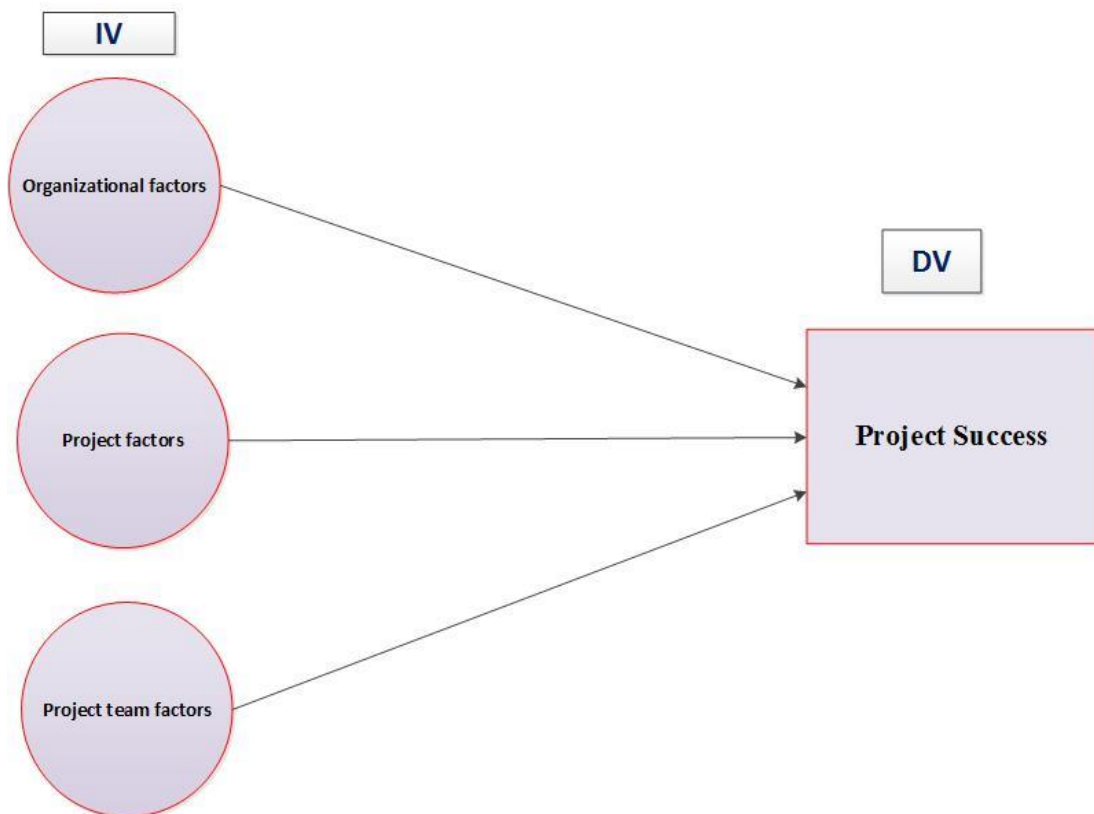
Figure 1-1: Relationship between the independent variables and the dependent variable

The current study examines the relationship between Pinto's (1986) project management critical success factors and project success of telecommunication industries projects in Yemen. It can be clearly seen that critical success factors (organisational factors, project factors, and project team factors) represent the

independent variables (IVs) while project success represents the dependent variable (DV).

1.9   Research Methodology

This study is quantitative and tests several hypotheses based on critical success factors, leadership styles theory, and project success. Statistical analyses such as structural equation modelling are used to assess the empirical link between the independent variable, i.e. organisational factors and project team factors and the dependent variable, i.e. project success.

This study used a quantitative data collection method and survey approach to collect data on how factors affect project success by specific employees among telecommunication industries in Yemen. Furthermore, SEM has been used for analysing the data.

Based on the proposed research design used in the study, 580 respondents were invited to participate in the study; however, 250 respondents fully completed the questionnaire corresponding to a 43.10% response rate.

1.10   Potential Contribution Research Knowledge and the Project Management Practice

1.10.1 Contribution to new Knowledge

This study will contribute to the existing body of literature on critical success factors for projects by creating a critical success factor framework that includes a project manager's leadership styles as mediator between the critical success factor and project success. This will benefit both project practitioners and project-oriented organisations.

To date, there are no specific critical success factor frameworks for projects that include the project manager's leadership styles. There are gaps to be studied in the current critical success factor frameworks for projects utilised by the industry professionals of project managers.

The key contribution of this study is to extend the work of Pinto and Slevin who have already created a number of critical success factor frameworks by including leadership styles as a mediator between the critical success factor and project success.

Understating the leadership factors that contribute to project success is important. Dulewicz and Higgs (2005) believe that project managers who have an understanding of leadership are more likely to lead the project to success. Slevin and

Pinto (1986, P. 57) state, "The project manager needs to know what factors are critical to successful project implementation". Their research listed ten critical success factors, but leadership was not on the list.

Turner and Muller (2005) called for more research into the project manager's leadership style when identifying project success factors. According to Tuner and Muller (2005, p. 59), "the literature has largely ignored the impact of the project manager and his/her leadership style and competence, on project success".

The research produced from this study is expected to add to the existing body of knowledge related to project critical success factors. It will be beneficial to all project stakeholders. This study will make the following three significant contributions to research in this field.

It will extend previous research on critical success factor frameworks by going beyond the established critical success factors to include leadership styles as a mediator between the critical success factor and project success.

This study will draw together previous research on which leadership styles is the most suitable to use in order to achieve project success. It adopts a comprehensive approach to studying leadership styles as they relate to the project success.

The findings and expected outcomes form an updated critical success factor framework that can be used by project professionals and organisations to help achieve project delivery success.

1.11 Study Significance

Locally, the study will attempt to enrich the leadership styles in the Yemeni telecommunication industries and raise awareness about the importance of the pivotal issue in the relationship between leadership style and project success. It is also expected that the study will have a positive impact on the culture and mind set of the management in the telecommunication industry and that this will lead, consequently, to better practices when adopting new critical success factors for delivering a success project. In addition, the study tries to solve the dilemma in the Yemeni telecommunication industries concerning disappointing results of huge investments in telecommunication projects.

More importantly, the study will enrich the body of literature on the effects of leadership style towards project success. Although there is a large body of literature

examining the relationship between leadership style and project success in different organisations, the number of studies that focus on private sector organisations is comparatively limited, and most of these studies were in developed countries. The current study is an attempt to enrich the literature by investigating the relationship between leadership style and project success in Yemen's private telecommunication industries.

1.12 Research Scope and Delimitation

This PhD research strives to extend the current critical success factors framework used in the telecommunication industry for projects to include the project manager's leadership styles as mediator between the critical success factor and project success. Effective leadership factors in organisations have shown that an appropriate leadership style can lead to better performance (Turner and Muller, 2005).

This research is confined to the following delimitations:

1. This research focuses on developing a new framework that includes the project manager's leadership styles as mediator between the critical success factor and project success.
2. This research is based on projects executed in the Yemeni telecommunications industry.
3. The leadership styles baselines presented in this research are only reflective and take into consideration leadership styles baselines published in research that directly relates to critical success factors.

1.13 Definition of Key Terms in This Study

Leadership: Leadership involves influencing people to achieve a common goal or shared objectives. It is about motivating and guiding people to realise their potential and to achieve higher and more challenging organisational goals (Northouse, 2007; Anantatmula, 2010).

Leadership Style: Leadership style is based on the type of leadership behaviours practised by the project manager in order to influence the project team and others to achieve shared project objectives.

Project: "A project is a temporary endeavour undertaken to create a unique product, service, or result" (PMI, 2013, p. 3).

Project Manager: "The project manager is the person assigned by the performing organisation to lead the team that is responsible for achieving the project objectives" (PMI, 2013, p. 16).

Project Management: "Project management is the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements" (PMI, 2013, p. 5).

Project Management Success: Project management success is defined based on completing project objectives within the constraints of time, cost, and quality (Ika, 2009).

Project Success: Project success is defined based on completing project objectives within the constraints of time, cost, and quality, plus other broader project achievements such as the strategic objectives of the client organisation and business success, the end user's satisfaction, benefits to the stakeholders and project personnel, and other business value accomplishments (Ika, 2009). It will be measured by the Project Implementation Profile (PIP) assessment tool used in Pinto and Slevin (1992).

Transformational Leadership Style: Transformational leaders are proactive. They seek to optimise individual, group, and organisational development and innovation, not just to achieve performance "at expectations", but they also convince their associates to strive for higher levels of potential as well as higher levels of moral and ethical standards (Bass and Avolio, 1996).

Transactional Leadership Style: Transactional leaders display behaviours associated with constructive and corrective transactions. They define expectations and promote performance to their associates in order to achieve the expected levels. Transactional leaders clarify expectations and offer recognition when goals are achieved. They also specify the standards for compliance, as well as what constitutes ineffective performance, and may punish followers for being out of compliance with those standards (Bass and Avolio, 1996).

Organisational Factors (ORF): includes top management support, client acceptance and client consultation.

Project Factors (PRF): includes project mission and project schedule/plan.

Project Team Factors (PTF): includes personnel, communication skills, technical task, monitoring, feedback, and trouble shooting.

1.14 Organisation of Thesis

The layout of this study is as follows:

Chapter 1 presents the background and introduction to the study. Problem statements and study objectives are addressed. Definitions of project management, project success, and leadership within the research scope are clearly defined. This chapter is important as it provides readers with an overview of this empirical study.

Chapter 2 provides an extensive literature review on the critical success factors of project management. Reviews and contributions on various leadership and critical success factors of project management studies by different researchers are provided. Moreover, prominent theories used by researchers on leadership styles and critical success factors of project management studies are explored. This chapter is important as it provides readers with knowledge of leadership styles and critical success factors of project management, previous findings, as well as various prominent theories for leadership styles.

Chapter 3 provides the research framework and hypotheses adapted from literature and theories to meet this study's objectives. The methodology of the research is presented in detail. Operationalisation of variables is provided. Research methodologies and selection of data sources are justified. Sampling procedures and data collection methods are discussed. Questionnaire structure and data collection process are presented and explained. Data validation and analysis techniques are elaborated. This chapter is important as it informs readers of the research design process and analytical tools.

Chapter 4 reports the results of data analysis undertaken in this study using different data analysis tools, which are explained and justified in Chapter 3. Results reported include descriptive analysis and inferential statistics including structural equation modelling analysis. This chapter also reports the reliability and the validity of constructs along with hypotheses testing.

Chapter 5 presents the discussion and conclusions of the study. It provides an overview of the research and discusses findings related to the results drawn from testing of the hypotheses in this study. The chapter presents theoretical and managerial implications drawn from the results reported in Chapter 4. It concludes by presenting limitations and directions for future research followed by the conclusions.

1.15 Feasible Limitation

Below are some noteworthy limitations of the study:

This research included head of units, head of departments, and general managers in the private sector who are currently using the information technology. This study faced difficulties securing permission to distribute the questionnaire in certain organisations due to the under estimator for the academic research. This difficulty was overcome by distributing the questionnaire using personal communication and permissions from the top management in these organisations.

The study planned to collect the data using both qualitative and quantitative methods so that the data gathered could have been more varied and rich to enable the researcher to provide qualitative explanations for the impact of leadership styles on project success in the private sector. However, due to the current situation in Yemen, such an approach was not feasible. In other words, the conflict that currently exists in Yemen prevented the researcher from conducting interviews with the target sample (top management). Nevertheless, the study succeeded in obtaining the valid finding by using on quantitative methods to achieve the research goals.

CHAPTER TWO

LITERATURE REVIEW

2.1　Introduction

The current study examines the relationship between project management critical success factors and project success of telecommunication industries projects in Yemen. This chapter reviews the literature on project management, project success, and project management critical success factors. In addition, previous studies that have utilised Slevin and Pinto's Project Implementation Profile (PIP) to test the relationship between 10 project management CSFs and project success were also reviewed.

The chapter will present a definition of leadership styles and will highlight those soft skills or competencies that are key to project success. Additionally, the chapters will touch on several studies supporting leadership methodologies and the role of the project manager as a critical component for project success. The manager's leadership role has a critical role in motivating people and creating an effective working environment. The project manager's role can be more challenging than a typical functional manager, due to the fact that project managers work across functional and organisational environments. The typical challenges that a project manager encounters have a higher complexity level wherein uncertainty is unavoidable and planning and forecasting is critical.

Although a number of very comparable researches have been conducted focusing on leadership and project management; the critical valuable factors for project success have not been fully exposed in previous studies. Extremely scarce research has been conducted to support key variables in leadership that have a direct contribution to the success of complex projects. Accordingly, vast amounts of literature on project success factors have largely ignored the impact of a project manager and his or her leadership style on project success (Turner and Muller, 2005). Commonly, project managers have developed particular leadership behaviours in an attempt to cope with challenges and improve the performance of a project.

This research attempts to gather information from several professionals actively involved in project management to identify the most critical competencies that tend to be applied and are most favourable in performing productively in a project environment.

In considering the points, this study focuses on trying to demonstrate the relation between project leadership style and project success.

General management theorists believe that effective leadership is a key factor for organisational success. General management research has made the correlation between a manager's leadership style and competence as a key to successful performance in business. Leadership is viewed as a critical success factor for organisations in general management literature. The tactical and strategic management of organisations is dependent on good leadership for their success.

Cooke-Davies (2002) contributed what is considered to be one of the most significant works from the past decade when they differentiated between project success and project management success. Project success relates to the achievement of planned business results via the project outcome (new product or service), and project management success relates to the achievement of the triple constraints (time, cost, quality, and/or other define goals set for project management). The success criteria did not include or take into consideration the project manager's competence (Muller and Turner, 2010).

Westerveld (2003) examined the link between success criteria, critical success factors, and project types. The success criteria he developed included project results (time, cost, and quality), client appreciation, project team members, users, contracting partners, and stakeholders. Wateridge (1998) recommended that project managers identify important success criteria first and then identify critical success factors what will help them deliver the success criteria.

Slevin and Pinto (1986, P. 57) stated, "The project manager needs to know what factors are critical to successful project implementation". Their research listed ten critical success factors, but leadership was not on the list. Khan et al. (2014) believes that project managers who have an understanding of leadership are more likely to lead the project to success.

Riaz et al. (2013) ensured that an effective project leadership always have the right competencies and skills for the right jobs at the right time which necessitates research on project leadership. Therefore, more comprehensive research is desired to appraise benefits generally related to project leadership and especially project manager's leadership associations with project performance and teamwork through different empirical studies at industry, sector, and country levels to address the emerging challenges of the 21st century. The role of professionals working on projects

as manager, coordinator, and director is rapidly evolving from managing or directing to leading the projects. Such persons must possess essential skills and competencies of project leadership.

In the achievement of successful project outcomes, project management involves effective leadership (Nixon et al., 2011). Muller and Turner (2010) stated, "project success is not a fixed target". The changing understanding of what constitutes project success was reviewed by Jugdev and Muller (2005). The project manager's performance is ignored when identifying project success factors (Nixon et al., 2011). Most project managers view their job as successfully completed when they finish the project on time, within budget, and to specification (D. Dvir et al., 2006). Tanya L. Morgan (2012) called researches to evaluate a different leadership style and its impacts on project success factors. Future researchers could focus on a single style or factor in an effort to assess specific relationships that may exist. Jiang j (2014) stated that the project type needs special care, and the positive influence from leadership to project success depends on whether an appropriate leadership style has been selected according to project type.

Turner and Muller (2005) called for more research on the project manager's leadership style when identifying project success factors. According to Tuner and Muller (2005, p. 59), "the literature has largely ignored the impact of the project manager and his/her leadership style and competence, on project success". However, there is evidence that a project manager can influence the success of a project. According to Thite (1999) and Khan et al. (2014), there is a positive impact on the overall outcome of a project when the project manager is able to switch effectively between the transformational and transactional leadership style effectively. In addition, Kaissi (2005) discovered that the project manager's use of rational persuasion style was related to a positive project outcome. In other words, there is a need in the project management industry to examine the current project success criteria framework utilised and to establish leadership styles of a project manager within such a framework. Understanding this is important because of its bearings on the future direction of project management execution, training, and education.

2.2   Nature of the Study (or Theoretical/Conceptual Framework)

The theoretical framework for the current study is drawn from the foundation of contributing factors to project success, as theorised by Pinto (1986). Pinto found 10 critical success factors as predictors of project success in his study involving 418 members of the Project Management Institute (PMI). These 10 factors include project mission, top management support, project schedule, client consultation, personnel, technical tasks, client acceptance, monitoring, and feedback, communication, and troubleshooting. Pinto's initial work has since become a reference for many other studies (Hyväri, 2006). For example, Slevin and Pinto (1986) deepened the use of Pinto's 10 CSFs by testing the original 10-factor model with 94 project managers. This study not only confirmed the positive relationships between 10 CSFs and project success, it also led to the development of a commercially available tool for project implementation – the PIP (Slevin and Pinto, 1987).

Similarly, Pinto and Slevin (1989) tested Pinto's 10 CSFs on 159 research and development projects and found that these 10 CSFs and 4 other external factors; namely; urgency, characteristics of the project manager, power and politics, and environmental events, were predictors of research and development project success. Furthermore, Slevin and Pinto (1987) reported testing Pinto's 10 CSFs with a sample of 400 project managers, and found that not only are the 10 CSFs predictive of project success for various types of projects, but that these factors do vary in their degree of importance over the project lifecycle (Pinto and Prescott, 1988; Pinto and Slevin, 1989).

There has also been a number of recent empirical studies that have established the relationship between Pinto's 10 CSFs and project success of different types of projects (for reference, see, Amponsah and Darmoe, 2014; Bond, 2015; Culler, 2009; Delisle, 2001; Finch, 2003; Hyväri, 2006; Jones, 2007; Moretti, 2009). The current study is placed within the context of Slevin and Pinto's initial studies and those of recent researchers on the usefulness of 10 project management critical success factors in predicting project success (Amponsah and Darmoe, 2014 Bond, 2015; Loo, 2002, 2003; Pinto and Prescott, 1988; Pinto and Slevin, 1989). The current study examines the relationship between Slevin and Pinto's 10 CSFs and project success.

Finally, as in previous studies (Amponsah and Darmoe, 2014; Bond, 2015; Culler, 2009; Finch, 2003; Jones, 2007; Moretti, 2009; Pinto and Slevin, 1989) the current study uses Slevin and Pinto's 10 project management CSFs as independent variables with the addition of a new classification suggested by Al-Ahmad (2012). Al-

Ahmad also suggests that there is a need to classify items into groups that share common properties. Therefore, Pinto's 10 project management CSFs have been classified into organisational factors, project factors, and project team factors with project success as the dependent variable. Additionally, leadership styles are used as mediating variable (transformational and transactional) to qualify the relationship between 10 project management CSFs and project success of telecommunication projects in Yemen.

2.3   Project Management

Project management is the integrated deployment of specialised project management knowledge, principles, and tools to facilitate successful delivery of projects (Office of Government Commerce (OGC), 2009; Project Management Institute (PMI), 2008). A project on the other hand is a time-dependent undertaking involving a series of interrelated activities for creating a specified set of products or services (PMI, 2008; Kerzner, 1990). The practice of project management began in the early 1950s in the construction, engineering, aerospace, and defence industries (Bredillet, 2005; Shenhar and Dvir, 2004; Snyder, 1987). Early emphasis in the profession hinged on technical aspects of project implementation, including project scheduling, planning and control (Varajão et al., 2014; Bredillet, 2010; Stretton, 2007). The profession has since evolved (Bredillet, 2010) to cover new topics such as strategic alignment, organisational strategy, programme and portfolio management (Jugdev and Muller, 2005; Bredillet, 2010) and new industries, including; IT, manufacturing, services, among others (Varajão et al., 2014; Kolltveit, Karlsen and Grønhaug, 2007; Pinto, 2002).

In contemporary times, project management is used primarily to achieve organisational objectives (Jugdev and Muller, 2005), with emphasis laid on topics such as business case, financial management, management by projects, strategic alignment, and project portfolio management (PMI, 2008; Gareis, 1989; Ingason and Jónasson, 2009; Przemysław, 2013; Peters, 2008). Many studies (e.g., Abdulaziz et al., 2013; Bredillet 2005, 2010; Kolltveit, Karlsen and Grønhaug, 2007; Kwak and Anbari, 2007; Mir and Pinnington, 2013) have found that use of project management practices for managing organisational strategy is the most dominant perspective in contemporary project management. These studies argued that the near exponential rise of this perspective since the 1990s (Betts and Lansley, 1995; Shenhar 2004) is an indication that the future of project management lies in this area (for reference, see B. Urli and Urli, 2000, Bredillet, 2010; Gareis, 1989; Kwak and Anbari, 2009). Other studies have

also asserted that project management in the 21st century is a move towards organisational management and away from technical aspects of the profession (e.g., Bredillet, 2010; Crawford et al., 2006; Pinto, 2002; Walker and Dart, 2011).

Many organisations such as Boeing, Microsoft, and Pfizer pharmaceuticals are already utilising project-based management structures in their organisations (Pinto, 2002). Pinto (2002) posited that the towering success of these "projectised" organisations serves as a catalyst to make more companies change from functional structures to implementing management by project principles (Gareis, 1989; Pinto, 2002). There is general agreement in the literature (e.g., Cicmil and Hodgson, 2006, Peters, 2008) that project management is becoming more and more like general management (B. Urli and Urli, 2000; Ofori, 2013), where organisations are continuously turning to project management practices to implement organisational strategies.

2.4   Project Management in Yemen

In response to the revolutionary achievements in the ICT industry and the growing proliferation of computers in the last 15 years, there have been many initiatives in developing countries, including Yemen, aimed to leverage these new technologies as tool to automate and speedup work processes in the public sector. Such initiatives could lead to improved efficiency and quality in the services delivered to citizens. The Yemeni government, driven by the strong eagerness to create an environment that is attractive to investments, has implemented many IT projects in different ministries. One of these is the Ministry of Social Affairs and Labour (MoSAL) which is responsible for monitoring the application of Yemeni labour law by private sector companies. However, most of these initiatives have failed to realise their aims and achieve the expected results. The disappointing success rates of ICT projects are a phenomenon that is not limited to developing countries. In 2010, for example, the Standish Group reported that only 34% of ICT projects were considered successful, 51% did not go according to the pre-implementation plan (but achieved some of goals), and 15% of ICT projects were a complete failure (Dijk and A. J. V, 2009).

The Yemeni government released statistics about failure in various industry segments. According to Michael (2009), the Yemeni authorities declared that the rate of failure for construction companies was 73%, the rate of failure for corporate companies was 67%, and for limited liability companies 60%. Public shareholding

companies represented the lowest rate of project failure, boasting a failure rate of just 11%. The services sector records showed a failure rate of 92%, while the real-estate sector witnessed a failure of 89%.

Focusing on ICT projects in Yemen, failure could be minimised by implementing the 10 Pinto and Selvin critical factors. Esmat et al. (2014) found that having a project's goals and objectives clearly defined would help to have a success project among ICT projects in Yemen. While Al-Mamary et al. (2015) found that having an organisation's top management provide support for a project (through prompt funding, provision of project resources, and demonstrated commitment to project goals and objectives) is indispensable to successful management of projects among ICT and the Yemeni telecommunication industries. Similarly, Esmat et al. (2014) stated that ICT projects in Yemen without top management commitment, a project may lack resources, the project team may lose motivation, and the project may fail as a result. Teamwork skills also play an important role to deliver a success project as mentioned by few researchers. Al-Mamary et al. (2015) asserted that employees among the Yemeni telecommunication industries should have the skills and abilities to accomplish a specific task successfully.

2.5   The Yemeni Telecommunication Industries

The telecommunications sector in Yemen is one of the most important sectors that contribute to the country's GDP. According to the Yemeni Minister of Communications, the total revenue for 2013 from the telecommunications sector in Yemen amounted to almost 400 million dollars, while the Yemen's 2013 budget amounted to nearly 12.9 billion dollars (Al-Mammary, 2015).

In general, Yemen's telecommunications sector has shown improvement especially for fixed line subscriptions and internet usage. Yet, it has low penetration rates of less than 3% when compared with other Arab countries. Given that 65% of the Yemeni population live in rural areas, the allocated budget for the telecommunication sector is equivalent to nearly 2.8% of the overall budget of Yemen (Al-Mamary et al., 2015). This budget is among the lowest allocations provided by the Yemeni government in Middle East countries. The three well-known mobile companies in Yemen are HiTS-UNITEL (Y), Spacetel Yemen (MTN), and Yemen Mobile. Additionally, there is a single provider of international telecommunications for Yemen-fixed-line, telex, and an internet service is called Tele-Yemen. Tele-Yemen is a private company jointly owned

by the British Company Cable and Wireless PLC and the Public Telecommunications Corporation with responsibility for operating and developing international telecommunication services, mobile telephony services using TACS, and internet and email services. The services provided by the telecommunication can be classified into information, communication, transaction, and entertainment (Al-Mammary et al., 2015).

Yemen's telecommunication industry has registered impressive growth rate of this industry over the past few decades in Yemen compare the other industries. Slevin and Pinto's 10 Critical Success Factors facilitated efficiency and growth to help projects complete on time and within cost. Naturally, this will lead to increased revenues and contribute positively to improving the country's economy.

2.6 Project Management Critical Success Factors

Project management critical success factors are project management practices and processes when consistently applied leads to project success (Fortune and White, 2006; Leidecker and Bruno, 1984; Pinto and Slevin, 1989). These critical success factors have the potential to increase the likelihood of project success (Cooke-Davies, 2002; Chow and Cao, 2008). Since the 1960s there have been attempts to identify the success factors for projects (Cooke-Davies, 2002; Baker, et al., 1983; Pinto and Slevin, 1989). Such an endeavour was driven by the belief in the repeatability of project success (Chow and Cao, 2008; De Wit, 1988; Pinto and Slevin, 1989) and improved organisational performance (Chan, Scott, and Chan, 2004; Yong and Mustaffa, 2012). Studies have identified success factors applicable across project types (Fortune and White, 2006; Slevin and Pinto, 1987; Westerveld, 2002), while others focused on specific industries and projects (see for example, Culler, 2009; Moretti, 2009; Alan R, 2012).

Researchers agree that no single CSF list addresses all project situations (Fortune and White, 2006; Ika, et al., 2012) due to differences in project types (Cooke-Davies, 2002; Munns and Bjeirmi, 1996), environmental and cultural differences (Pinto and Slevin, 1988a; Fortune and White, 2006), as well as uniqueness in industrial operations. However, many agreed that the most commonly referred CSF list is that by Slevin and Pinto (1986, 1987) (e.g. Ika et al., 2012; Kuen et al., 2009; Muller and Turner, 2007). Slevin and Pinto (1986, 1987) sought to identify a generalisable CSF list (Ika, et al., 2012) for which they developed a 10-factor CSFs model that has been used with over 400 projects (Hyväri, 2006; Pinto and Prescott, 1988).

Following from the comprehensiveness of Slevin and Pinto's 10 CSFs framework (Moretti, 2009), it is used in the current study to examine the relationship between project management critical success factors and project success of projects. The next section discusses each of these 10 CSFs and highlights their prevalence in the project management CSFs literature.

2.7 Project Factors

Project factors are classified into project mission and project schedule/plan. Project mission is defined as initial clarity of goals and general direction while project schedule/plan is detailed specification of the individual action steps required for project management scheduling. It is also defined as the process that orders tasks according to time frame. Project characteristics have long been overlooked in the literature as being critical success factors whereas they constitute one of the essential dimensions of project performance. Among the few studies, Morris and Hough (1987) identified schedule duration and project mission as critical factors. Many projects, however, fail due to several other factors inherent in projects.

2.7.1 Project Mission

The project mission CSF relates to providing clear a definition of the project's overall goals, the objectives at the beginning of the project (Slevin and Pinto, 1986, 1987), and maintaining visibility of these objectives throughout the project lifecycle (Clarke, 1999; Slevin and Pinto, 1989; Fortune and White, 2006; Westerveld, 2002). Project mission has been found to be one of the most outstanding CSFs in project management literature, and has been cited in many studies as a key contributor to project success (for reference, see, Alan R, 2012; Amponsah and Darmoe 2014; Baker, et al., 1983; Bond, 2015; Cooke-Davies, 2002; Gudieneet al., 2013; Kuen et al., 2009; Morris and Hough, 1987; Munns and Bjeirmi, 1996; Chow and Cao, 2008; Westerveld, 2002). Fortune and White (2006) conducted a review of project management CSFs literature in 63 publications and found that clearly defined goals and objectives, as a project success factor, resonated through many of the published best practice literature.

Clearly defining a project's scope, goals, and objectives according to Al-Turki (2011), Aqeel and Salam (2015), helps to ensure visibility of objectives, enhances stakeholder commitment, and reduces conflict among telecommunication industries. PMI (2008) posited that, as projects are conceived to meet specific organisational goals

(PMI, 2008), failure to clearly define these goals may cause the project team to become misguided, project resources may be underutilised, and the project may fail as a result.

Many studies have found that having a project's goals and objectives clearly defined and updated throughout the project lifecycle have proven to correlate well with project management success (Belassi and Tukel, 1996; Westerveld, 2003). Pinto and Covin (1989) found that project mission is the only CSF that is consistently related to project success for both construction and research and development projects. Furthermore, Pinto and Slevin (1989) found that while CSFs vary in their importance over different project phases, project mission is the only CSF that maintains equal relevance at all phases of a project (Slevin and Pinto, 1987; Pinto and Prescott, 1988). Finally, Esmat et al. (2014) found that having a project's goals and objectives clearly defined would help to achieve a successful ICT project in Yemen.

2.7.2 Project Schedule/Plan

Pinto and Slevin referred to the CSF project plan/schedule as the provision of a detailed roadmap of specific actions and steps that will be taken to ensure successful delivery of a project, including cost estimation, resource allocation, activities scheduling, among others (Slevin and Pinto, 1986, 1987). It involves the development of a front-end plan of how project activities will be performed, including procurements, communication, human resources, stakeholder management, and many more (PMI, 2008). Esmat et al. (2014) found that ICT projects in Yemen are facing lack of proper planning and that unclear objectives were among failure factors. Project schedule/plan has been found in many studies (e.g., Abdulaziz et al., 2013; Alan R, 2012; Amponsah and Darmoe 2014; Bond, 2015; Chow and Cao, 2008; Clarke, 1999; Cooke-Davies, 2002; Fortune and White, 2006; Nasir and Sahibuddin, 2011; Morris and Hough, 1987; Westerveld, 2002), to be a significant contributor to project success. Many of these studies asserted that developing and updating a baseline plan and schedules for managing the project is a requisite step for successful project implementation (Abdulaziz et al., 2013). Other studies (e.g., Pinto and Prescott, 1988) have also argued that a well-articulated project plan is required for measuring and controlling project performance (Alan R, 2012; Westerveld, 2002).

2.8   Organisational Factors

Organisation factors are classified into top management support, client consultation, and client acceptance. Classification has been conducted based on different studies (Belassi and Tukel, 1996). Top management usually controls a project manager's access to resources which are supervised by functional managers. The level of support provided by the functional manager is usually determined by the level of support from top management. If the project is part of the functional department, then the availability of resources is not usually an obstacle, because the functional manager is usually also the project manager, but for projects with matrix organisational forms, or for projects with pure project forms, acquiring adequate resources can be a difficult job. It requires negotiating skills and positional power within the organisation. Clearly, full support from the organisation for the project helps to facilitate and implement strategies for the successful completion of projects. For functional projects, however, clients are usually part of the organisation, such as top management. In such cases, factors related to the client can be grouped under the organisational factors (Belassi and Tukel, 1996).

2.8.1   Top Management Support

The CSF top management support is defined by Pinto and Slevin (1988) as having sustained support, commitment and buy-in from an organisation's senior management for projects, and project activities (Pinto and Slevin, 1989). There seems to be an overwhelming agreement in much of the CSF literature (Abdulaziz et al., 2013; Amponsah and Darmoe 2014; Bond, 2015; Fortune and White, 2006; Loo, 2002; 2003; Khan, 2014), that top management support is a key facilitator of successful project management. Top management generally plays an important role in defining the scope of a project and selection of project team as well (Boonstra, 2013). Al-Mamary et al. (2015) found that having an organisation's top management provide support for a project (through prompt funding, provision of project resources, and demonstrated commitment to project goals and objectives) is indispensable to successful management of projects among the Yemeni telecommunication industries.

Similarly, Clark (1999) opined that top management commitment delivers an "unspoken message" that a given project is relevant to the organisation, thus providing the needed comfort for the project team to meet project goals.

Literature (e.g., Loo, 2002, 2003) has found that many project management failures were attributable to lack of top management support. Loo (2002) posited that all successfully managed projects had one feature in common: a project management champion from the organisation's top management, who had authority to provide resources, motivation, and funding to the project. Aqeel and Salam (2015) asserted that top management support plays an important role as a critical success factor in the telecommunication industry. Other studies have also found that most project failures were the result of lack of commitment from the organisation's senior management (Besner and Hobbs, 2008; Tukel and Rom, 2001). As top management commitment is an indispensable factor for successful project management, it is important for a performing organisation to appoint someone from the organisation's top management (project sponsor, PMI, 2008) to provide necessary organisational support for successful project management. Other studies that have listed top management support as a critical success factor include Belassi and Tukel (1996), Bond (2015), Cooke-Davies, 2002), Fortune and White (2006), Kuen et al. (2009), Culler (2009), Yong and Mustaffa (2012), Westerveld (2002), as well as Wateridge (1998).

2.8.2 Client Consultation

Client consultation, according to Slevin and Pinto (1987), entails early and sustained engagement with the client to ensure continued client support, and commitment to project objectives (Pinto and Slevin, 1989). It involves active listening to the client and seeking client input at every major decision point during project implementation. Telecommunication projects in Yemen do not achieve the required results due to ignoring the client's involvement for unknown reasons. Projects with poor user involvement will perform poorly and user involvement comes at the top of the list of project success reasons (Esmat et al., 2014). Many studies have listed this factor as an important contributor to project success, opining that client interest in the project must be secured at the start of the project and sustained throughout its lifecycle (Alan R, 2012; Amponsah and Darmoe, 2014; Belassi and Tukel, 1996; Bond, 2015; Chow and Cao, 2008; Munns and Bjeirmi, 1996; Nasir and Sahibuddin, 2011; Yong and Mustaffa, 2012; Westerveld, 2002; Slevin and Pinto, 1987; Westerveld, 2002). Evidence abounds in the literature (e.g., Georgieva and Allan, 2008; Westerveld, 2002) that without proper engagement with the client, the project may lack buy-in from relevant organisational actors, leading to conflict and possible project failure (Loo,

2002; Pinto and Slevin, 1989). Pinto and Slevin (1989) posited that unless client consultation happens early in the project lifecycle, subsequent client acceptance of project results may be difficult.

2.9 Client Acceptance

Slevin and Pinto's client acceptance CSF, also referred to as planned project review and acceptance (Munns and Bjeirmi, 1996), involves activities such as joint determination of project success criteria and post-project review, among others (Pinto and Prescott, 1988) required to make the project's final product acceptable to clients. Pinto and Slevin (1989) posited that this CSF is most important at both the project planning stage (where the project team determines the client's specific needs, obtain client's concurrence on budget, schedule, etc.) and at the termination stage, where the project team needs to perform a verification of client acceptance of the project (Pinto and Slevin, 1989; Pinto and Covin, 1989). Baker et al. (1983) opined that without a jointly determined performance evaluation system between project parties, the contractor and client may have conflicting measures of project success (Lim and Mohammed, 1999), which breeds conflict and may lead to eventual project failure. Other studies that have found client acceptance as a key contributor to project success include Alan R (2012), Amponsah and Darmoe (2014), Bond (2015), Munns and Bjeirmi (1996), Nasir and Sahibuddin (2011), Morris and Hough (1987), Locke (1984), as well as Westerveld (2002). Finally, Saadé et al. (2015) found that client acceptance is an important factor for project success among ICT projects.

2.10 Project Team Factors

Many factors related to the skills and characteristics of team members is proposed for the successful completion of projects. The competence of the team members such as communication skills, technical task, troubleshooting, and monitoring, and feedback is also found to be a critical factor during the implementation stages (Amponsah and Darmoe 2014). Note that this factor not only affects project performance but also affects client satisfaction and project acceptance. For example, well established communication channels between the project managers, team members, the organisation and the client are necessary for the acceptance of the project outcome by the client (Belassi and Tukel, 1996).

2.10.1 Communication

The communication CSF is another widely agreed upon CSF in the literature (Abdulaziz I. et al., 2013, Amponsah and Darmoe, 2014; Bond, 2015; Cooke-Davies, 2002; Delisle, 2001; Fortune and White, 2006; Westerveld, 2002). Slevin and Pinto (1986) defined communication as providing adequate flow of useful project-related information among project stakeholders. The PMI (2008) posited that creating a comprehensive communication plan for the project, followed by timely distribution of project information (goals, objectives, reports, and changes) to all stakeholders is a key supporter of project success. Clarke (1999) argued that effective project communication through timely meetings, open information sharing, and collective participation ensures increased understanding among stakeholders, reduces the potential for conflict, and helps to eliminate duplication of effort. Proactive and iterative communication with project stakeholders helps to give a sense of relevance to all stakeholders, removes suspicion and ambiguity, and promotes good neighbourliness throughout the project lifecycle (Alan R, 2012).

2.10.2 Technical Tasks

The technical tasks or use of integrated project management CSF is another widely cited CSF in the literature (Chan et al., 2004). It involves deployment of tools, technology, and processes to project activities to ensure successful project delivery (Slevin and Pinto, 1986, 1987; Westerveld, 2002). Literature has shown that projects that utilise integrated project management systems (PMS), with the right tools and technology, produce better project outcomes than those that do not (Abdulaziz I. et al., 2013; Amponsah and Darmoe, 2014; Bond, 2015; Cookie-Davies, 2002; Loo, 2003; Nasir and Sahibuddin, 2011). Many of these studies argued that every successfully managed project utilises a formal PMS, which has elements of proactive project planning, scheduling, budgeting, scope management, work breakdown, risk management, and control (Clarke, 1999; Cooke-Davies, 2002; Westerveld, 2003; Belassi and Tukel, 1996; Fayeket al., 2006; Morris and Hough, 1987). Without integrated management of projects through a PMS, the project may experience scope creep, budget overruns, and schedule slips that may lead to its failure. Al-Mamary et al. (2015) asserted that employees among the Yemeni telecommunication industries should have the skills and abilities to accomplish a specific task successfully.

2.10.3 Troubleshooting

Pinto and Slevin's 10th critical success factor, also called risk management in some studies (Cooke-Davies, 2002), and continuity, or ability to handle complex contingencies in others (Fortune and White, 2006; Morris and Hough, 1987), describes the ability to navigate the complex project environment in the midst of crisis, and responding to unexpected deviations from the project plan (Pinto and Prescott, 1988). Cooke-Davies (2002) opined that since risk is an inherent part of every project (PMI, 2008), proactive risk identification, evaluation, and implementation of risk response activities during project implementation is indispensable to project success. Consequently, Slevin and Pinto (1987) recommended holding regular brainstorming sessions to identify problem areas during project execution, and assignment of designated team members to handle specific types of crisis.

Troubleshooting has been found in many studies to be a key facilitator of project success (see for reference (Amponsah and Darmoe 2014); Bond 2015; Culler, 2009; Gudieneet al., 2013; Jones, 2007). According to Abdulaziz et al. (2013) and Gudiene et al. (2013), a project team's ability to identify crisis events early, and to respond to such crisis in an organised manner, has been found to be a key contributor to project success. Other studies that have identified troubleshooting as a CSF include Moretti (2009), Finch (2003), Hyväri (2006), as well as Kuen et al. (2009).

2.10.4 Monitoring and Feedback

Monitoring, and feedback CSF is defined as the timely provision of a project's status and progress (budget, schedule, scope, etc.) to all concerned stakeholders, during project implementation (Pinto and Prescott, 1988; PMI, 2008). It involves convening regular meetings to disseminate project information to all stakeholders, sharing results of project reviews with stakeholders, measuring actual progress against baseline, as well as monitoring all aspects of the project to provide a snapshot of the project's progress (Pinto and Slevin, 1989). Both Slevin and Pinto (1987) and Pinto and Covin (1989) found this factor to be one of the most important CSFs during the project execution stage, noting that because projects are dynamic, constant monitoring ensures that the project stays in line with pre-conceived objectives.

Several other studies have listed this CSF as an important contributor to project success including Alan R (2012), Amponsah and Darmoe (2014). Bond (2015), Cooke-Davies (2002), Fortune and White (2006), Ika et al. (2012), Nasir and Sahibuddin

(2011), Westerveld (2002), Locke (1984), Loo (2002; 2003), as well as Yong and Mustaffa (2012). Many of these studies asserted that iterative monitoring and control of all aspects of the project makes it easy to identify deviations from the plan and enables timely corrective action to be taken (Westerveld, 2002).

Such deployment of fair and open communication throughout the project, has been shown in many studies to increase the chances of project success (For reference, see, Cooke-Davies, 2002; Fayeket al., 2006; Fortune and White, 2006; Westerveld, 2002). Related studies have also found that projects that maintained open communication throughout the project lifecycle were more successful than others that had poorly coordinated communication processes (Abdulaziz I. et al., 2013; Amponsah and Darmoe 2014; Geogieva and Allan, 2008; Munns and Bjerimi, 1996: Yong and Mustaffa, 2012).

2.10.5 Personnel

Slevin and Pinto's CSF personnel covers training, recruitment, use of competent project manager, and team members, to ensure successful project implementation. Several studies have found that projects that utilise skilled personnel, with the right tools and technology, produced better outcomes than those managed with low-calibre staff and resources (Alan R, 2012; Al-Mamary et al., 2015; Abdulaziz et al., 2013; Amponsah and Darmoe, 2014; Belassi and Tukel, 1996; Geogieva and Allan, 2008; Gudieneet al., 2013; Ika et al., 2012; Kuen et al., 2009; Loo, 2003; Nasir and Sahibuddin, 2011; Pakseresht and Asgari, 2012; Yong and Mustaffa, 2012). According to PMI (2008), as project management involves application of knowledge, skills and resources to project activities, it is important to have the right calibre of human resources who will apply both personal and technical skills to successfully manage projects.

Other studies have found that most project failures were the result of deploying unqualified personnel on projects (e.g., Loo, 2002; Fayek et al., 2006; Fortune and White, 2006; Westerveld, 2002; Zimmerer and Yasin, 1998). While Zimmerer and Yasin (1998) found that using project managers with better leadership qualities correlated well with successful projects, Loo (2002) found that project managers who were well educated, and possessed appropriate project management certifications, were more likely to execute projects successfully. As successful project management requires team effort from a project manager, project team, and project stakeholders (PMI, 2008),

having personnel (project manager and team) with the right mix of personal and technical expertise is indispensable to achieving success.

2.11 Project Success

Project success factors are the elements of a project that can be influenced to increase the likelihood of success. These are independent variable that makes success more likely. Project success criteria are the measures by which judge the successful outcome of a project; these are dependent variable which measure project success (Arti. J. Jari, Pankaj, P. Bhangale, 2013). In addition, success criteria are those base values, based on which project success can be evaluated. With the help of these base values, it can be decided whether a certain project was a success or a failure (Gorog, 2013b). In other words, nowadays project success is a highly complex phenomenon which has an input and output oriented view. The output oriented view measures project success with the help of success criteria. Success criteria can be defined as follows those base values based on which project success can be evaluated (Gorog, 2013b). The input oriented view analyses projects from the point of view of which factors help to realise project success in a greater extent.

Effective managerial leadership is central to project success. According to Cleland (1999), effective leadership is manifested in the timely and cost effective completion of projects. It extends across the following eight areas of project management: scope management, cost management, time management, quality management, contract procurement, risk management, human resources management, and communications management.

Project success often entails trade-offs in project scope, quality, time, and cost (Kerzner, 2006; Arti. J. Jari, Pankaj, P. Bhangale, 2013). Sumner et al. (2006) found the effective project managers are good monitors, communicators, collaborators, and are friendly. On top of traditional project success criteria, strategic objectives, end user satisfaction, and stakeholder satisfaction should be included. Furthermore, stakeholders' interests should be considered in management's decision-making to ensure project success (Aaltonen, 2011).

A recent view of project management identifies success at the beginning of the project in addition to during the operational life of the project (Mahaney and Lederer, 2010). According to Wui-Ge et al. (2010), researchers argue that critical success factors such as project mission, top management support, and project schedule are vital in the

start of a project. The key critical success factor is top management support (Young and Jordan, 2008), with some determining it the utmost critical success factor (Belassi and Tukel, 1996). Making project success criteria known from the beginning allows for the ability to meet all other criteria, providing a better chance for project success. Various researchers have distinguished the definitions between project management success and project success (Cooke-Davies, 2002; Anantatmula, 2010; Ika, 2009; Baccarini, 1999; Munns and Bjeirmi, 1996; De Wit, 1988). According to Ika (2009), project management success is defined based on the traditional definition of the "iron triangle" or "triple constraints" and is described as accomplishing the project objectives within the requirements of time, cost, and quality, whereas project success is defined to include the traditional "iron triangle" constraints plus other broader project achievements such as the strategic objectives of the client organisation and business success, the end user's satisfaction, benefits to the stakeholders and project personnel, and other business value achievements.

There should be no confusion between project management success and project success. The internal concerns of the project team are the project management success criteria. Effectiveness and efficiency of all internal and external concerns are project success criteria. Project management success leads to project success, never vice versa (Ika, 1999). Baccarini (1999) takes project success further by emphasising that project success consists of product success, dealing with goals, purpose, and project management success. Project success factors were derived from a theoretical base and then empirically developed (Wui-Ge et al., 2010). The shift from project management criteria to project success is emphasised in the critical success factors.

According to Ika (2009), researchers in the project management literature have distinguished between what constitutes the CSFs of a project (the contributors) and what constitutes project success (the measurement criteria). Ika (2009) argued that research in project management generally falls in two categories: (a) they either try to examine a project success criterion, or (b) they examine the CSFs that contribute to project success. Project success criteria refers to a set of standards or metrics used to judge project success, while CSFs refer to conditions or events that contribute to positive project results (Ika, 2009). Identifying the CSFs that contribute to project success has been a topic of debate in the project management literature for several decades (Kerzner, 1987). Some researchers considered CSFs as universal factors affecting multiple types of projects (Belassi and Tukel, 1996), while others argued that CSFs are not universal

and vary based on elements such as the project size (D. Dvir et al., 1998; A. Pakseresht and Asgari, 2012; Pinto and Covin, 1989). Turner and Muller (2005) also argued that the CSFs differ by the IND, and furthermore, the characteristics of project managers that contribute to project success diverge by IND.

CSFs have been classified in numerous ways; originating multiple proposed frameworks. Slevin and Pinto (1986) proposed a framework for CSFs comprised of 10 elements: (a) project mission (b) top management support (c) project schedule/plan (d) client consultation (e) personnel (f) technical tasks (g) client acceptance (h) monitoring, and feedback (i) communication, and (j) troubleshooting. Later, these 18 frameworks were expanded to include external factors such as the characteristics of the project manager, power and politics, environmental events, and urgency (Pinto and Slevin, 1988a). Similarly, CSFs such as the ones included in the PIP framework were incorporated in Schultz, Pinto, and Slevin's (1987) framework, classified the CSF within strategic and tactical. Strategic CSF included project mission, top management support, and project scheduling, while tactical CSF included personnel selection and training, and client consultation. Belassi and Tukel (1996) proposed a more generic framework by classifying CSF into: (a) the external environment (b) the project manager and team members (c) the organisation, and (d) the project. From there, Thi and Swierczek (2010) considered project member competencies and the external stability as CSFs leading to project success. This suggests that a project's implementation phase is a critical determinant for project success.

PMI (2013) also identified organisational culture, style, structure, and project management maturity as determinants of project success. Furthermore, globalisation requires project manager to possess multicultural competence (PMI, 2013).

Critical success factors enable resources, time, and cost to be properly allocated (Chua and Loh, 1999). Several studies examined critical success factors; however, none included the project manager in the criteria. According to Turner and Muller (2005), the literature on project success factors largely ignores the project manager, leadership style, and competence on project success. The project manager ought to have the skill, competencies, and leadership to balance project scope, quality, time, and cost effectively.

2.12 Leadership Concept

Leadership is one of the fields that is most discussed around the world. It has gained importance in every walk of life, from business and education to social organisations. Although administrative leadership has long been a subject of interest, the scientific research on leadership began in the early 20th century. Researchers have found leadership behaviours to be important determinants of organisational success (Bass, 1990, Saenz, 2011, Dubrin, 2012). Organisations today need people with leadership ability they are believed to bring assets and success to their organisations (Northouse, 2007). Good leadership has the ability to bring change in relation to environmental demands (Schermerhorn, 2008). It is considered the solution to most organisational problems (Yukl, 2013). Riaz and Haider (2010) noted that effective leaders have the ability to lead organisations to success by paying more attention to expected future events and environmental change. Leadership plays a vital role in establishing high performing teams and is one of the critical elements in enhancing organisational performance (Northouse, 2007; Betroci, 2009; Dubrin, 2012). It has been identified as one of the key factors in promoting innovation (Jung et al., 2003). According to Yukl (2010), there is no general agreement on the definition of leadership.

Leadership includes directing and coordinating the work of group members (Fiedler, 1967). It is exercised when a group of individuals mobilises political and other resources to arouse, engage and satisfy the motives of followers (Burns, 1978, p.18). It comprises influential processes that affect the actions of subordinates (Yukl, 1981). Leadership is the ability to motivate confidence, encouragement and support among the organisational members who are required to reach the goals of the organisation (House et al., 1991).

2.13 Leadership in Project Management

Leaders leads a multitude of people. However, the effectiveness of the team depends on many factors. Each team member contributes to achieve the overall objective (Belbin, 1981; Han, 2015, Jiang j, 2014; Prichard and Stanton, 1999). To create the proper team, the project manager recognises and understands the resources needed. The project manager implements a cross-functional team by coordinating meetings and resources to increase the outcome of the project (Soderlund, 2010). The expansion of non-routine projects and competiveness requires the cooperation of individuals from multiple functional areas.

The ability to gather cross-functional teams to support one another is not simply standard departmental work with one another (Kendra and Taplin, 2004). The process to create this environment enables people to perform at the best of their abilities due to their dedication to the project mission and support of the team (Aronson, Shenhar, and Reilly, 2010; yang et al., 2011). The environment demonstrates key factors in order for individuals, as well as project performance, to be tracked. An organisation's performance management is analysed through organisational gaps and plans for the future to accomplish its goals and mission (Mary, 2011; Wikina, 2008). Bacal (1998) defines the management of performance as a partnership of ongoing communication between leaders and their followers when establishing an understanding and expectations of their job functions and performance. Effective communication exchanges significant information among the team to influence their actions and belief (Shehu and Akintoye, 2010). The ability to align goals to the overall organisational strategy is an asset each leader should possess.

Leaders define and adjust organisational performance based on supporting data (Wikina, 2008, Jiang j, 2014). According to Kendra and Taplin (2004), performance management systems are an asset to measure profitability, metrics on time, cost and quality, and project milestones. This process requires monitoring and control of performance measurements in the continuous development of individuals and teams (Lam, 2008; Mary, 2011). For operational efficiency, goals, and performance ought to align plus ensure business objectives are achieved. It is up to each leader to address the workers needs to ensure they are relevant to the organisational needs.

For succeed, the leadership style should apply the appropriate direction and support to the followers. Research indicates engaged followers are productive and more focused (Wallace and Trinka, 2009; Han 2015). Leaders who provide the right level of support allow followers to excel. Furthermore, leaders should create an environment for followers to perform and deliver the organisational strategy and vision. In this environment, leaders create the vision and execute it by fulfilling the strategy. The adoption of project management includes a shared set of values and beliefs (Kendra and Taplin, 2004). Success requires leaders to examine the factors critical of the organisations for continued success. Leaders succeed by determining a way to encourage change while providing a successful vision for the organisation. Han (2015) conducted a study of IT project teams to examine the impact of group dynamics during implementation and leadership roles. It found persuasion and participation requires

comparable staff and budget support. Both persuasion and participation are just as effective.

Pinto and Prescott (1993) claimed research contributed to understanding relationships, but lacked providing managers with how to induce cooperation. To overcome this, the project manager sets goals, communicates, and develops operating rules for the project team to promote a higher level of cooperation.

The combination of these guidelines will achieve cross-functional cooperation and project success (Pinto et al., 1993). Waldman (1994) found that improving the innovation of a multi-functional team relies on transformational leadership. Dionne et al. (2004) and Barrantes-guevara (2013) asserted that transformational leadership develops team communication. The confidence expressed by the leader is shown in the execution of goals and tasks that offers motivating behaviours (Bass and Avolio, 1994). Khan et al. (2014) also found transformational leaders developed committed high performing teams. The study evaluated the IT industry and found transformational leadership directly influenced performance perceptions and commitment. To achieve effective leadership, all individuals involved engaged in informal and unstructured communication to facilitate discussion to transfer knowledge (Ajmal and Koskinen, 2008). Within projects, communication is only one aspect to engage all parties involved in the project. Project sponsors preferred to be kept informed to ensure the project was truly worth the investment. A written communication document describes all project goals with set forth objectives, the way to accomplish it, who is responsible, and how it will be measured. Determining the objectives, audience, goals, and tools allows for the project manager to offer effective leadership throughout the project. It provides the project team a stable working environment and the capability to set work priorities, while decreasing a chaotic environment. The Standish Group (2000) concluded from 1997 to 2000 that projects had declining success rates due to poor working relationships (Kendra and Taplin, 2004).

Projects can help avoid failure through effective leadership. Traditional project management theory insists on top management support for project success. According to Smith (1999), projects never receive the level of support they truly deserved. Smith (1999) concluded that despite the lack of top management support, this factor was not a legitimate excuse for project failure. Alfaadel et al. (2012) and Van Ingen (2007) indicated that for a project to be conducted effectively, lead project managers must have both management and leadership skills.

2.14 Leadership and Project Success

A major challenge facing today's project managers is completing projects within budget and on time while maintaining quality (Mahaney and Lederer, 2010). It has caused an increased need to improve project competencies to conquer challenges (Khan et al., 2014; Morris, 2008). Due to the value projects present to organisations, project stakeholders have shown more interest in the project's success (Abdulaziz et al., 2013; Alfaadel et al., 2012; Almajed and Mayhew, 2013; Barclay and Osei-Bryson, 2010; Ofori, 2013; Yang et al., 2011). Despite the growing number of trained project managers, the rate of project success does not improve (O'Brochta, 2008).

Project success has several attributes beyond a trained project manager. It involves the project stakeholders and sponsors intentions, as well as their satisfaction (Barclay and Osei-Bryson, 2010; Yang et al., 2011). Sponsors act as an owner in the project dealing with stakeholders and organisational culture, while project managers exhibit effective leadership skills.

Zimmerman and Yasin (1998) found that project success contributed 76% to positive leadership while poor leadership contributed 67% to project failure. A survey of 600 organisations conducted by KPMG found 86% of projects had lower than expected outcomes (Papke-Shields, Beise and Quan, 2010). Zimmerman and Yasin concluded positive leadership characteristics recognise team building, communication, goal setting, and flexibility to respond to change. To integrate recommended changes involves commitment of the sponsors, stakeholders, and project team, to have all key individuals on board.

2.15 Leadership and Critical Success Factors

In an organisation, the project manager reports project status throughout the project lifecycle (Kerzner, 2006). They demonstrate different patterns of leadership behaviour relevant to the search of leadership within project management (Ukpai et al., 2013; Jacques, Garger, and Thomas, 2008). Behavioural differences exhibited by personality differences potentially impact project outcomes (Aronson, Reilly, and Lynn, 2006; Hrůzová et al., 2013). Prior research studies have thoroughly examined the project lifecycle compared to leadership styles. However, these did not evaluate the impact on the project's end results.

During the project lifecycle planning phase, the project manager should interact with top management. Top management enhances and complements the relationships

formed by project management with stakeholders (Alfaadel et al., 2012; Almajed and Mayhew, 2013; O'Brochta, 2008). A study conducted by Alfaadel et al. (2012); Almajed and Mayhew (2013); Amponsah and Darmoe (2014), and Zwikael (2008) found effective top management involvement and support practices significantly improve project success. Project management success is threefold, with the first being the project manager, the second the line manager, and the third top management (Kerzner, 2006). The actions practised by top management engage middle management (Trkman, 2010), with aligning the best practice by supporting project managers. Project managers, middle management, and project teams are dependent on project sponsors to sustain project success. The identification of the sponsor role affects the project's success or failure (Cowan-Sahadath, 2010).

The project sponsor role of top management plays an integral role in project success. Top management, as a project sponsor, is the cushion between the client and organisation that provides a liaison type figure for the project manager (Bryde, 2008; Jiang j, 2014). According to Kerzner (2006), top management involvement is vital in providing guidance to the project manager.

The suggestion of top management involvement is not new. March and Simon (1958) argued in the theory of bounded rationality that senior management's attention and time are limited in all aspects of the organisation. It was first thought that personal motivation and environmental influences forced administrative skills to high levels of proficiency (Shull Jr, 1962). Furthermore, March and Simon pointed out that decision-making capabilities are bounded by cognitive limitations. The use of rational decision-making is indispensable in strategy; however, it does not illustrate how management leads effectively.

In an organisation that supports rational decision-making, the leader not only gives responsibility to its followers, but also ensures the proper means to handle the responsibility is available (Scott and Davis, 2007). The process helps keep many decisions from going directly to management by allowing followers to carry out certain tasks. By giving the proper tools to followers, management presents the ability for the followers to make decisions and focus on more specific tasks and goals that can be assigned to even lower positions. From this perspective, management is viewed as a means-ends promoting consistency of decisions and activities throughout the organisation. In order to be successful, individual role expectations need to be set, plus

management must have an understanding regarding the activities in fulfilling them, to effectively lead.

Successful top management support instils confidence within the project manager to focus their leadership on the project. Cowan-Sahadath (2010) stated, "Organisations that are carrying out projects are increasingly focusing on effective leadership as important success criteria, assessing the capabilities of executive sponsors, and project leaders in resolving extraordinary situations and challenges with today's complex change" (p. 398). To manage sponsor interest, project managers must have successful leadership skills. The ability to communicate a vision to inspire the project team will gain the buy-in with sponsors. Project best practices are as simple as outlining the requirements for project sponsors. Once the project manager outlines the project requirements for the sponsor, the project team has a clear vision of the project (Han 2014, 2015; Norrie and Walker, 2004). The first requirement is to obtain project sponsors who are senior administration that have the ability to make decisions across functional boundaries of all parties in the project (Mccormick, 2006). Project sponsors with high strategic uncertainties improve the overall project performance (Mary, 2011; Liu, 2009). It allows the project sponsors to look at all aspects prior to beginning the project.

Organisational sponsors such as top management are a critical success factor in a project. Abdulaziz et al. (2013), Amponsah and Darmoe (2014), Young and Jordan (2008) and Khan (2014) found that top management support is the most critical success factor for project success. Critical success factors are effective when using the top-down approach that enables top management to focus on the strategic direction and investment of the organisation (Khan, 2014). Belassi and Tukel (1996) found that top management support ranked the highest of the critical success factors.

Research has focused on identifying the most critical factors that contribute to project success. Slevin and Pinto's (1987) research conceptualised critical success factors to support various types of projects. According to Hyväri (2006), the critical success factors are vaguely listed or are too specific, referencing certain types of projects. Creating a mutual reference point with critical success factors allows the project to achieve its mission, objective, and goals. Besner and Hobbs (2008) emphasised the importance of critical success factors in achieving project success while also suggesting organisational support and the use of proper tools.

2.16 Leadership Theories

An early approach to leadership is the trait theory (Julien et al., 2010). This viewpoint perceives leadership within the personality qualities of a person (O'Connor and Jackson, 2010). The qualities identified include appearance, education, personality, initiative, and social characteristics. Researchers in the late 1940s and early 1950s discarded the trait approach to leadership as inefficient in explaining leadership and leader effectiveness (Zaccaro, 2007). It raises questions on whether leaders are born or made. The great man theory refutes that leaders are made. This style found leaders are born and possess specific inherited traits. Most traits under this theory are masculine with a heroic conception (Vroom and Jago, 2007) that is recognised within the theory's name. The heroic conception was found within major world historical events as the result of the great men who changed the world, such as Napoleon and Shakespeare.

By the 1950s and 1960s, dissatisfaction in the search of universal traits of leadership paved the way to an innovative movement in leadership research. With the new movement in leadership research, Ohio State University and University of Michigan contributed to research on how leaders behave. The interest on leadership traits was not a priority. The focus was on the leader's action to carry out the leadership role (Vroom and Jago, 2007). The focus was to measure leadership behaviour; however, Vroom and Jago (2007) concluded that neither approach constructs provided sufficient, solid, scientific evidence. The debate between person and situation left social scientists searching for a set of concepts able to deal with the differences in situations and leaders.

2.16.1 Contingency Theory

The contingency theory constructed by Fiedler dealt with both leader traits and situational variables, which attempted to match leaders to appropriate situations (Browning, 2007). The theory presented a leader finding the correct style to match an existing situation. Fiedler (1972) suggested that leadership involves a relationship with power and influence. He also proposed the contingency model consisting of two leadership styles, those that are leader-member related and those that are task structure related. The model of Fiedler offered would predict task-oriented performance effectively in favourable and unfavourable situations while relationship-oriented performance as effective in an intermediately favourable situation (Fiedler, 1971). The contingency model suggested the interaction of groups is contingent on leadership style and situational favourableness.

2.16.2 McGregor's Theory X and Theory Y

McGregor's thesis on Theory X and Theory Y managers made a tremendous impact on leadership strategies. His theory demonstrated that leadership strategies are influenced by a leader's assumption about human nature. McGregor's work was based on Maslow's hierarchy of needs by grouping Theory X into the lower order of needs and placing Theory Y into the higher order of needs. Table 2 below summarises McGregor's two contrasting sets of assumptions.

Table 2-1:
Theory X and Theory Y Managers (McGregor, 1960)

Theory X managers believe that:	Theory Y managers believe that:
• The average human being has an inherent dislike of work and will avoid it if possible.	• The expenditure of physical and mental effort in work is as natural as play or rest, and the average human being, under proper conditions, learns not only to accept but to seek responsibility.
• Because of this human characteristic, most people must be coerced, controlled, directed, or threatened with punishment to get them to put forth adequate effort to achieve organisational objectives.	• People will exercise self-direction and self-control to achieve objectives to which they are committed.
• The average human being prefers to be directed, wishes to avoid responsibility, has relatively little ambition and wants security above all else.	
	• The capacity to exercise a relatively high level of imagination, ingenuity, and creativity in the solution of organisational problems is widely, not narrowly, distributed in the population, and the intellectual potentialities of the average human being are only partially utilised under the conditions of modern industrial Life.

2.16.3 Behavioural Theories

The central focus of behavioural theory is on what a leader actually does rather than on the traits they have. The concept is to capture different patterns of behaviour and categorise them into styles of leadership. This theory became popular during the 1960s after Douglas

McGregor published his book The Human Side of Enterprise. McGregor influenced behavioural theories with his work because of the emphases it had on human relationships in correlation to output and performance.

2.16.4 Trait Theories

Trait theories arose from the great man theory as a way of explaining key personality and character traits of successful leaders. Leaders were seen as different from non-leaders due to the various attributes and identified personality traits (Bass, 2008). The following theorists all explained leadership in terms of the trait theory: Kohs and Irle (1920), Bingham (1927), Tead (1929), and Kilbourne (1935).

Up untilthe 1940s it was believed that through this method, leadership traits could be isolated and that people with these traits could be placed into leadership positions. These theorists based leadership on individual attributes. According to Bird (1940), there are 79 relevant leadership traits. The dilemma with the trait approach is that after years of research, it became evident that there were no consistent traits that all leaders possessed. Some leaders might have displayed key traits, but the absence of them did not mean that the individual was not a leader. Despite the inconsistency with the results of various trait studies certain traits did appear more frequently than others, such as technical skills, friendliness, social skills, emotional control, intelligence, and charisma.

2.16.5 Great Man Theories

Great man theories assume that nature has a greater role in the emergence of a particular leader than nurturing does (Bass, 2008). Therefore, statements such as "He was born as leader", emphasises the inherent nature of a leader. Until the 20th century, the majority of social scientist believed in the importance of health, physique, and energy as contributing factors to leadership.

The great man theory of leadership was influenced by Galton's (1869) study of the hereditary traits of great men. Many early theorists believed that history is shaped

by the leadership of great men. Wiggam (1931) believed that the survival of the fittest people and the aristocratic offspring they produced differed from the biology of the lower classes. Therefore, theorists attempted to explain leadership on the basis of innate qualities. It was believed that through this approach, those individuals with critical leadership qualities could be identified and placed into leadership positions. The great man theory promoted how failing organisations could be turned around by businessmen.

2.16.6 Transformational and Transactional Leadership Theories

The theory of transformational and transactional leadership was initially introduced by Burns (1978) when he was describing political leaders. The main aim of this theory was to find a relation between leadership and followership by describing transformational leadership as a process in which leaders and followers are related to each other and raise and motivate one another to higher levels (Daft, 1999; Dubrin, 2007; Owen et al., 2004; Western, 2008; Lynch, 2012; Yukl, 2013). The theory also distinguished between two types of leadership: transactional, and transformational. Transactional leadership focused on the exchanges that happen between leaders and their followers, whereas transformational leadership represented the interaction that occurs between leaders and their followers in which both sides play a dynamic part in affecting the other's perceptions and actions. This type of leadership focuses on the emotions of the followers and tries to help them reach their potential goals (Northouse, 2007, Dubrin, 2012).

Transformational leaders are more engaged than just an exchange process with their followers (Mclaurin and Al Amri, 2008). Nemanich and Vera (2009) concluded that the guidance of transformational leaders engages subordinates' self-concepts and inspiration by persuading cooperative identification.

Transformational leaders possess the ability to inspire followers, build trust, and loyalty to those who transpire their self-interest to the good of the group (Zagorsek et al., 2009). The emphasis is on intangible qualities of values and vision that persuade followers into accepting the process of change. Transformational leaders raise followers' consciousness of the outcomes by going beyond their beliefs, while transactional leaders make promises of rewards for exchange of support (Bass, 1997). Furthermore, transformational leaders go beyond transactional leaders by focusing on organisational development.

Influential leaders are considered to have passionate communications with their beliefs, causes, and leadership vision (Connelly and Ruark, 2010). In projects, open lines of communication allow the followers of transformational leaders to receive the details about how the changes impact them more personally. In addition to communication, getting followers to participate in the planning process so their work environment is aligned with the work they do offers a way for employees to 'buy-in' and become meaningful contributors (Laframboise et al., 2003). However, Connelly and Ruark (2010) declare that providing followers optimistic and meaningful vision for the future allows them to move onto new ways of thinking, beyond the status quo. The lack of communication in transactional leadership creates fear of the unknown, loss of control, or failure that causes anxiety. This negative reaction affects the subordinates' attitude towards work. The lack of communication and subordinate awareness is deficient, which creates this environment. In actuality, the leader-follower relationship will remain intact in spite of performance shortfalls; however, critical feedback has the potential to display negative reactions (Connelly and Ruark, 2010). Transformational leaders work with their followers to overcome these fears by building trust and utilising effective transformational leadership skills. If followers have a negative feeling and talk about it, the impulse to act on the feeling in a self-defeating or organisationally dysfunctional way is reduced (Basler, 1994).

Transformational leaders succeed under pressure of change by leading beyond the status quo to beyond expectations (Humphreys, 2005). Leaders and followers are interested in creating a transformational culture in which leadership develops or supplements a defined transactional culture within the organisation. The transformational culture does not interfere with followers pursuing their own goals or rewards. Transactional and transformational leadership happens simultaneously where they align with the purpose of achieving this type of culture. According to Bass and Avolio (1993), organisations should move in a transformational culture while continuing to maintain a transactional quality base.

Transformational leaders desire followers to transcend their interests for the group and possess a strong sense of loyalty from the followers. In times of organisational change, loyalty equals commitment. Bass (1997) concludes transformational leaders enhance commitment to the organisation. Smith et al. (2004) found transformational leadership characteristics are based on charismatic leadership. Bodla and Nawaz (2010) suggests that transformational leadership theory implies

leaders are charismatic and motivate followers with inspiration as well as encourage their intellectual needs. According to Bass (1997), charismatic leadership is a necessary ingredient of transformational leadership. Prior research studies claimed leaders viewed as charismatic had a positive influence to commit and motivate followers similar to transformational leaders (Kirkhaug, 2010). Charisma is divided into the dimensions of the behaviours and influences of transformational leadership (Humphreys, 2005). Humphreys further explained that leaders who demonstrate charisma develop a stronger power and influence with their followers and are seen as charismatic.

Charisma influences the transformational leader's release to create an environment in which followers are less likely to resist organisational change. Their followers see charismatically influenced leaders as having confidence and determination that instils feelings in the followers to identify with the leader (Waldman, Bass, and Yammarino, 1990). The intent assists followers to achieve their highest potential. Sendjaya and Sarros (2002) found that the natural feeling of wanting to serve others produces the aspiration to lead. Followers normally identify with transformational leaders and desire to be like them. According to Waldman, Bass, and Yammarino (1990), charismatic leadership is a focus of transformational leadership.

Transactional leaders provide exchange to subordinates where the followers are rewarded for their performance and continue to work unless performance goals are not being met (Flin, O'Connor, and Crichton, 2008). Although followers desire rewards for their work, they also desire a sense of self-worth. Transformational leadership adding to the exchange of transactional leadership causes this combination. A transforming exchange in leadership between leaders and followers is contingent on situations. According to Wright and Pandey (2010), leading by transforming followers entails several circumstances. The first is that transformational leaders motivate, whereas transactional leadership stresses the exchange among leaders and followers. Secondly, the leader is seen as an influence and role model while building honour in the organisation. Lastly, leaders assist followers to achieve the mission by testing old assumptions concerning the organisation.

Researchers including indicated project managers who possess transformational and transactional leadership styles improve team communication, collaboration, and cohesiveness (Bond, 2015; Khan et al., 2014; Ukpai et al., 2013). Furthermore, achieving stronger team communication, collaboration, and cohesiveness suggests the result is project success.

The research on the effects of project manager leadership is growing in project management literature; however, it lacks examination. Stress is placed on transformational leadership, which appears to be greater when associated with being visionary and charismatic. Transformational leadership goes beyond transactional leadership's cost-benefit exchange by motivating and inspiring followers (Ukpai et al., 2013; Keegan and DenHartog, 2004). In comparison to transactional leaders, transformational leaders have shown to have greater follower satisfaction, motivation, and commitment.

Project managers have a significant role in the blending of the project team; therefore, it is necessary to create an environment in which the project team significantly impacts project success (Han, 2015; Thamain, 2004; Turner and Muller, 2005). Makilouko (2004) showed project managers are people-focused while Lee-Kelley, Long, and Loong (2003) found project managers were relationship-oriented. Project managers influence their perception of project success with their leadership style. Lee-Kelley et al. (2003), Stagnaro and Piotrowski (2014) and Jiang j (2014) asserted that there was a significant relationship between contingent experiences and the project manager leadership perception of project success. Hence, the transformational leadership style of nurturing followers, cultural values, and job satisfaction are reflected through the inner self-confidence from knowledge and experience to play an important role in the delivery of project success.

An important success factor in projects is effective project manager leadership (Dekkar and Qing, 2014; Prabhakar, 2005). Effective project managers inspire confidence in others as well as within themselves. Successful leadership is shown via a strong role model to the project team. Prabhakar (2005) concluded a strong transformational role displayed by project managers towards the project team creates an adaptable approach to the team, achieving success.

The positive impact project manager leadership has on projects and top management support, as well as the team member's role has been researched throughout the history of project management. Organisations desire a positive and successful result from a project; however, this does not always occur.

2.16.7 Transformational Leadership

Bass and Riggio (2012) described TL as a process in which people are changed and transformed. It involves attempts to make changes that increase organisational

effectiveness and the performance of the followers, by transforming the latter's personal values and self-concepts (Avolio and Bass, 2002; Antonakis et al., 2003; Sashkin, 2004; Bass and Riggio, 2006; Dubrin, 2007; Hawkins, 2011; Saenz, 2011). The theory is based on the assumption that followers need to be respected, appreciated, admired and trusted in order for the leader to gain their loyalty, and that everyone has a special contribution to make (Northouse, 2007; Lynch, 2012; Yukl, 2013). The existence of this kind of leadership is reflected in 48 subordinates who are enthusiastic about the leader's opinions and ideas (Schermerhorn, 2008). TL generates commitment from subordinates and produces a greater quantity of work and more creative problem solving (Saenz, 2011; Limsila and Ogunlana, 2008). It emphasises intrinsic motivation of followers, ethical behaviour, the development of leadership among team members, and a shared vision and goals (Bass and Riggio, 2006; Yukl, 2010). Hence, it deals with emotions, values, ethics and long term goals, unlike transactional leadership which focuses on short-term goals (Northouse, 2007). Transformational leaders according to Bass and Avolio are associated with five transformational styles listed in Table 2.2 below.

Table 2-2:
Transformational Leadership Styles and Behaviours (Bass and Avolio, 1994)

Transformational Style	Leader Behaviour
1. Idealised Behaviours: Living one's ideals	☐ Talk about their most important values and beliefs. ☐ Specify the importance of having a strong sense of purpose. ☐ Consider the moral and ethical consequences of decisions. ☐ Champion exciting new possibilities. ☐ Talk about the importance of trusting each other.
2. Inspirational Motivation: Inspiring Others	☐ Talk optimistically about the future. ☐ Talk enthusiastically about what needs to be accomplished. ☐ Articulate a compelling vision of the future. ☐ Express confidence that goals will be achieved. ☐ Provide an exciting image of what is essential to consider. ☐ Take a stand on controversial issues.

3. Intellectual Stimulation: Stimulating Others	☐ Re-examine critical assumptions to questions. ☐ Seek different perspectives when solving problems. ☐ Get others to look at problems from many different angles. ☐ Suggest new ways of looking at how to complete assignments. ☐ Encourage non-traditional thinking to deal with traditional problems. ☐ Encourage rethinking those ideas which have never been questioned before.
4. Individualised Consideration: Coaching and Development	☐ Spend time teaching and coaching. ☐ Treat others as individuals rather than just as members of the group. ☐ Consider individuals as having different needs, abilities, and aspirations from others. ☐ Help others to develop their strengths. ☐ Listen attentively to others' concerns. ☐ Promote self-development.
5. Idealised Attributes: Respect, trust, and faith	☐ Instil pride in others for being associated with them. ☐ Go beyond their self-interests for the good of the group. ☐ Act in ways that build others' respect. ☐ Display a sense of power and competence. ☐ Make personal sacrifices for others' benefit. ☐ Reassure others that obstacles will be overcome.

In times of uncertainty, transformational leadership inspires and empowers followers to transform and implement changes. Transformational leaders create a linkage between the roles of leaders and followers. Mancheno-Smoak et al. (2009) found cultural values and job satisfaction are high in transformational leadership. The process of nurturing followers to change builds consciousness that creates a culture where followers feel the empowerment and encouragement.

By creating a successful vision, a lucrative organisational culture will emerge. Research studies found a link between transformational leadership and organisational effectiveness, while certain emerging cultures are conducive to performance (Xenikou and Simosi, 2006). Bass and Avolio (1993) concur with the connection of leadership and culture. The skill of transformational leaders reduces uncertainty and continues to reinforce values with positivity and fairness.

2.16.8 Transactional Leadership Style

Transactional leadership represents the transaction exchange that occurs between leaders and followers. This exchange depends on the leader explaining to the followers what is needed and stating the conditions and the rewards. Hence, it is based on the assumption that followers are motivated by a system of rewards such as monetary incentives and promotion, and by punishment (Bass, 1990; Avolio and Bass, 2002; Antonakis et al., 2003; Bass and Riggio, 2006; Yukl, 2010; Lynch, 2012). It is argued that there are three behaviours involved with 47 in practising transactional leadership: contingent reward, active management by exception (MBE-A), and passive management by exception (MBE-P). Contingent reward refers to the exchange process that occurs between leaders and their followers in which efforts made by followers are exchanged for specified rewards. Here, the leader clarifies the expectations and establishes rewards that will be given when the followers meet these expectations. Active management by exception includes corrective criticism that occurs when leaders observe their followers, look for mistakes, and then correct their actions. Passive management by exception refers to negative feedback, whereby the leaders use a passive style after problems arise (Betroci, 2009; Bass and Riggio, 2012; Yukl, 2013). In contrast to transformational leadership in effectively managing performance in organisations, transactional leadership focuses on two aspects, contingent reward and management by exception. Contingent reward focuses on rewards as contingent upon actions while management by exception embodies negative reinforcement and criticism (Simola et al., 2010). The use of rewards is to ensure compliance for followers to strive for goal attainment and alignment with organisational goals and vision. Transactional leaders lack interest in their follower's inspirations; nonetheless, they ensure the followers align with the organisational vision (Bass, 1990). According to Laohavichien, Fredendall, and Cantrell (2009), the alignment of expectations and rewards should lead to increased performance.

Lam (2008) found rigid-cultures performance management is achieved through fear and incentives. In transactional leadership, reward or punishment are dependent on performance as well as contingent on exceeding expectations. Any deviation from established performance expectations results in punishment (Avolio, Bass, and Jung, 1999). Transactional leaders use punishment and incentives as performance management to align their followers with organisational goals. The ability to strengthen organisational performance is lacking in transactional leaders that become hidden and unseen within the attributes of transactional leadership. To create clear organisational communication to followers, transactional leaders have the power to achieve a task's goals and rewards for following orders. Followers desire rewards and engage transactional leader's expectations (Bass and Avolio, 1991). Transactional leader effectiveness comes from the follower's perception of the leader's control of what they value. The transactional leader creates an organisational environment in which the followers accomplish desired results and receive recognition. Transactional leaders develop power and influence by trust, respect, credibility, and skill level to build individually derived power. The use of power allows transactional leaders to acquire status by demonstrating influence over followers in exchange for their loyalty. Laohavichien et al. (2009) concluded that transactional leaders strengthen a follower's goal perception yet increase conflict between follower's goals and organisational goals leading to a negative turn in organisational performance.

Table 2-3:
Summary of the Literature

Author	Objectives	Method	DV	IV	Finding	Future study
Al-Sabahi et al., (2014)	To evaluate significant success criteria and identify critical success factors to ensure project success. Furthermore, he tried to identify the proper method of project implementation in Yemen to help conserve time, money, and natural resources. He also explored the process and project implementation in Yemen; to evaluate the criteria for time, cost, and quality determination; and to identify the success and failure factors of project.	used a Case study method and quantitative based study.	Project success.	Critical success factors.	Researchers found that the ranking order for project success factors is management process, human management, technical, and organisation. For human management, the most important factor was team and leadership; the least important was communication.	A further analysis in determining and identifying critical criteria and factors of project implementation in Yemen should be conducted
Al-Ahmad, (2012)	To identify the common issues responsible for IT projects' success/failure to develop a deeper	a Case study method	IT projects success/failure	Critical Success /failure factors	Researcher found that that the different faces of IT project failure and success causes form a generic category	Further refinement and evolution of the taxonomy is necessary. A good taxonomy makes it possible to classify items into

	understanding of these root causes					groups that share common properties
Mary, (2011)	To assess the critical success factors resulting in IT projects performance	The study used correlational descriptive and quantitative based study	project performance	Critical Success factors	Researcher found that the size of the project, clarity of goals and mission, availability of required technology, and client acceptance of the project had a significant impact on project performance.	Researcher had recommended that future research study could address the actual budget and the number of deliverables compared to perceptions of IT project leaders and may provide information about the differences between perception and actual performance
Dekkar and Qing,(2014)	Examined the roles of a project manager leadership in tackling project stakeholders' management issues in the aim to deliver a successful project	The study was carried out using a self-administered survey	Project success	Project manager roles	The study found that project manager leadership qualities and traits play a key role in accurately nailing down the project stakeholders' web to enhance the effectiveness of cooperation, collaboration, consultation, and communicating with the different project stakeholders in the aim to shape their	Researcher recommended that there is a need for more empirical research concerning the project leadership in managing project stakeholders and delivering successful projects

					expectations and consolidate a common project success criteria list	
Han ,(2015)	Examined the relationship between project manager's leadership roles are positively influencing project team effectiveness	The study was carried out using a self-administered survey with sample of 201 project managers	Project team effectiveness	project manager's leadership roles	Researchers found that that a project manager's leadership roles are positively influencing project team effectiveness	Researcher recommended future researchers to include project team members as part of the respondents to survey their view points as well
Varajão et al., (2014)	Examined the similarities in different industries in what concerns the critical aspects for the success of project management	The study was carried out using a self-administered survey throughout a comprehensive survey applied to medium and large companies of the construction and software industries	Project success	Critical success factors	Researcher found that the two currently most important project management success aspects are common to both industries: "project planning" and "well defined objectives and requirements". He also found that "project manager efficiency" is also in the top of the critical success aspects	It is important to define more targeted practices and training programmes according to their relevance for each industry, thus being an important field for future work
Mir and Pinnington, (2013)	Examined the relationship between	A total of 154 completed	project success	PM performance	Researcher found that PM performance is correlated to	To eliminate the occurrence of response bias, future research

	PM performance and project success	questionnaires were analysed			project success within UAE organisations	could collect data from other relevant project stakeholders, particularly, project owners, executive directors, and project steering groups
J. Ram, D. Corkindale and M.-L. Wu ,(2013)	Examined certain CSFs have to be accomplished in an organisation for an Enterprise Resource Planning (ERP) system project to be successful	A conceptual model was devised and then analysed using structural equation modelling, based on data collected from 217 organisations	Project success	critical success factors	Researchers found that some CSFs were not critical to achieve success in ERP implementation but were critical to help an organisational achieve performance improvement from an ERP system	Finally, they granted an opportunity for future research to investigate the possible two-way effects that CSFs may have in order to help understand in which direction the effect of CSFs is stronger
Obeidat et al., (2013)	Investigated different factors of information technology effecting project management in both private and public sector organisations.	Delphi survey was used enlisting the help of 33 panellists from a broad demographic group.	Project success.	critical success/ failure factors.	Researchers found that organisational risks present the most risk to the success of a project.	Researchers recommended future researchers for more studies be conducted with a larger number of respondents from a greater number of organisations.
Przemysław, (2013)	Determine how the context of the deviations from the planned budget and/or schedule affect the success perception of	He had use qualitative base study such as, longitudinal participant observation; project	Project success	critical success factors	Researcher found that that deviation from the initially planned schedule and/or budget does not affect the	Researcher recommended that further studies should be undertaken to develop a more sophisticated, context-

					success perception, providing that the project was properly managed and its business outcome is achieved.	dependent project success evaluation framework.
Khan et al., (2014)	Explored how leadership competency is important for the project success	They had used qualitative base study	project success	leadership competency	Researchers found that hat leadership competency has positive impact on the project success which was previously neglected due to some unknown reasons	Finally, recommended that future research should discuss project managers 'leadership competencies quantitatively in different industries and sectors
Jiang j, (2014)	Examined the relationship between leadership style and project success.	He had used qualitative base study.	project success.	leadership style.	Researcher found that, although leadership or manager is rarely included in the project success factors, it influences the performance of project through various patterns, like the collaboration of teamwork, management of source,	Researcher stated that project type need special care, the positive influence from leadership to project success depends on whether appropriate leadership style has been selected according to project type. Further studies are required to prove the view point.

					communication with both followers and clients.	
Riaz et al., (2013)	Explored the significance of project leadership from literature which has been emerged as a child of leadership and management in last ten years	they had used qualitative base study	Project success	leadership	Researchers found that the essence of project leadership is significant to project management while professionals must acquire fundamental skills and competencies of both leadership and management to ensure accomplishment of project and organisational objectives	More comprehensive research is desired to appraise benefits generally related to project leadership and especially project manager's leadership associations with project performance and teamwork through different empirical studies at industry, sector and country level
Khan et al., (2014)	Explored the role of leadership especially their styles among the project managers regarding the success of projects	He had used quantitative base study	Project success	styles of leadership	Leadership was found as the influential leadership style among the managers that combines both the features of Transformational and transactional Leadership	More leadership styles should be studied
Ukpai et al., (2013)	examined the relationship between leadership style of IT	The study was carried out using a self-administered	Project success	styles of leadership	The result indicates that there is a positive relationship	Researchers recommended that future studies on IT

	Professionals and IT project success in Nigeria	survey, a total of 150 questionnaires were distributed to IT professionals in Nigeria			between project manager's leadership styles and IT projects success in Nigeria	project leadership should include more leadership styles, and respondents included from the public projects and organisation
Abdulaziz et al., (2013)	Presented an empirical study of IT projects success factors in Saudi Arabian public organisations	A two-phase approach has been adopted combining qualitative and quantitative research methods	Project success	Critical success factors	Researchers found that eight factors as the CSFs. These are: top management support and commitment, project management, project team competency, communication management, strategic planning, training and education, partners and suppliers management and stakeholders' management	Further research can be done to find the interrelationships between those factors and their impact on IT project success
Alfaadel et al., (2012)	Investigates the reasons for the success and failure of IT projects in Saudi Arabia.	an online structured questionnaire, Also a semi structured interviews were conducted.	Project success.	success and failure factors of IT projects.	Researchers found that Clear statement of requirements and the project manager leadership and soft skills were seen as the most important CSF that enhances	Project organisation including project sponsor and other stakeholders should be part of the future study.

					the chances of project success.	
Amponsah and Darmoe ,(2014)	Explored the relationship between critical success factors (based on Pinto and Slevin, 1987: Project Implementation Profile CSFs) for Ghana Public Sector projects and project success	Researchers had involved the use of both quantitative and qualitative methods of study	Project success	critical success factors	The research findings indicated that there is a positive relationship between 10 critical success factors and project success	Same study should be conducted within different industry, sector and country level in the future work
Ofori, (2013)	Assessed the quality of project management practices as well as the critical success factors for projects in Ghana.	The study adopted an exploratory approach and utilised a survey method to collect data on project management practices of Ghanaian organisations.	Project success.	project management practices and the critical success factors.	Researcher found that the critical factors that contribute to the success of a project include top management support, effective communication, clarity of project purpose and goals, and stakeholder involvement.	Project goals and resources allocated and adhering to classic project constraints of scope, quality, cost, and time should be studied.
Yang et al., (2011)	investigated the relationships among the project manager's leadership style, teamwork, and project success.	Questionnaire-based survey was used.	project performance.	project manager's leadership style and teamwork,	Researchers found that increases in levels of leadership may enhance relationships among team members. The results also indicate	Researchers recommended that study should be conducted in different industries and highlighted that the potential effects of

					that teamwork exhibits statistically significant influence on project performance.	team members on the project manager's leadership style also need to be considered in further research.
Trivellas and Drimoussis, (2013)	examined the relationship between leadership styles, behavioural and managerial competency profiles of project Managers (PMs)and project success	A questionnaire-based survey was used with a sample of 97 project Managers	project success	leadership styles, behavioural	Researchers found that competencies related to efficiency, values appreciation and openness (behavioural competencies), teamwork, customer service and leadership style proved to best highlight the gap differentiating PMs' engaged in more successful projects against their counterparts	Same study should be conducted within different industry with large sample
Riaz and Noor, (2014)	explored the similarities and dissimilarities between project manager's leadership competencies and styles and their impact on project success	The study adopted an exploratory approach	project success	project manager's leadership competencies	Researchers found that leadership competencies and styles of the project managers are directly and/ or indirectly related to each other, which have direct and/or	Researchers recommended that it would be interesting for future research to empirically test and validate this hypothetical model in different sectors and industries at country

					indirect influence on project success	level by using qualitative and quantitative methods
Balint Blaskovics, (2014)	Explored the impact of leadership styles on project success and to identify a leadership style, of which project managers can maximise the potential for achieving project success.	Researcher had outcome that was drawn from qualitative field research at a subsidiary of a Scandinavian-based multinational company.	project success.	Another research should encompass analysing companies operating in a different industry.	Researcher found that the style or attitude of the project manager can make a considerable impact on the life of the project delivery and thus project success.	Another research should encompass analysing companies operating in a different industry.
Barakat et al., (2015)	Explored the factors that seem to contribute to project management success.	The data collected was analysed using thematic content analysis.	project success.	(1) Factors related to the manager and the project team (2) organisational factors (3) factors related to the project (4) factors related to the external environment.	Researchers found that all factors are found to be vital in achieving the project management success.	More research should be conducted in different industry.
Khan et al., (2015)	theoretically supports the fortification of the existing transformational leadership and its relationship with project success	Researcher had outcome that was drawn from qualitative field research	project success	transformational leadership	Researchers found that project managers' transformational leadership is an important element in project success	The proposed concept needs further attention of researchers and practitioners to discuss project

Barrantes-guevara, (2013)	examined the relationship between the project manager's leadership style, the industry type, and project success	Researcher had used a quantitative study with 72 complete survey responses	project success	Project manager's leadership style. the industry type	Researcher found significance in the relationship of transformational leadership behaviours of the project manager and project success, regardless of the industry type	Future research could include a larger sample of responses for the analysis and also a slight different statistical approach such as using ANOVA between-group comparison of results (IT versus C/E)
Almajed and Mayhew, (2013)	Investigated the main factors that affect IT projects success in Saudi Arabian public organisations	A two-phase approach has been adopted combining qualitative and quantitative research methods	project success	Critical success factors	Researchers confirmed the importance of critical success factors: top management support and commitment, project management, project team competency, communication management, strategic planning, training and education, partners and suppliers' management, and stakeholders' management	Researchers recommended that further research can be done to find the interrelationships between those factors and their impact on IT project success
Mishra et al., (2011)	Examined critical success factors as well as the interrelationship	It is based on a survey done in organisations	project success	critical success factors	They found that project manager as more significant	Researchers recommended that further research is

	between them so as to identify the most important parameter influencing project success.				critical success factor followed by the project team. Communication in project team has been found as most critical success factor in project-based enterprises. Also emotional quotient of project manager has been found as a critical success factor.	needed to identify the factors intensive (specific) for each project-based industry operating at different locations across the world. Also suggested that there is need to explore the human aspects in order to achieve success in project-based enterprises.
Morgan and Tanya L, (2012)	Examined the relationship between project manager leadership styles and project success	Researcher had used a quantitative base study via questionnaire survey	project success	project manager leadership styles	Results indicated that a positive correlation existed between Transformational leadership styles and project success; however, with regard to transactional, there was a minimal positive correlation to project success. Laissez-faire leadership had a negative correlation with project success	Future studies could also evaluate a different leadership style and its impacts on project success factors. In addition, a future study could focus on a single style or factor in an effort to assess specific relationships that may exist

2.17 Hypothesis Development

From the review of the recent literature, this thesis identified the following research gaps:

2.17.1 Organisational Factors and Leadership Styles

Danborg (2011) stated that very restricted information is available on how closely project factors related to an organisation's goals, strategies, and future objectives. There is a need for an analysis on how functional managers perceive project leadership factors and thereby formulate a study that will add value and help improve the perspectives and performance of organisations. Expediently, another focal research topic can be future studies on project leadership styles and more analysis on how functional managers perceive project leadership factors and formulate a study that will add value and help improve the perspectives and performance of traditional management on organisations as it has been applied in project management. Based on the gap identified this study offers the following hypothesis:

H1) There is a statistically significant relationship between organisational factors and leadership styles.

2.17.2 Project Factors and Leadership Styles

Factors related to the projects have been classified into project mission and project schedule/plan. Project mission is defined as initial clarity of goals and general direction while project schedule/plan is detailed specification of the individual action steps required for project management. Project mission has been found to be one of the most outstanding CSFs in the project management literature, and has been cited in many studies as a key contributor to project success (for reference, see, Abdulaziz et al., 2013; Amponsah and Darmoe, 2014; Alan R, 2012; Baker et al., 1983; Chow and Cao, 2008; Cooke-Davies, 2002; Gudiene et al., 2013; Kuen et al., 2009; 2014; Morris and Hough, 1987; Munns and Bjeirmi, 1996; Westerveld, 2002).

Meeting the mission and goals of the project requires skilled leaders at the supervisory, management, and executive levels. These leaders define and communicate expectations, roles, and responsibilities to employees, provide resources for employee development, and recognise employee accomplishments. Those with strong leadership skills inspire employees to meet the mission and goals of the project. Similarly, leadership style is a critical factor that affects project planning and scheduling. Thus,

effective planning, scheduling are really not factors but immediate effects of factors related to a project manager, such as his leadership skills, competence and his technical background (Sharma et al., 2013). The leader is the instrumental link to the project mission and goals. Scheduling is the process where tasks in the project are to be executed. Scheduling is usually complex depending on constraints and factors considered in a project. The leaders should have the skills to simplify the scheduling complexity and deliver a successful project.

In project management, much information must be collected. Some may be identified as constraints and some may be identified as factors. Typical information are typical skills, leadership skills, staff and their skills, project details and their tasks as well as task information. Sharma et al. (2013) asserted that the details may vary but most of the time, it is found that tasks' deadline is needed for scheduling. Besides, each task may need more than one skill and each staff may have many skills. The available date of each staff is also not the same. Thus, the data needs to be known before the schedule can be done. However, in reality, such information may be changed during the project execution. For example, staff may be reduced or some tasks may require more staff to keep up with the plan and so on. Then, the created schedule/allocation may need to be adjusted. Finally, it can be clearly seen that most previous studies focused on projects with leadership skills or competencies, while no study mentioned the relationship between project factors and leadership styles. Therefore, based on the gap identified this study offers the following hypothesis:

H2) ***There is a statistically significant relationship between project factors and leadership styles.***

2.17.3 Project Team Factors and Leadership Styles

One of the most critical factors for the successful implementation of projects is for the project team members to possess the necessary technical and administrative skills. This element is considered essential in all project implementation phases. Motivation of the project team members has also been identified as an element contributing to project success. Stagnaro and Piotrowski (2014) found that shared leadership principles help foster team effectiveness. Nevertheless, to date, researchers have only covered leadership style, while this study will cover transformational and transactional leadership styles in relation to the effectiveness of project team members in terms of technical and administrative skills. Jiang j (2014) examined the relationship

between leadership style and project success and mentioned that, in a certain project type, appropriate leadership style can improve project success through teamwork and direct impact. However, no research has been conducted to prove this point. Therefore, he recommended that further study is needed. In line with this, this study examines the relationship between leadership styles and project team members from the perspective of technical and administrative skills. In the same vein, Yang et al. (2011) highlighted that the potential effects of team members on the project manager's leadership style needs to be considered in further research. Based on this research gap, this study offers the following hypothesis:

H3) There is a statistically significant relationship between project team factors and leadership styles.

2.17.4 Organisational Factors and Project Success

Organisational factors play an important role for project success. Previous researchers highlighted the importance of this factor, particularly in the first phase of the project implementation process. Barakat et al. (2015) included top management support as one item of organisational factor and neglected the client involvement for unknown reason, while in this study organisational factors have been classified into top management support, client consultation, and client acceptance (client involvement). Additionally, most of the previous studies classified the client involvement as external or individual factors. In this study, client involvement comes under organisation factors which have been classified based on (Belassi and Tukel, 1996). Based on this research gap, this study offers the following hypothesis:

H4): There is a statistically significant relationship between organisation factors and project success.

2.17.5 Project Factors and Project Success

Project factors are classified into project mission and project schedule/plan. Project mission is defined as initial clarity of goals and general direction while project schedule/plan is detailed specification of the individual action steps required for project management scheduling. In order for the project to succeed, goals and mission schedule/plan should be clear. The study conducted by the Project Management Institute reveals that the use of effective communication methods resulted in 80% project success rate, with regard to delivering the project on time, within budget and meeting the initial goals (Project Management Institute, 2013).

Surprisingly, Barakat et al. (2015) ignored the project mission and project schedule/plan relationship to project success by excluding them as items related to project factors. However, Pinto (1987) confirmed that project mission and project schedule/plan have a direct relationship with project success. Other researchers such as Amponsah and Darmoe (2014) also found that there is a strong positive relationship between project mission and project schedule/plan and project success. Arti. J. Jari, Pankaj, P. Bhangale (2013) recommends that the plan, or schedule, should be prepared as early as possible. Moreover, the plan should be prepared with as much detail as possible, including during the design process and throughout its phases. In this study, factors related to the projects has been classified based on Belassi and Tukel (1996), Gudiene et al. (2013), and Mishra et al. (2011) while classification of the previous studies focus only on Belassi and Tukel (1996). Therefore, based on the identified gap, this study offers the following hypothesis:

H5): There is a statistically significant relationship between project factors and project success.

2.17.6 Project Team Factors and Project Success

Project team factors are classified into personnel, communication, technical task, trouble shooting, monitoring, and feedback. One of the most critical factors for the successful implementation of projects is for the project team members to possess the necessary technical and administrative skills such as communication skills, technical task, trouble shooting, monitoring, and feedback. This element was considered essential in all project implementation phases. Barakat et al. (2015) mentioned that teams should possess technical and administrative skills but did not specify the technical and administrative skills that teams should have. In contrast, this study specifies the technical and administrative skills that a team should possess based on Belassi and Tukel (1996), Gudiene et al. (2013), and Mishra et al. (2011) while classification of the previous studies focused only on Belassi and Tukel (1996). Based on the identified gap, this study offers the following hypothesis:

H6): There is a statistically significant relationship between project team factors and project success.

2.17.7 Leadership Styles and Project Success

To date, there are many theories of leadership style such as emotional intelligence, contingency, competency and so on. All of them claim that appropriate leadership style can benefit project success. This study focuses on the relationship between leadership styles and project success in order to establish the most suitable leadership behaviour of telecommunication project managers, head of units, and head of departments in Yemen. ICT projects in Yemen have become synonymous with failure, while scholars agree that the project manager is charged with the responsibility to ensure projects are completed successfully, thereby emphasising the need to explore the contributions of the project managers as well as the effect their leadership styles have on project success. In order to ascertain this, transformational and transactional styles were tested and correlated with project success based on the identified success criteria of cost performance, schedule performance, quality performance, client satisfaction, and other benefits. Jiang j (2014) mentioned that the positive influence from leadership to project success depends on whether an appropriate leadership style has been selected. Further studies are required to prove this view. Based on the identified gap, this study offers the following hypothesis:

H7): There is a statistically significant relationship between leadership styles and project success

2.17.8 Organisational Factors, Leadership Style and Project Success

From the review of project success, it is surprising that the leadership style is not among the critical success factors. To explain this, Tunrner and Muller (2005) claimed it may be the project managers requested that studies ignore the effect of their contribution causing the impact of the project leader on project success to go unmeasured. Most studies focus on the relationship between leadership skills, roles, and competencies with project success such as Khan et al. (2014), while few studies recommend studying the relationship between leadership styles and project success (e.g. Riaz and Noor, 2014; Balint Blaskovics, 2014; Jiang j, 2014; Morgan and Tanya L, 2012). Meanwhile Bond (2015) is the only the study to have suggested researching the relationship between project manager's leadership styles, critical success factors, and project success. Based on this recommendation, this study will cover this gap by mediating the role of leadership styles between the critical success factors (organisation

factor) and project success. Based on the identified gap, this study offers the following hypothesis:

H8) Leadership Style (LS) mediates the relationship between Organisational Factors (ORF) and Project Success.

2.17.9 Project Factors, Leadership Style and Project Success

From the review of project success, it is surprising that the leadership style is not one of the critical success factors, to explain this, Tunrner and Muller (2005) claimed it may be the project managers asked in the studies of ignore the effect of themselves or the impact of the project leader is not measured in these studies. Most of the studies focusing on the relationship between leadership skills, roles and competencies with project success such as Khan et al. (2014). In the same vein few studies that recommend to study the relationship between leadership styles and project success (e.g. Riaz and Noor, 2014; Balint Blaskovics, 2014; Jiang j, 2014; Morgan and Tanya L, 2012). Meanwhile Bond (2015) only the one that suggested to study the relationship between project manager's leadership styles, critical success factors and project success. Based on the recent recommendation, this study will cover this gap by mediating the role of leadership styles between the critical success factors (factors related to the projects) and project success. Based on the identified gap, this study offers the following hypotheses:

H9) Leadership Style (LS) mediates the relationship between Project Factors (PRF) and Project Success.

2.17.10 Project Team Factors, Leadership Style and Project Success

Barakat et al. (2014) and Assaf (2014) found that there is a strong positive relationship between project team factors and project success. In all projects almost all activities are dependent on human resources. In other words, it is fast becoming accepted wisdom that it is people who deliver projects and indeed people, who are directly involved in a project, facilitate achieving project goals and consequently "project success". A project team and its members are a key part of the human resource list of a project. Different researchers have introduced some project success factors, which are all related to having a competent project team (Arti. J. Jari, Pankaj, P. Bhangale, 2013).

From the review of project success, it is surprising that the leadership style is not among the critical success factors. To explain this, Tunrner and Muller (2005) claimed it may be the project managers asked in the studies of ignore the effect of

themselves or the impact of the project leader is not measured in these studies. Most of the studies focusing on the relationship between leadership skills, roles and competencies with project success such as Khan et al. (2014). In the same vein few studies that recommend to study the relationship between leadership styles and project success (e.g. Riaz and Noor, 2014; Balint Blaskovics, 2014; Jiang, 2014; Morgan and Tanya, 2012). Meanwhile Bond (2015) is the only that suggested to study the relationship between project manager's leadership styles, critical success factors and project success. Based on the recent recommendation, this study will cover this gap by mediating the role of leadership styles between the critical success factors (project team factors) and project success. Based on the identified gap, this study offers the following hypothesis:

H10) Leadership Style (LS) mediates the relationship between Project Team Factors
(PTF) and Project Success.

2.18 Summary of the Literature Review

This chapter reviewed the literature on the topics of the study, including, project management, project success, and project management critical success factors as they relate to different industries. The reviewed literature reveals that project management is used as a key tool to manage organisational strategy in many industries, including the telecommunications industry. The literature shows that project success which is a vague, and often illusive concept (Jugdev and Muller, 2005), is measured differently by different people (Rad, 2003), varies at the different stages of a project's lifecycle (Pinto and Slevin, 1988a), and is often measured by a combination of objective and subjective measures (Cooke-Davies, 2002; Lim and Mohammed, 1999).

Critical success factors are another topic of great controversy among researchers (Fortune and White, 2006), with studies citing different sets of CSFs for different industries (Chan et al.,2004; Fortune and White, 2006) and different project types (Hyväri, 2006). Finally, this chapter reviewed earlier studies that have studied the relationship between 10 CSFs and project success. The literature has shown that, while many of these studies have found all Slevin and Pinto's 10 CSFs to be predictive of project success (Amponsah and Darmoe, 2014; Bond, 2015; Culler, 2009; Gudiene et al., 2013; Jones, 2007; Moretti, 2009), few studies (e.g., Delisle, 2001; Finch, 2003; Kuen et al., 2009) have found only some of the factors to be predictive of project success.

The current study is aimed at testing the relationship between CSFs that have been classified into three main factors and project success of telecommunication projects. The study aims to confirm the applicability of 10 CSFs to telecommunication projects, and to provide a confirmed CSF list for use by telecommunication industries.

CHAPTER THREE

METHODOLOGY

3.1   Introduction

This chapter explains the methodology used to achieve the research objectives. The overall purpose of this study is to examine relationships between project management critical success factors, leadership style, and project success of Yemen's telecommunication projects. Based on the published literature, a conceptual model and hypotheses concerning project management critical success factors, leadership style, and project success was developed. In order to examine the key determinants for project success, specific employees have been asked to respond to the survey questions measuring the different constructs included in the proposed theoretical model. This chapter presents the study's methodology, including the research design, population, sample, instrumentation/measures, data collection, data analysis, as well as reliability and validity of the data collection instrument.

3.1.1   Proposed Research Approach

This research was conducted in the following seven phases:

Phase 1: Analyse the literature identified in the research proposal: Leadership theories and schools of thought on leadership, especially with regard to project leadership.

Phase 2: Identify the success factors and criteria for projects, especially the leadership styles factors.

Phase 3: Build and conduct a web-based questionnaire using Google Doc.

Phase 4: Develop a preliminary framework based on data analysis and findings from the web-based questionnaire survey and literature review

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│   Phase 5:  Develop the discussion guide and conduct focus  │
│   group discussions.                                        │
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│   Phase 6: Finalize the framework based on data analysis.   │
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│   Phase 7:  Write and edit the final research Thesis.       │
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3.2   Research Design

The research design helps the researcher to draw boundaries for the research, which consists of defining study settings, type of investigations that need to be carried out, the unit of analysis and other issues associated to the research. A research design is a plan of the research project to investigate and obtain answers to the research questions (Cooper and Schindler, 2001). There are three main types of research designs namely: (1) exploratory (2) descriptive, and (3) casual or explanatory design (Cooper and Schindler, 2001).

The research problem and purpose have clearly stated that this study is primarily focused on testing an integrated model that identifies factors affecting project success. In the next stage, a descriptive research design was used in order to describe the characteristics of the respondents and to determine the frequencies, percentages, mean and standard deviations of the constructs used.

This study is quantitative and attempts to test several hypotheses based on critical success factors, leadership styles theory, and project success. Statistical analyses, such as structural equation modelling, were used to assess the empirical link between the independent variable, i.e. organisational factors and project team factors and the dependent variable, i.e. project success

In this study, a quantitative data collection method and survey approach have been used to collect data on factors effecting project success by specific employees in the Yemeni telecommunication's industry. Furthermore, a cross sectional study

employing a survey method for collecting the data were used. The survey method that were used and required because it is designed to deal more directly with the thoughts, feelings, and opinions of participants, especially when collecting information regarding attitudes and beliefs is concerned (Yin, 1994; Zikmund, 2003). In addition, the survey method offers more accurate means of evaluating information about the sample and enables the researcher to draw conclusions about generalising the findings from a sample to the population (Creswell, 1994). Moreover, the survey method is considered to be quick, economic, efficient, and can easily be administered to a large sample (Churchill, 1995; Sekaran, 2000; Zikmund, 2000).

3.3   Population and Sampling

3.3.1   Population

According to Morgan and Harmon (1999), sampling is the process of selecting a small part (sample) from a larger group (population) in order to make inferences about the population from the sample (Creswell, 2009). The current study used structural sampling (Cooper and Schindler, 2011, Creswell, 2009) to select a random sample of 250 members from the sample frame. Head of units, head of departments, and general managers are targeted because of their knowledge, experience and been involved on daily operation of projects. Head of units and head of departments are considered team members and have been including based on the recommendation from previous studies. Han (2015) recommended that recent studies should include project team members as part of the respondents to survey their viewpoints. In the same vein, Yang et al. (2011) suggests that there is a need for further study in different industries to highlight that the potential effects of team members on the project manager's leadership style.

The researcher communicated with the four industries via email and phone in order to acquire information about the exact number of head of units, head of departments, and general managers. General managers were in the top management category while head of departments were senior and middle management category, while head of units were in the supervisory and subordinate category. According to HR of the four telecommunications industries in Yemen, the following information has been acquired as mention on the Table below:

Table 3-1:
Numbers of staff in the four Yemeni telecommunications industries

Position	Number of staff (Y company)	Number of staff (MTN)	Number of staff (Tele-Yemen)	Number of staff (Yemen Mobile)
Supervisory and subordinate	198	80	0 (they are following old British standard)	10
Senior and middle management	103	70	0 (they are following old British standard)	60
Top management	13	5	38	3
Total	314	155	38	73
Population	314 + 155 73+38 = 580			

3.3.2 Sampling Frame

Sampling is a process where researchers choose a sample (e.g., a certain number of selected participants) from available members of the population. In this research, each individual who is head of unit, head of department, general manager or executive becomes a member of the population. Thus, the individual employer who is classified as head of unit, head of department, general manager or executive were chosen. Hr department for each company has been instructed to distribute the questionnaire among the targeted responded. The required sample size for this study is calculated using Rao soft online software, which shows that if the population number is 580, the required sample size is 232. 250 responses only acquired were valid for analysis. Therefore, 250 responses were chosen to be as a sample for this study and time taken for feedback from respondent was between 30 to 40 days. Rao soft online software and Sakaran's table were used because it has taken into account aspects of confidence level and precision estimation in ensuring that the right sample size is chosen in a study.

3.4 Sampling Method

According to Gay and Airasian (2000), the aim of the sampling method is to obtain information about the population by using the sample. The more the selected sample represents the population, the more the research results are to be found generalisable to the population.

This study employed a stratified sampling method. Respondents in the study were head of units, head of departments and project managers under the four telecommunication industries. Stratified sampling method was chosen because stratification could ensure homogeneity within a group, i.e. head of units in a particular department and heterogeneity across groups, i.e. different departments under the telecommunication industries (Cavana et al., 2001; Hair, Money, Samouel and Page, 2007).

Stratified sampling method was used because this sampling method provides richness and accuracy of data from respondents of different stratums. This sampling method was considered practical when the research aims at obtaining differentiated information from various stratums (Cavana et al., 2001; Hair et al., 2007; Sekaran, 2003).

After the population was stratified, a certain percentage of respondents were drawn out from each stratum. In this case, the percentage extracted from each stratum was 43%, based on the value of the total number of subjects in each stratum divided by the total number of elements in each stratum (i.e. 250 divided by 580). The probability sampling technique involves selecting a relatively large number of units from a population, whereby the probability of inclusion for every member of the population is determinable (Tashakkori and Teddlie, 2003). The main purpose of the probability samples in quantitative studies is to achieve representativeness to the extent in which the sample accurately represents the entire population.

Table 3-2:

Stratified Sampling of the Respondents

Stratum by Positions	Number of Elements in Stratum	Number of Subjects in Sample
1. Supervisory and subordinate at Y industry	198	86
2. Senior and middle management at Y industry	103	45
3. Top management at Y industry	13	5
4. Supervisory and subordinate at MTN industry	80	34
5. Senior and middle management at MTN industry	70	30
6. Top management at MTN industry	5	2
7. Supervisory and subordinate at Yemen Mobile	10	4
8. Senior and middle management at Yemen Mobile industry	60	26
9. Top management at Yemen Mobile industry	3	1
10. Top management at Tele-Yemen industry	38	17
TOTAL	580	250

N= 580, n= 250

3.5   Sample Size

The role of sample size is crucial in all statistical analyses. According to Luck and Rubin (1987), the more sophisticated the statistical analysis, the larger the sample size needed. Therefore, the sample size requirements in this study are based on structural

76

equation modelling (SEM). Although the required sample size is 232 (Sekaran 2003) but 250 have been taken as sample in order to get more accurate results.

3.6 Research Variability

3.6.1 Dependent Variable (Project Success)

Project success is an ambiguous term (Cooke-Davies, 2002; De Wit, 1988; Lim and Mohammed, 1999) used to describe the sum total of a project's outcome (Cooke-Davies, 2002; Munns and Bjeirmi, 1996), including delivery on schedule, completion within budget, and execution in accordance with stakeholder expectations (Munns and Bjeirmi, 1996). Project success means different things to different people (Elattar and Sabry, 2009), is measured differently across organisations (Pinto and Covin, 1989), and is transient between different project phases (Pinto and Slevin, 1987).

This study's definition of project success is derived from Pinto and Slevin's project success theory (1988b) success measure that incorporates both objective and subjective measures of success, including project validity, technical validity, organisational validity, as well as organisational efficiency (Culler, 2009; Pinto and Slevin, 1988b). Pinto and Slevin's success measure is an integral part of the PIP (the data collection instrument in the current study), and measures project success based on 8 declarative statements.

3.6.2 Independent Variables (Project Management Critical Success Factors)

This study's definition of project success factors is that provided by Slevin and Pinto project success (1986, 1987). Slevin and Pinto developed a robust CSFs list (Ika et al., 2012; Kuen et al., 2009; Muller and Turner, 2007) that has been utilised to gauge the relationship between CSFs and project performance in many studies. This study examined the 10 project management CSFs which have been classified into three main factors based on Belassi and Tukel's (1996) classification of factors related to the project, project team factors, and organisational factors. Slevin and Pinto's 10 CSFs are, project mission, top management support, project schedule/plans, client consultation, personnel, technical tasks, client acceptance, monitoring, and feedback, communication, and troubleshooting. Organisation factors are classified into top management support, client consultation, and client acceptance while project factors classified into project mission and project schedule/plan and project team factors classified into personnel, communication, technical task, trouble shooting, monitoring,

and feedback. These 10 CSFs resonate through much of the CSFs literature (Culler, 2009), and compares well with some of the best CSFs lists that have been developed in recent times (Chan et al., 2004; Moretti, 2009).

3.6.3   Mediator Variable (Project Leadership Styles)

For the current study, mediator variable of project leadership styles (transformational and transactional) has been used to qualify the nature of the relationship between Slevin and Pinto's 10 CSFs which has been classified into three main factors and project success of telecommunications projects. Earlier studies showed that adopting transactional and transformational leadership styles is beneficial. Higgs and Dulewicz (2004) showed a preference for transformational leadership style for complex projects and transactional leadership style for simple projects. Therefore, this study has taken under the consideration the importance of transformational and transactional leadership styles and implemented as mediator variable. Leadership styles has been found as mediator in many studies but in aspect of human resource and in different issues in business management such as (Zainal, Abdullah and Abdelrhman,2013; Hamid et al, 2014).

3.7   Research Framework
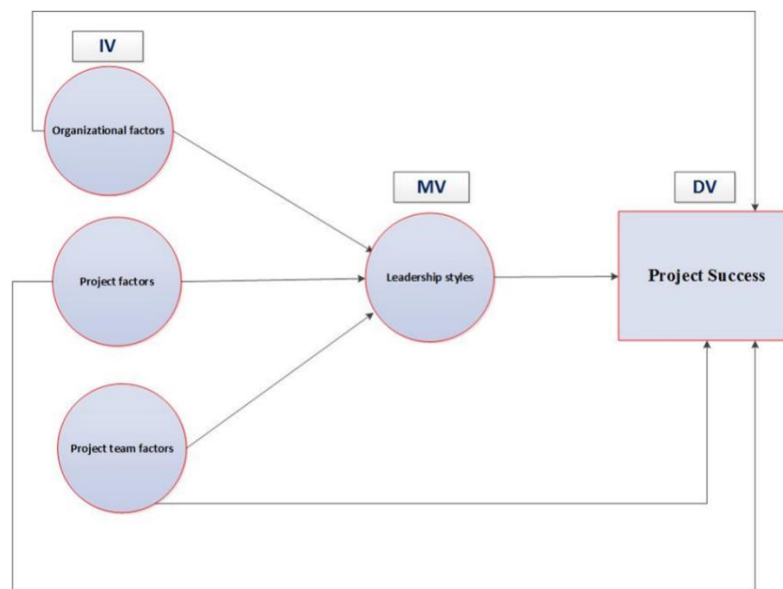
Figure 3-1: proposed research model

The critical success factors shown in Figure 3.1 have been classified based on Atencio (2013), Belassi and Tukel (1996), Chow and Cao (2008), Mishra et al. (2011).

3.8   Survey Questionnaire

A survey questionnaire is an efficient and economical tool used to collect the required data. In this study, the survey questionnaire is accompanied with a covering letter that explains the purpose of the study and ensures confidentiality of the data gathered. The participants were briefed that the research is to explore their perception of critical success factors that affect project success including leadership styles. In addition, the respondents were provided with the contact information of the researcher (i.e., telephone number and an email address) for relevant inquiries or to obtain the results of the study, if they wished.

The survey questionnaire consists of two main parts. In the first part of the questionnaire, the participants were asked to provide their demographic data such as income, age, gender, education, and occupation. In the second part, question items for different constructs have been mentioned in the research.

The questionnaire was sent to the potential participants by sending the link of the survey to HR via electronic mail and who then forward the link for the targeted employees only. The online questionnaire is accompanied by a covering letter from the researcher stating the goals and the significance of the research. The participants who received online questionnaires were asked to answer the questionnaires and submit it through the link that has been sent to them.

3.8.1   Development of Survey Questionnaire

3.8.1.1 *Questionnaire Design*

Designing a questionnaire requires both artistic as well as scientific skills and experience (Malhotra, 1999). The questionnaire should be designed in a way to try to obtain accurate and complete information about the research problem (Malhotra, 1999). In this study, questionnaire items and response categories were designed in such a way to motivate the respondents to participate in the study. Great effort has been made to keep the questions simple, easy to read, and unambiguous. This enables the respondent to comprehend the questions easily, to reduce their chances of misunderstanding the questions, and to keep their interest alive in the survey.

For this quantitative study, a questionnaire was adopted and developed in order to collect the data to meet the aims and objectives of the study. The questionnaire development process in this study is divided into a number of steps on the basis of the

objectives of the study. Aaker et al. (1998), Zikmund (2003), and Sekaran (2003) have suggested certain steps as described below.

3.8.1.2 Questionnaire Content Development

The data collection for this study is based on the opinions and beliefs of respondents towards the research topic (i.e. success factors effects project success). Therefore, good question design principles were employed for the questions development process, such as designing brief questions that can be used for all respondents, use of positive questions, and avoidance of leading questions (Cooper and Schindler, 2001; Frazer and Lawley, 2000; Zikmund, 2003).

3.8.1.3 Question Wording

Question wording principles, as suggested by previous research (Cooper and Schindler, 2001; Frazer and Lawley, 2000; Zikmund, 2003), were observed while drafting the questionnaire. The question wording for all questions was kept as brief and simple as possible. Ambiguity and leading questions were avoided as much as possible.

This study used nominal and ordinal scales (i.e. Likert scale). Nominal scales are limited in use only for questions that determined the survey participants' demographic characteristics such as gender, places of use of the internet, etc. A Likert scale is used in questions that investigate respondents' beliefs and opinions towards factors that affect project success.

The five-point attitude rating scale was used in this study because of its popularity and high reliability. The Likert scale requires participants to make a decision on their level of agreement with the given statement. The five-point rating scale was selected since it is the most popular scale and it has been applied in many studies and recommended by many researchers. Revilla et al. (2013) shows that if researchers want to use AD scales, they should offer 5 answer categories rather than 7 or 11, because the latter yields data of lower quality. Therefore, a five-point Likert scale was selected for this study based on its popularity, high reliability, and appropriateness to the nature of this study.

3.9   Operationalisation of Variables

The theoretical constructs were operationalised using validated items from prior relevant research. The adapted items were validated and wording changes were made

to tailor the instrument for the purposes of this study. The operationalisation of questionnaire items for each construct is described as follows.

3.9.1 Operationalisation of Project Success

The operationalisation of project success intension (PRS), measured on a five-point scale with 1 = strongly disagree and 5 = strongly agree, was based on eight items adopted from the Project Implementation Profile (P.I.P) by Pinto (1986) as follows.

PRS 1. The project has completed on time.

PRS 2. The project has completed according to the budget allocated.

PRS 3. The project was used by its intended clients.

PRS 4. The project that has been developed works

PRS 5. I am satisfied with the process by which the project was implemented.

PRS 6. Important clients, directly affected by the project, made use of it.

PRS 7. The project has made a positive impact on those who make use of it.

PRS 8. The results of the project represent a definite improvement in performance over the way clients used to perform these activities.

3.9.2 Operationalisation of Organisational Factors

The operationalisation of organisational factors (ORF) is measured on a five-point scale with 1 = strongly disagree and 5 = strongly agree, was based on 15 items adopted from the Project Implementation Profile (P.I.P) by Pinto (1986) as follows.

ORF1. Upper management was responsive to the requests for additional resources, when the need arises.

ORF 2. Upper management shared responsibilities with project team for ensuring the project's success.

ORF. I agreed with upper management on the degree of my authority and responsibility for the project.

ORF 4. Upper management supported me in a crisis.

ORF 5. Upper management has granted us the necessary authority and has supported our decisions concerning the project.

ORF 6. The clients were given the opportunity to provide input early in the project development stage.

ORF 7. The client (intended users) was kept informed of the project's progress.

ORF 8. The value of the project has been discussed with the eventual clients.

ORF 9. The limitations of the project have been discussed with the clients (what the project is not designed to do).

ORF 10. The clients were told whether or not their input was assimilated into the project plan.

ORF 11. There was adequate documentation of the project to permit easy use by the clients (instructions, e.t c.).

ORF 12. Potential clients have been contacted about the usefulness of the project.

ORF 13. An adequate presentation of the project has been developed for clients.

ORF 14. Clients knew who to contact when problems or questions arise.

ORF 15. Adequate advanced preparation has been done to determine how best to "sell" the project to clients.

3.9.3 Operationalisation of Project Factors

The operationalisation of project factors (PRF), measured on a five-point scale with 1 = strongly disagree and 5 = strongly agree, was based on nine items adopted from the Project Implementation Profile (P.I.P) by Pinto (1986) as follows.

PRF 1. The goals of the project were in line with the general goals of the organisation.

PRF 2. The basic goals of the project were made clear to the project team.

PRF 3. The results of the project benefited the parent organisation.

PRF 4. I am enthusiastic/confidence about the chances for success of the project.

PRF 5. I was aware of and can identify the beneficial consequences to the organisation of the success of the project.

PRF 6. We know which activities contain slack time of slack resources which can be utilised in other area during emergencies.

PRF 7. There was a detailed plan (including time, schedules, milestones, manpower requirements, etc.) for the completion of the project.

PRF 8. There was a detailed budget for the project.

PRF 9. Key personnel needs (who, when) were specified in the project plan.

3.9.4 Operationalisation of Project Team Factors

The operationalisation of project team factors (PTF), measured on a five-point scale with 1 = strongly disagree and 5 = strongly agree, was based on 19 items adopted from the Project Implementation Profile (P.I.P) by Pinto (1986) as follows.

PTF 1. Project team personnel understood their role on the project team.

PTF 2. There was sufficient manpower to complete the project.

PTF 3. The personnel on the project team understood how their performance will be evaluated.

PTF 4. Job description for team members have been written and distributed and were understood.

PTF 5. The results (decisions made, information received and needed, etc.) of planning meetings were published and distributed to applicable personnel.

PTF 6. Individuals/groups supplying input have received feedback on the acceptance or rejection of their input.

PTF 7. All groups affected by the project know how to make problems known to the project team.

PTF 8. The project leader was not hesitant to enlist the aid of personnel not involved in the project in the event of problems.

PTF 9. "Brain storming" sessions were held to determine where problems were most likely to occur.

PTF 10. In case of project difficulties, project team members knew exactly where to go for assistance.

PTF 11. Problems that raised were solved completely.

PTF 12. Immediate action was taken when problems came to the project team's attention. All important aspects of the project were monitored, including measures that will provide a complete picture of the project's progress (adherence to budget and schedule, manpower and equipment utilisation, team morale, etc.)

PTF 13. Regular meetings to monitor project progress and improve the feedback to the project team were conducted.

PTF 14. The results of project reviews were regularly shared with all project personnel who have impact upon budget and schedule.

PTF 15. Specific project tasks were well managed.

PTF 16. The project engineers and other technical people were competent.

PTF 17. The technology that is being used to support the project worked well.

PTF18. The appropriate technology (equipment, training programmes, etc.) has been selected for project success.

PTF19. The people implementing the project understood it.

3.9.5 Operationalisation of Leadership Styles

The operationalisation of leadership styles (LDS), measured on a five-point scale with 1 = strongly disagree and 5 = strongly agree, was based on 12 items adapted from the Bass and Avolio's (1991) leadership questionnaire as follows.

LDS 1. The project leader makes clear expectation.

LDS 2. The project leader will take action before problems are chronic

LDS 3. The project leader tells us standards to carry out work.

LDS 4. The project leader works out agreements with me.

LDS 5. The project leader monitors my performance and keeps track of mistake.

LDS 6. The project leader spends time teaching and coaching

LDS 7. The project leader considers moral and ethical consequences.

LDS 8. The project leader listens to my concerns.

LDS 9. The project leader encourages me to perform.

LDS 10. The project leader increases my motivation.

LDS 11. The project leader encourages me to think more creatively.

LDS 12. The project leader sets challenging standards

3.10 Data Collection Procedure

The process of data collection involves collecting opinions and useful information from targeted participants about the research questions or topics (Churchill, 1987). Different methods have been identified in the literature to collect data such as using postal services, meeting face-to-face with participants, or making telephonic calls, sending electronic mails, and a combination of these methods (Cooper and Schindler, 2001; Sekaran, 2000; Zikmund, 2000). The data for the present study has used online questionnaire surveys (Google Docs), which are in line with many researchers (Kuen et al., 2009) who have also used questionnaire surveys to collect data, the use of questionnaire data collection techniques provides advantages such as versatility, speed, and cost effectiveness.

3.10.1 Pre-testing and Pilot Study

Pre-test and pilot study are both essential parts of questionnaire survey design and according to Sekaran (2003), they must be conducted prior to the initial data collection phase or main survey in order to validate instrument and to ensure that the survey questionnaire is free of errors and ambiguities. Therefore, one pre-test and a pilot study were conducted prior to using the survey questionnaire in the main study. The

purpose of pre-testing and pilot study was to avoid participants' confusions and misinterpretations as well as to identify and detect any errors and ambiguities.

3.10.2 Pre-testing the Questionnaire

Pre-testing is preliminary assessment of questionnaire with a group of respondents for the purpose of detecting problems in the questionnaire contents, wording, or layout, whether the respondents have any difficulty in understanding questions or whether there are any ambiguous or biased questions (Sekaran, 2003).

In this study, the pre-test was conducted by distributing questionnaires to 31 employees from different levels of management (head of units, head of departments and general managers) from Yemen involved in different projects in the telecommunication's industries. The rationale for using these subjects was that all of respondents were from the Yemeni telecommunication industries and some of them were technology professionals while others had experience of technology projects, particularly in telecommunications.

3.10.3 Pilot Study

A pilot study is conducted to detect weakness in the design and survey instrument and to provide proxy data for selection. The instrument pilot test assesses the psychometric properties of the measures.

In the pilot study, an online survey was distributed for two ICT industries in Sana'a, the capital city of Yemen. The city of Sana'a has been selected because it is the largest metropolitan city in the country, and staff at HR were asked to distribute the questionnaires to the respondents (head of units, head of departments, and general managers) with some explanation about the survey, and to provide the contact information for following up. The offices of the two telecommunication industries have been provided with a link to the questionnaires for distribution at each of the two industries. After that, the researcher conducted multiple phone calls and follow up visits by an associate to check on the progression of the survey. Basic statistical analyses were then conducted using SPSS. The next section presents a descriptive analysis of the usable data collected in the pilot survey using SPSS.

3.10.4 Demographic Profile of Respondents of the Pilot Study

This section presents the demographic information of the respondents included in the pilot study. Table 3.3 presents participants' gender, age, marital status, and major,

education, working experience, monthly income, departments, and occupation in Yemen.

Table 3-3:
participants' gender, age, marital status, and major, education, working experience, monthly income, departments and occupation position in Yemen.

Variable	Category	Frequency	%
Gender	Male	28	90.3
	Female	2	6.5
			3.2
Age	18-24	1	83.9
	25 – 34	26	9.7
	35 – 44	3	
			45.2
Marital	Married	14	51.6
	Single	16	
			23.3
Major	Business	7	13.3
	Social science	4	30
	IT	9	20
	Engineering	6	13.3
	Others	4	
			12.9
Highest level of education	Bachelor Degree	4	67.7
	Master Degree	21	16.1
	Doctorate	5	
	Less than 5 years		67.7
Working Experience	5 - 10 years	21	25.8
	More than 16 years	8	3.2
		1	
	USD 500 - USD 1,000	27	87.1
Monthly Income	USD 1,000 - USD 5,00	3	9.7

Departments	Finance	1	3.2
	Administration	17	54.8
	Operations	1	3.2
	Others	11	35.5
POSITION	Top Management	1	3.2
	Senior Management		
		4	12.9
	Middle Management		
	Supervisory	13	41.9
	Subordinate		
		8	25.8
		4	12.9

N=30

Results of pilot study (Table 3.2) show that among 30 respondents, the majority of participants was male (n=28, 90.3%) while the remaining were female (n= 2, 6.5%). The majority of the respondent were young adults between 25-34 years (n=26, 83.9%) while those between 35-44 years were second highest in numbers (n=3, 9.7%).

Findings of the pilot study showed that most participants had postgraduate qualifications (n=26, 83.87%) followed by those with Bachelor degree (n=4, 12.9%). Results also showed that the majority have less than 5 years working experience (n=21, 67.7 %) followed by those with 5-10 years of experience (n=8, 25.8%). In addition, the pilot study revealed that most of the respondents (n = 13, 64.5%) were from middle management followed by supervisors (n=4, 12.9%). It was more interesting to notice that the highest percentage of participants were from the administration department (n=17, 54.8%) in the pilot study. Finally, the response was very good which was encouraging.

Table 3-4:

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.950[a]	.903	.851	2.30151

Predictors: (Constant), leadership styles, project mission, project plan /schedule top management support, client consultation, client acceptance, communication, technical task, monitor and feedback, personnel.

R-squared is a statistical measure of how close the data are to the fitted regression line. It is also known as the coefficient of determination, or the coefficient of multiple determination for multiple regression. Table 3-4 shows that R square = 0.903

which means that 90.3% of the model explains all the variability of the response data around its mean. In general, the higher the R-squared, the better the model fits the data.

Table 3-5:
Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
TOTCOMMUNICATION	186.4667	1079.154	.572	.681	.943
TOTMF	186.1667	1081.661	.650	.765	.942
TOTCA	179.6667	948.644	.767	.727	.934
TOTTT	178.9000	940.093	.794	.869	.933
TOTLEADERSHIP	178.5000	925.776	.853	.805	.931
TOTPNEL	179.3000	949.872	.852	.801	.931
TOTCC	179.6333	997.826	.532	.629	.944
TOTPSP	178.7000	977.803	.773	.760	.934
TOTTMS	180.5667	929.771	.858	.837	.930
TOTPM	179.1333	924.878	.909	.895	.928
TOTPS	168.3000	823.252	.870	.903	.933

Table 3.5 shows that all of the measures used in the pilot study showed an adequate reliability with Cronbach's alpha values for independent variables, which ranged between 0.928 and 0.944 and are considered to be good and acceptable.

Table 3-6:
Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	N of Items
.933	.941	12

Table 3.6 shows that all of the measures used in the pilot study showed an adequate reliability with Cronbach's alpha value 0.933 which is considered to be very good and acceptable.

3.10.5 Reliability and Validity of the Instrument

In this pilot study, the reliability of the measured items used in the questionnaire was assessed using the internal consistency test, Cronbach's alpha. This is a test of consistency of the respondent's answers to all of the items in the questionnaire distributed in the pilot study. This study's validity is tested as well by prior literature review serving as the source of questions, in the same vein factors analysis has been conducted and this type of analysis is a technique particularly suitable for handling a number of variables in establishing the correlations among these variables. The main

purpose is to summarise the data contained in a large number of variables into a smaller number of factors. This technique examines the numerical nature and structure of the underlying factors, which are influencing the relations between the set of variables When it comes to the factor matrix, this is the coefficient table which is expresses the relations between the variables and factors included. These elements of the factor matrix are described as the "factor loadings, which can be seen clearly that all the items have good validity between 0.674 and 0.957 as shown in the table below.

Table 3-7:
Instrument Validity

Communalities		
	Initial	Extraction
Statement of Project Success	1.000	.882
ps2	1.000	.869
ps3	1.000	.831
ps4	1.000	.934
ps5	1.000	.957
ps6	1.000	.904
ps7	1.000	.900
ps8	1.000	.912
Project Mission *	1.000	.936
PM2	1.000	.924
PM3	1.000	.924
PM4	1.000	.901
PM5	1.000	.674
Top Management Support	1.000	.829
TMS2	1.000	.917
TMS3	1.000	.945
TMS4	1.000	.874
TMS5	1.000	.862
Project Schedule / Plan *	1.000	.890
PSP2	1.000	.864
PSP3	1.000	.865
PSP4	1.000	.844
Client Consultation *	1.000	.929
CC2	1.000	.832
CC3	1.000	.904
CC4	1.000	.929
CC5	1.000	.901
Personnel	1.000	.798
PNEL2	1.000	.796
PNEL3	1.000	.820

PNEL4	1.000	.906
PNEL5	1.000	.832
LEADERSHIP1	1.000	.823
LEADERSHIP2	1.000	.939
LEADERSHIP3	1.000	.888
LEADERSHIP4	1.000	.932
LEADERSHIP5	1.000	.905
LPSTYLE1	1.000	.872
LPSTYLE2	1.000	.864
LPSTYLE3	1.000	.860
LPSTYLE4	1.000	.875
LPSTYLE5	1.000	.844
LPSTYLE6	1.000	.883
LEADERSHIP STYLE	1.000	.874
Technical Tasks *	1.000	.957
TT2	1.000	.950
TT3	1.000	.890
TT4	1.000	.916
TT5	1.000	.939
Client Acceptance *	1.000	.947
CA2	1.000	.878
CA3	1.000	.869
CA4	1.000	.898
CA5	1.000	.958
Monitoring and Feedback *	1.000	.849
MF2	1.000	.790
MF3	1.000	.796
Communications	1.000	.912
Communicatio2	1.000	.861
Communicatio3	1.000	.895
Trouble Shooting *	1.000	.941
TS2	1.000	.907
TS3	1.000	.922
TS4	1.000	.843
TS5	1.000	.919

3.11 DATA ANALYSIS

According to Coorley (1978), the main goal of the statistical techniques is to assist in establishing the plausibility of the theoretical model. The primary purpose of this study is to identify and to investigate the factors that affect project success in the

Yemeni telecommunication industries. In order to achieve these research objectives, two different statistical software tools were used. The Statistical Package for Social Sciences (SPSS) has been used for analysing the descriptive data. The Analysis Moment of Structures Software (AMOS) for SEM also used for measurement model analysis and structural model to test the proposed hypotheses.

3.11.1 Missing Data

Byrne (2001) suggested a few steps for dealing with incomplete (missing) data. These steps are: (1) Investigation of the total amount of missing data (2) Investigation of the pattern of missing data (3) and identifying the appropriate techniques to deal with missing data. In this study, these three steps have been ignored since the link to the survey has been designed in a manner that does not accept submission unless the questionnaire has been properly completed.

3.11.2 Outliers

This study identified outliers because it utilised a Likert scale with five categories ranging from 1 (strongly disagree) to 5 (strongly agree). However, if respondents answered strongly disagree or strongly agree, these response options might become outliers, as they are the extreme points on the scale.

3.12 Descriptive Statistics

The fundamental features of the data in a study are described by the descriptive statistics. Statistics supply easy-to-follow summaries about the sample and measures involved (Hays, 1994). Often accompanied with simple graphical analysis, descriptive statistics constitute the basis of virtually every analysis of data that is performed in a quantitative manner. There is a fine line between the descriptive statistics and the inferential statistics. With the former, one simply describes the information that is contained in the data. With inferential statistics, one's intention is to derive some conclusions, which go far beyond the data-deciphering alone. For instance, we use inferential statistics to induce judgements of the probability that an observed difference between groups is a dependable one, or one that may have taken place by chance in a given study. Thus, inferential statistics is deemed useful for the production of inferences from our data and subsequently for these inferences to be translated into more general conditions, while one of the functions of the descriptive statistics lies in elaborating the information embodied in our data.

Descriptive statistics would standardly come into the picture when one seeks to present quantitative descriptions in an approach that is more systematic and organised. In a study, multifarious measures are common, or alternatively one may have to perform some kind of measurement on a large number of people by employing any established measure. Descriptive statistics can be of assistance when the purpose is to elaborate large amounts of data more sensibly. In other words, the abundance of data can be compressed in a simpler more organised and more understandable summary by means of descriptive statistics

3.13 Factor Analysis

In this study, exploratory factor analysis (EFA) was not conducted because items (questions) were broken down into the related constructs. Therefore, there is a need to perform confirmatory factor analysis (CFA) only using AMOS to ascertain if these items sufficiently allocated to their constructs. CFA is a very important technique of SEM (Kline, 2005) and is generally applied when there is background knowledge of the underlying constructs and measurement items (Byrne 2001). CFA has been used because it is a technique used to confirm a priori hypothesis about the relationship between a set of indicator variables (measurement items) and their respective latent variables (Byrne, 2001). CFA was performed for testing and confirming relationships between the observed variables under each hypothesised construct (Zikmund, 2003; Hair et al., 2006).

3.14 Structure Equation Modelling

SEM software package called Analysis of Moment Structures (AMOS) were used to determine the statistical relationships between the test items of each factor and among the factors of independent variables and the dependent variables. SEM was selected for data analysis because it offers a systematic mechanism to validate relationships among constructs and indicators and to test relationships between constructs in single model (Hoyle, 1995, Hair et al., 2006). Secondly, it offers powerful and rigorous statistical techniques to deal with complex models (Bryne, 2001; Tabachnick and Fidell, 2001; Hair et al., 2006). In SEM, relationships among constructs and indicators are validated by using CFA, also known as measurement model, and relationships between constructs are tested using the structural model (Bentler, 1995; Hoyle, 1995, Hair et al., 2006), which are described below.

SEM is a collection of statistical models that seeks to clarify the relationships between multiple latent variables (constructs). In SEM, researchers can examine interrelated relationships among multiple dependent and independent constructs simultaneously (Hair et al., 2006). As a result, SEM analytical techniques have been used in many disciplines and have become an important method for analysis in academic research (Byrne, 2001; Kline, 2005; Hair et al., 2006). In addition, SEM is a multivariate statistical approach that allows researchers to examine both the measurement and structural components of a model by testing the relationships among multiple independent and dependent constructs simultaneously (Tabachnick and Fidell, 2001). Thus, SEM techniques is the most suitable for this study involving multiple independent-dependent relationships that were hypothesised in the proposed research model.

3.15 Measurement Model

CFA is a very important technique of SEM (Kline, 2005) and is generally applied when there is background knowledge of the underlying constructs and measurement items (Byrne 2001). CFA should be performed after EFA to verify the scales derived thereof (Hair et al., 1998; Byrne, 2001). In practice, unlike EFA, CFA is a technique used to confirm a priori hypothesis about the relationship between a set of indicator variables (measurement items) and their respective latent variables (Byrne, 2001). There are two broad approaches used in CFA to evaluate the measurement model: (1) deciding the goodness-of-fit (GOF) criteria indices (2) and evaluating the validity and reliability of measurement model (Hair et al., 2006). The measurement model used in this study assesses the un-dimensionality, validity, and reliability of the measures, as explained below.

3.15.1 Goodness-of-fit Indices

SEM has three main types of fit measure indices: absolute fit indices, incremental fit indices, and parsimonious fit indices (Hair et al., 1998). The absolute fit indices are used to assess the ability of the overall model fit and these indices include the likelihood ratio statistic chi-square ($\chi2$), in association with root mean square error of approximation (RMSEA), and the goodness-of-fit index (GFI) (Hair et al., 1998). The incremental fit indexes are used to compare the proposed model to some baseline model and the incremental fit indices consist of normed fit index (NFI), and comparative fit index (CFI; Hair et al., 1998; Hair et al., 2006). The parsimonious fit

indices are used to determine whether the estimated model is simpler or can be improved by specifying fewer estimated parameter paths (Hair et al., 1998). The parsimonious fit index includes the adjusted goodness-of-fit index (AGFI).

3.15.2 Model Estimates

In addition to the goodness-of-fit criteria, other standardised estimates are also used to evaluate the measurement model such as standardised regression weight (factor loadings) and critical ratio (cr) estimates criteria. According to Holmes-Smith (2002), the factor loadings should be greater than 0.7; however, a value greater than 0.5 is also acceptable (Churchill, 1987). The critical ratio values should be above 1.96 (Hair et. al., 1998; Byrne, 2001)

3.16 Reliability

In this study, some measurements consist of multiple items. For example, eight items were used to measure project success, 12 items for measuring leadership styles and so on, as explained earlier. In the present study, the reliability of the measurement items was evaluated by examining the consistency of the respondent's answers to all the question items in the measure, as recommended by Nunnally (1978).

3.17 Validity

Validity is related with the accuracy of measures (Sekaran, 2000). Zikmund (2003) defined validity as, "the ability of a scale to measure what it intended to be measured". In other words, validity determines the extent to which a construct and its corresponding measurement indicators are related, and the extent to which these set of items reflect the construct they were designed to measure (Hair et al., 2006). According to Neuman (2003), the better the fit between theoretical latent construct and measured items, the greater the establishment of validity. Construct validity can be examined by assessing convergent validity, discriminant validity, and nomological validity, which are explained as follows

3.17.1 Convergent Validity

Convergent validity is the extent to which observed variables of a particular construct share a high portion of the variance in common (Hair et al., 2006). Factor loadings of construct, average variance extracted (AVE), and construct reliability (CR) estimation are used to assess the convergent validity of each of the constructs (Hair et

al., 2006). In addition, Hair et al. (2006) suggests that ideal standardised loading estimates should be 0.7 or higher, AVE estimation should be greater than 0.5, and reliability estimates should be above 0.7 to show adequate convergent validity. Therefore, in this study, the minimum cut-off criteria for loadings >0.7, AVE >0.5, and reliability >0.7 were used for assessing the convergent validity.

3.17.2 Discriminant Validity

Discriminant validity refers to the extent to which a latent construct is truly distinct from other latent constructs (Hair et al., 2006). Discriminant validity was assessed by a method suggested by Hair et al. (2006) in which the average variance extracted for each construct is compared with the associated squared inter-construct correlations (SIC), and the AVE estimate consistently larger than the SIC estimates indicates support for discriminant validity of the construct. This procedure has been used in this research to assess the discriminant validity of each of the constructs.

3.17.3 Nomo Logical Validity

Nomological validity refers to the degree to which a construct behaves as it should within a system of related constructs (Bagozzi, 1980). Nomological validity is tested by examining whether or not the correlations between the constructs in the measurement model make sense (Hair et al., 2006). This type of validity can be supported by demonstrating that the CFA latent constructs are related to other latent constructs in the model in a way that supports the theoretical framework. For the five construct model proposed in this study, all constructs were defined as positive and significant. Consequently, to demonstrate nomological validity the latent constructs must be positively related as suggested in the theoretical model (Hair et. al. 2006). The construct correlations (estimates) were used to assess the nomological validity of the model.

3.18 Structural Model Evaluation and Hypothesis Testing

The structural model is the next main stage to examine the hypothesised relationships between the latent constructs in the proposed model (Kline, 2005; Hair et al., 2006). The structural model (hypothesised model) depicts the relationship among the latent constructs, as presented and shown in Table 3.6. In other words, it aims to specify which constructs directly/indirectly influence the values of other constructs in

the model (Byrne, 2001). The results of structural model testing are presented in next chapter.

Table 3-8:
Examined Hypotheses in Structural Model

Code	Description	Path
Direct Effects of the Variables		
H1	Organisational Factor (ORF) has a positive effect on leadership styles (LDS)	ORF → LDS
H2	Project Factor (PRF) has a positive effect on leadership styles (LDS)	PRF → LDS
H3	Project Team Factor (PTF) has a positive effect on leadership styles (LDS)	PTF → LDS
H4	Organisational Factor (ORF) has a positive effect on project success (PRS)	ORF → PRS
H5	Project Factor (PRF) has a positive effect on project success (PRS)	PRF → PRS
H6	Project Team Factor (PTF) has a positive effect on project success (PRS)	PTF → PRS
H7	Leadership Styles (LDS) has a positive effect on project success (PRS)	LDS → PRS
Indirect Effects of the Variables (Mediation Effects of Leadership Styles)		
H8	Leadership Styles (LDS) mediates the relationship between organisational factor (ORF) and project Success	ORF→LDS→PRS
H9	Leadership Styles (LDS) mediates the relationship between project Factor (PRF) and project success (PRS)	PRF→LDS→PRS
H1	Leadership Styles (LDS) mediates the relationship between project team factor (PTF) and project success	PTF→LDS→PRS

3.19 Summary

This chapter discussed and selected the appropriate methodology and statistical techniques to best achieve the research objectives. Of the two main domains of methodology, the positivist approach is widely known as a scientific approach that is quantitative in nature. Both philosophical approaches have positive and negative impacts on different research contexts. Both approaches were discussed in detail with the proper justifications for the study's selection of the quantitative (positivist) approach, as it was consistent with the topic. Prior research suggests that the normal process under a positivistic approach is to study the literature to establish an appropriate theory and construct hypotheses. This study was within the domain of positivist approach rather than interpretivist approach, as the model was developed after thorough investigation of literature from which the hypothesised model was proposed (see chapter 3) in order to determine main factors that affect the efficiency of project success.

In addition, a cross sectional quantitative approach using a survey tool was employed to collect the data. The survey method was used because it was designed to deal more directly with the respondents' thoughts, feeling and opinions, especially when collecting information regarding attitudes and beliefs is concerned. Moreover, a survey approach offers more accurate means of evaluating information about the sample and enables the researcher to draw conclusions about generalising the findings from a sample to the population. Additionally, survey methods are quick, economic, efficient, and can easily be administered to a large sample. In order to collect the data for this study, a questionnaire was developed. The question items were adopted from prior relevant research. The adapted items were validated and wording changes were made to tailor the instrument for the purposes of this study. The question items and response categories were developed to motivate the respondents to participate in the study. The researcher exerted utmost effort to keep the questions simple and easy to read and comprehend so that the respondents would not misunderstand them or become disinterested in taking part in the study. The questionnaire was then administered to the users personally and sent to the potential participants by post and electronic mail.

Previous research suggests that a pre-test and pilot study are essential parts of questionnaire survey design and must be conducted prior to the initial data collection phase or main survey in order to validate instrument and to ensure that the survey questionnaire is free of errors and ambiguities. Thus, one pre-test and a pilot study were conducted prior to using the final survey questionnaire in the main study.

The main purpose of pre-testing and pilot study was to avoid participants' confusions and misinterpretations as well as to identify and detect any errors and ambiguities. In addition, a pilot study was also used to test the reliability of measurement items used in the questionnaire, most of the items showed adequate reliability.

SPSS 16.0 was used to analyse the quantitative data collected from the questionnaires. This software package is widely accepted and used by researchers in different disciplines. SPSS was also applied to perform descriptive statistics such as frequencies, percentages, mean values, and standard deviations.

SEM software package AMOS 18.0, was used in this study to explore statistical relationships between the test items of each factor and among the factors of independent variables (i.e. ORF, PRF, and PTF) with meditator variable (i.e. leadership styles) and the dependent variable (i.e., project success).

This study applied a two-step approach in the SEM analysis as suggested by prior research. In the first step, measurement model evaluation was achieved by examining unidimensionality, validity, and reliability of latent constructs using CFA.

In the next step, the structural model was tested to examine the hypothesised relationships between the latent constructs in the proposed research model. Finally, results of the main study are presented next.

CHAPTER FOUR

DATA ANALYSIS AND FINDINGS

4.1 Introduction

This chapter describes the analysis conducted and displays the empirical results to examine the research hypotheses using AMOS and SPSS. The chapter comprises seven major sub-sections. Following the first section as introduction, the second section provides a general explanation of the survey respondents and sample profile.

The third section presents an overview of the general assumptions in SEM, while the fourth section proposes first and second order latent constructs and their relative measurement items.

Having done this, the fifth section presents the data screening. In this section, procedures used to purify the data through replacing missing values, removing outliers, and testing normality of data distribution are described.

The sixth section represents the measurement models' results through CFA used to assess the unidimensionality, reliability, and validity of the constructs. The descriptive results of the constructs are also represented.

The chapter concludes with section seven which reports the results of structural models to test the hypothesised direct and indirect effects developed in this research.

4.2   Sample Profile

Table 4.1represents the frequencies and percentages of the demographical variables.

Table 4-1:
Sample Profile

Group	Frequency	Percentage
Gender		
Male	196	78.4
Female	54	21.6
Age		
18 - 24 years old	61	24.4
25 - 34 years old	117	46.8
35 - 44 years old	53	21.2
45 years old and above	19	7.6
Marital Status		
Married	155	62.0
Single	95	38.0
Major		
Business	88	35.2
Social Science	23	9.2
IT	72	28.8
Engineering	53	21.2
Applied Science	2	.8
Others	12	4.8
Educational level		
High School	6	2.4
Diploma	25	10.0
Bachelor Degree	86	34.4
Master	100	40.0
Doctorate	28	11.2
Professional Certificate	5	2.0
Working Experience		
Less than 5 years	122	48.8
5 to 10 years	89	35.6
11 to 15 years	27	10.8
More than 16 years	12	4.8
Monthly Income		
Less than USD 500	47	18.8
USD 500 to USD 1000	127	50.8
USD 1000 to USD 5000	59	23.6
More than USD 5000	17	6.8
Departments		
Finance	38	15.2
Administration	80	32.0
Operation	33	13.2
HR	14	5.6
Others	85	34.0
Position		

Top Management	52	20.8
Senior Management	45	18.0
Middle Management	71	28.4
Supervisory	39	15.6
Subordinate	43	17.2

N=250

A total of 250 respondents were used for analysis and the sample consisted of 78.40% male and 21.60% female. Further, for the majority of respondents, 46.8% were below 35 years old while 7.6 percent were above 45 years old. Moreover, 62.0% were married and 38.0% were single. Given the fact that the majority of respondent, 28.8, 21.2% were from IT and Engineering respectively. The majority of respondents or 40% were Master holders, 34.40% were Bachelor Degree, 11.20% were Doctorate holders, 10.0% were Diploma holders, 2.40% were High School holders, and 2.0 percent were Professional Certificate. A total of 48.8% of the respondents had worked in the organisation for less than 5 years, while 35.60% had worked between 5 to 10 years. A total of 27 respondents or 10.8% had been in the current job position for more than 10 years while the rest were more than 16 years. Finally, 28.40, 20.8% of the respondents were from middle and top management position respectively, only 18.0% were from senior management, and the rest of the respondents were from Supervisory and Subordinate positon. Table 4.1 presents a detailed information on the respondents' demographic profile.

4.3 Descriptive Analysis

In this analysis, covariance matrix method was used to calculate the descriptive function so that all of the variables could be included in the analysis. The composite scores of the variables were computed by parcelling the original measurement item scores. Parcels are sum or averages of several individual indicators or items based on their factor loadings on the construct (Coffman and MacCallum, 2005; Hair et al., 2006)

Table 4.2 displays the means and standard deviation of the constructs, assessed on a 5-point Likert scale:

Table 4-2:
Results of Descriptive Statistic for Latent Constructs

Variable	Mean	Standard Deviation
Organisational Factors (ORF)	3.377	0.839
Project Factors (PRF)	3.391	0.867
Project Team Factors (PTF)	3.463	0.787
Leadership Styles (LDS)	3.573	0.824
Project Success (PRS)	3.693	0.880
Top Management Support (TMS)	3.467	1.035
Client Consultation (CCS)	3.286	1.002
Client Acceptance (CAC)	3.377	1.031
Project Mission (PRM)	3.358	0.992
Project Schedule /Plan (PSP)	3.421	1.009
Communication (CMU)	3.624	1.012
Trouble Shooting (TRS)	3.416	0.942
Technical Task (TCT)	3.475	0.963
Monitoring and Feedback (MNF)	3.432	1.094
Personnel (PRN)	3.368	0.898
Transactional (TRN)	3.562	0.924
Transformational (TRF)	3.584	0.945

The mean was applied as a measure of central tendency, which indicated that mean values of all constructs were slightly above their midpoint level of 3 as indicated in Table 4.2. The phenomenon indicated that the consensus respondents' perception towards these variables were above the average.

The highest mean rating belonged to project success (PRS) with the mean value of 3.693. The lowest mean rating belonged to Client Consultation (CCS) with the mean value of 3.286.

The standard deviation was applied as a dispersion index to indicate the degree to which individuals within each variable differ from the variable mean. Among the studied variables, the individual values of monitoring, and feedback (MNF) deviated the most from their relative mean (SD = 1.094). This standard deviation suggested reasonably high variability in respondents' perception towards monitoring, and feedback (MNF). In other word, the survey participants were most varying in this variable from each other. At the other side, the lowest deviation from mean belonged to project team factors (PTF) with the standard deviation of 0.787.

Figure 4.1 gives a good illustration for the mean of all constructs together with their standard deviations.
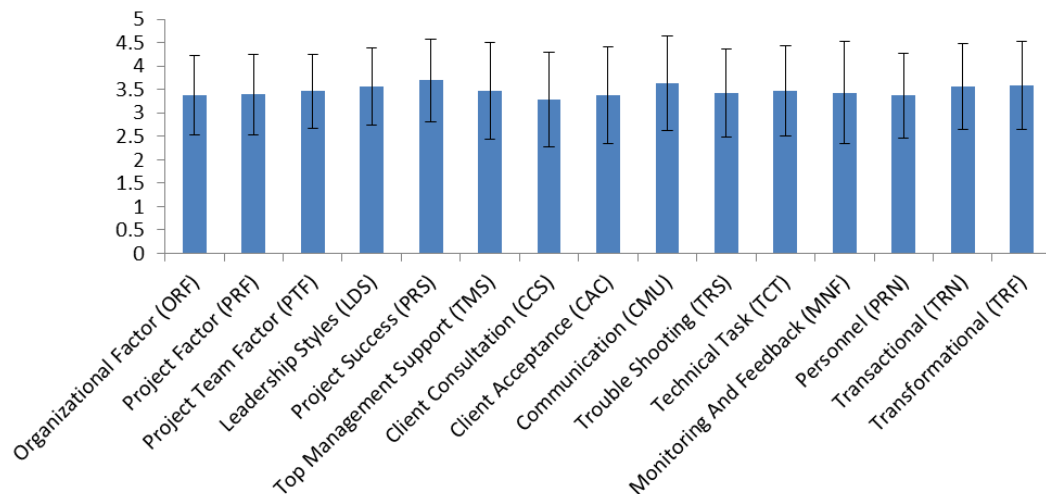
Figure 4-1: Means and Standard Variations of All Constructs

4.4 An Overview to SEM

SEM analyses encompass the measurement model or confirmatory factor analysis (CFA) and the structural equation model. The measurement model (CFA model) is used to determine the links between manifest or observed and latent or unobserved variables. The measurement model could therefore be said to define the manner in which latent or unobserved variables are assessed in terms of the manifest variables (Ho, 2006). As suggested by Hair et al. (2006), individual CFA was performed for each of the constructs followed by the measurement model of study which provided specifics and evaluation based on the GOF indices and evidence of construct validity. This study employed the Maximum Likelihood Estimation (MLE) as the extraction technique. This is one of the most widely used estimation methods that allow testing of individual direct effects and error term correlation.

The main assumption in using MLE is the normal distribution of the data. As a general rule of thumb, the data may be assumed to be normally distributed if skew and kurtosis is within the range of -1 to +1, or -2 to +2 or even 3 (Schumackerand Lomax 2004). Byrne (2013) and Kline (2011) suggested using a cut-off point of less than 7 as an acceptable value for the kurtosis. She added that the data which is skewed within the range of -2 to +2 could be considered as being normally distributed.

As mentioned earlier, one of the main advantages of the SEM is its ability to assess construct validity of measurements. In this instance, construct validity refers to the accuracy of measurements (Hair et al., 2006). In SEM analyses, construct validity

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is assessed by two main components, convergence validity and discriminant validity. Convergent validity refers to the similarity in degree of variance between the items which are the indicators of a specific construct. The convergent validity could be measured by considering the size of factor loading (standardised regression weights), Average Variance Extracted (AVE), and construct reliability (CR) among sets of items in the construct. The factor loading estimates with values 0.5 or greater and extracted average variance of 0.5 or higher show adequate convergence among the items in the construct (Hair et al., 2006). The AVE can be calculated by dividing the sum square of the standardised factor loading by the factor loading number. The construct reliability (CR) should be 0.6 or higher to show adequate internal consistency (Bagozzi and Yi., 1988). The CR is computed from the square sum of factor loading and sum of error variance terms for a construct. CR can be calculated using the following formula (Hair et al., 2006). The measurement items that represent each individual variable should also be verified through internal reliability analysis. Reliability is the degree to which a measure is error-free. To ensure that the items produce a reliable scale, Cronbach's alpha coefficient of internal consistency should be examined. The higher value of Cronbach's alpha refers to higher reliability, with a range from 0 to 1. Nunnally and Bernstein suggest that for a reliable scale, Cronbach's alpha should not be lower than 0.7 (Nunnally and Bernstein, 1994).

4.4.1 Discriminant Validity

Discriminant validity refers to the issue of how truly distinct a construct is from other constructs. It can be assessed by comparing the square root of the AVE for two constructs and their square correlations. Evidence of discriminant validity is when the correlation between the two constructs is smaller than the square root of the AVE for each construct (Fornell and Larcker, 1981; Hair et al., 2006). Further, correlations between the factors should not exceed 0.85 (Kline 2005).

The SEM is distinguished by the ability of its overall model fit and its ability to assess the construct validity of a proposed measurement theory in addition to being the tool required to check reliability (Hair et al., 2006; Ho, 2006). A number of goodness-of-fit indices exist for the assessment of the overall fit of individual construct CFA, measurements of overall CFA and hypothesised structural models. The GOF indices provide the factors to investigate the level of coincidences in the covariance matrix of the proposed model against the sample covariance matrix (Kline, 2010). In general,

there are three categories of goodness-of-fit indices, namely a) absolute fit measures such as Chi-square statistic, goodness-of-fit statistic (GFI), and Root Mean Square Error of Approximation (RMSEA); b) incremental fit measures such as Tucker-Lewis Index (TLI), Normed Fit Index (NFI), Incremental Fit Index (IFI), and Comparative Fit Index (CFI); and c) parsimonious fit measures such as Akaik Information Criterion (AIC) and Parsimonious Normed Fit Index (PNFI). The Chi-square ($\chi2$) statistic, generally considered as one of the most important absolute fit indexes, is the tool for researchers seeking a non-significant value in support of their proposed model being able to significantly reproduce the sample covariance matrix. However, when the sample size increases, the $\chi2$ statistic shows a significant p-value (Schumackerand Lomax, 2010). When the $\chi2$ model fit index shows a significant p-value it does not mean that the proposed model cannot be interpreted or that it is completely unacceptable. The researcher can resort to using the other GOF indices. Goodness-of-Fit Index (GFI) is a non-statistical index ranging from 0 (poor fit) to 1(perfect fit) (Ho, 2006). GFI values of over 0.90 indicate a good fit (Hoyle, 1995). Root Mean Square Error of Approximation (RMSEA) is another absolute fit index which should be lower than 0.1 to indicate a good fit (Schumacker and Lomax, 2010). However, the RMSEA values of between 0.03 and 0.08 show a better fit model (Hair et al., 2006; Ho, 2006). For incremental fit indices such as TLI, NFI, IFI, and CFI, values range between 0 (poor fit) to 1 (perfect fit). The values of 0.90 and above show that there is a good fit between the model and the data (Bagozzi and Yi., 1988; Byrne, 1998; Hair et al., 2006; Ho, 2006). Akaik Information Criterion (AIC) and the Parsimonious Normed Fit Index (PNFI) is normally used where comparison of the models with lower AIC values (near to 0) and higher value PNFI indicates a better fit and better parsimony (Ho, 2006). Hair et al. (2006) proposed the use of three to four fit indices for adequate evidence of model fit, that these should ideally include one incremental index, one absolute fit measure and the Chi-square value and associated degrees of freedom. Therefore, in this study, absolute fit measures such as Chi-square statistic, Relative Chi-square ($\chi2/df$), GFI, and RMSEA were used and among the incremental fit indices TLI, IFI, and CFI were used to measure the level of model fit.

4.5   Construct Measures

The principal construct measures were based on existing instruments. Table 4.3 summarises the measurement items of the research variables together with the constructs

Table 4-3:
List of Constructs and Measurement Items

2nd order Constructs	1st Order Construct	Number of Items (65)
Organisational Factors (ORF)	Top Management Support	5
	Client Consultation (CCS)	5
	Client Acceptance (CAC)	5
Project Factors(PRF)	Project Mission (PRM)	5
	Project Schedule /Plan (PSP)	4
Project Team Factors (PTF)	Communication (CMU)	3
	Trouble Shooting (TRS)	5
	Technical Task (TCT)	5
	Monitoring and Feedback	3
	Personnel (PRN)	5
Leadership Styles (LDS)	Transactional (TRN)	5
	Transformational (TRF)	7
Project Success (PRS)	Project Success (PRS)	8

4.6   CFA Model Organisational Factors (ORF)

This model was made up of 15 items to measure 3 first-order constructs, namely Top Management Support (TMS), Client Consultation (CCS) and Client Acceptance (CAC). The initial Organisational Factors CFA model with all 15 items was portrayed in Figure 4.2
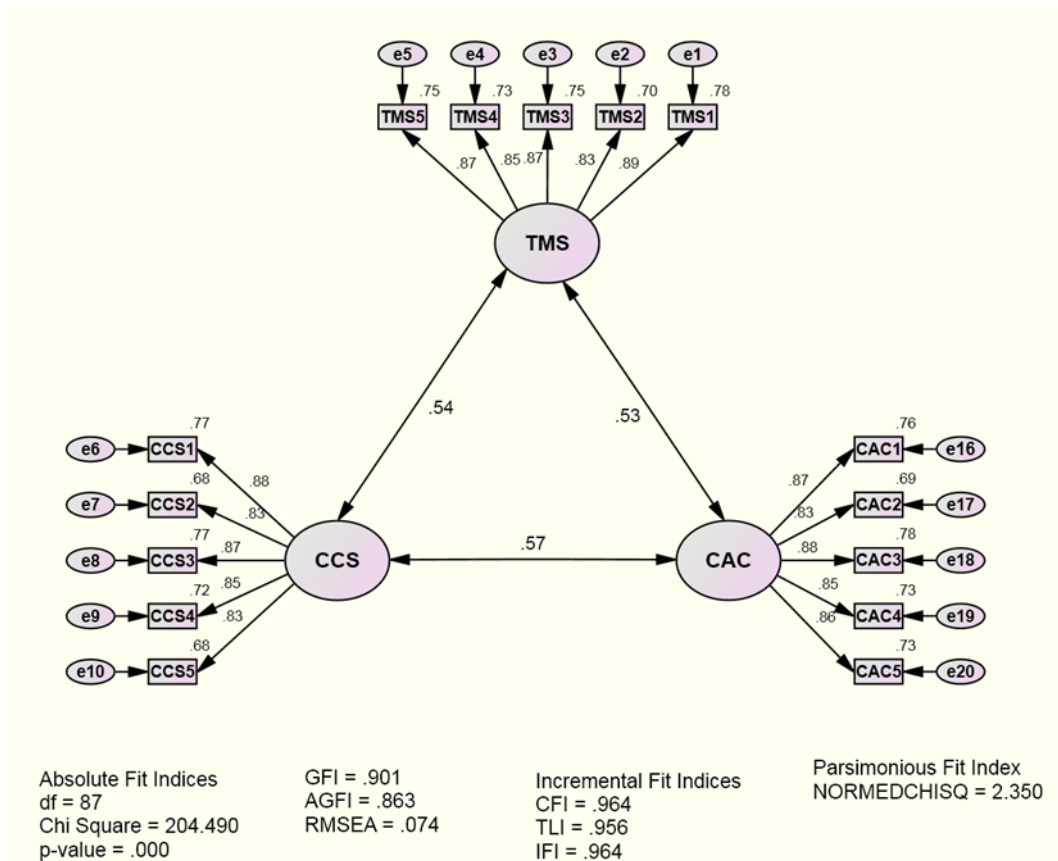
Figure 4-2: CFA Model for organisational factors with 15 Items

4.6.1 GOF

The GOF results of the CFA for organisational factors with 15 items indicated that the model adequately fitted the data.

The chi-square is significant at 0.000 level. However, the absolute fit index of minimum discrepancy chi-square can be ignored if the sample size obtained for the study is greater than 200 (Hair et al., 1995; Joreskog and Sorbom, 1984). The chi-square was 204.490, df = 87, p=.000. The GFI was 0.901, above the cut-off 0.9 as recommended by Hoyle (1995).

After adjustment for the degrees of freedom relative to the number of variables, the adjusted GFI (AGFI) was 0.863 which was above the cut-off point of 0.80 as recommended by Chau and Hu (2001). It indicated that the model predicts 86% of the variances and covariance in the survey data. The CFI, TLI, and IFI were 0.964, 0.956 and 0.964 respectively. All of these values were above the cut-off value of 0.9 which indicated the model had good fit of data (Bagozzi and Yi., 1988; Byrne., 1998; Hair et al., 2006; Ho., 2006). Further, the root mean square error of approximation (RMSEA) was 0.074 which was below the threshold 0.1 as recommended by Schumacker and Lomax (2010). Additionally, the relative NORMEDCHISQ ($\chi2/df$) was 2.350 which

was less than 5 showed the good fit of the model (Bagozzi and Yi., 1988). Given that the overall CFA model fits the data adequately, no any adjustments were required.

The results of the goodness-of-fit indices of the CFA model of organisational factors with 15 items are represented in Table 4-4.

Table 4-4:
GOF Indices of CFA Model for Organisational Factors

Fit index	Modified Model	Recommended values	Source
df	87		
Chi-Square ($\chi^{2)}$	204.490		
p-value	0.000	> 0.05	
NORMEDCHISQ (χ^2/df)	2.350	≤ 5.00	Bagozzi and Yi (1988)
GFI	0.901	≥ 0.90	Hoyle (1995),
AGFI	0.863	≥ 0.80	Chau and Hu (2001)
CFI	0.964	≥ 0.90	Bagozzi and Yi (1988); Byrne, 1998
TLI	0.956	≥ 0.90	Hair et al. (2006); Ho (2006)
IFI	0.964	≥ 0.90	Hair et al. (2006); Ho (2006)
RMSEA	0.074	≤ 0.10	Schumacker and Lomax, 2010

4.6.2 Reliability and Convergent Validity

Once the unidimensionality of the constructs was achieved, each of the constructs was assessed for their reliability and validity. Reliability is assessed using Cronbach's alpha, construct reliability (CR) and average variance extracted (AVE), while for validity using construct, including convergent and discriminant. Table 4.5 represents the result of Cronbach's alpha and convergent validity for the CFA model of organisational factors with 15 items.

Table 4-5:
Results of Cronbach's alpha and Convergent Validity for Organisational Factor

Construct	Item	Factor Loading	Average Variance Extracted (AVE)[a]	Composite Reliability (CR)[b]	Internal Reliability Cronbach's alpha
Top Management Support (TMS)	TMS1	0.885	0.741	0.935	0.935
	TMS2	0.834			
	TMS3	0.867			
	TMS4	0.852			
	TMS5	0.865			
Client Consultation (CCS)	CCS1	0.878	0.725	0.930	0.929
	CCS2	0.826			
	CCS3	0.875			
	CCS4	0.851			
	CCS5	0.827			
Client Acceptance (CAC)	CAC1	0.872	0.737	0.933	0.933
	CAC2	0.828			
	CAC3	0.881			
	CAC4	0.853			
	CAC5	0.857			

[a]: AVE = (summation of the square of the factor loadings)/ {(summation of the square of the factor loadings) + (summation of the error variances)}.

[b]: Composite reliability = (square of the summation of the factor loadings)/ {(square of the summation of the factor loadings) + (square of the summation of the error variances)}.

As shown in Table 4.5, all indicators have high factor loadings ranging from 0.826to 0.885 indicating that the meaning of the factors has been preserved by these indicators. Table 4.5 also shows that the AVE values, which reflect the overall amount of variance in the indicators accounted for by the latent construct, were0.741, 0.725 and 0.737 for Top Management Support (TMS), Client Consultation (CCS) and Client Acceptance (CAC) respectively. All of these values were above the cut-off 0.5as suggested by Nunnally and Bernstein (1994).

The composite reliability values, which depict the degree to which the construct indicators indicate the latent constructs, were 0.935, 0.930 and 0.933 for Top Management Support (TMS), Client Consultation (CCS), and Client Acceptance (CAC) respectively. All of these values exceeded the recommended value of 0.6 as recommended by Bagozzi and Yi (1988).

The Cronbach's alpha values, which describe the degree to which a measure is error-free, were 0.935, 0.929 and 0.933 for Top Management Support (TMS), Client Consultation (CCS) and Client Acceptance (CAC) respectively. All of these values were above the cut-off 0.7 as suggested by Nunnally and Bernstein (1994). Therefore,

the achieved Cronbach's alpha for all constructs was considered as sufficiently error-free.

4.6.3 Discriminant Validity

The discriminant validity was examined to assess how truly distinct a construct is from other constructs. In the case of discriminant validity, the correlations between factors in the measurement model do not exceed 0.85 as recommended by Kline (2005). The validity was checked based on comparisons of the correlations between constructs and square root of the AVE for a construct (Fornell and Larcker, 1981). Table 4.6 represents the discriminant validity of the CFA model for organisational factor.

Table 4-6:
Discriminant validity of CFA Model for Organisational Factor

	TMS	CCS	CAC
Top Management Support (TMS)	0.861		
Client Consultation (CCS)	0.538	0.852	
Client Acceptance (CAC)	0.530	0.572	0.858

Note: Diagonals represent the square root of the AVE while the other entries represent the correlations.

The inter-correlations between the three sub-constructs in organisational factors ranged from 0.530 to 0.572, which were below the threshold 0.85. Further, as shown in Table 4.6, the correlations were less than the square root of the AVE by the indicators, demonstrating good discriminant validity between these factors (Kline 2005).

Upon examining goodness to fit of data, convergent validity and discriminant validity of the CFA model, it can be concluded that the measurement scale to assess the constructs and their relative items in organisational factors was reliable and valid.

4.7 CFA Model for Project Factors (PRF)

This model was made up of 9 items to measure 2 first-order constructs, namely project mission (PRM) and project Schedule/Plan (PSP). The initial project factors CFA model with all 9 items was portrayed in Figure 4.3.
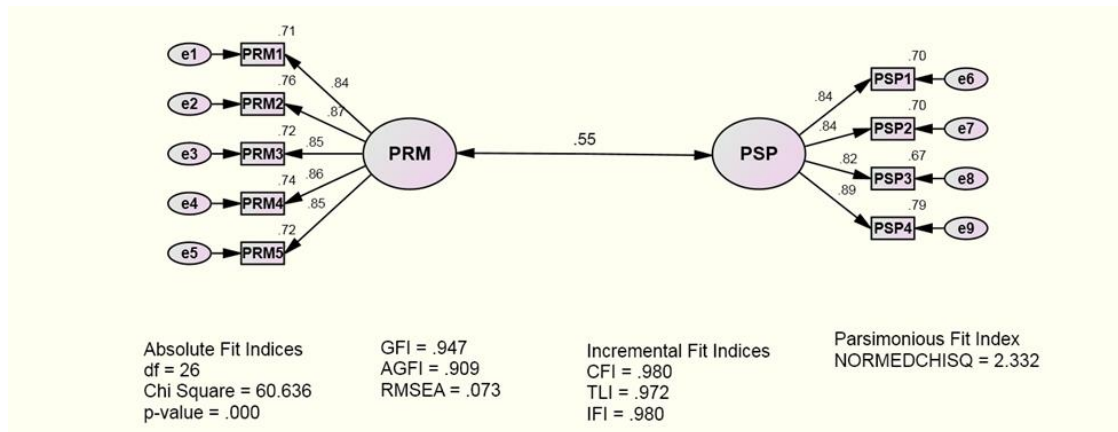
Figure 4-3: CFA Model for project factors with 9 Items

4.7.1 GOF

The GOF results of the CFA for project factors with 9 items indicated that the model adequately fitted the data. Chi-Square = 60.636, df = 26, p=0.000, GFI = 0.947, AGFI = 0.909, CFI = 0.980, TLI = 0.972, IFI = 0.980, RMSEA =0.073 and NORMEDCHISQ = 2.332.

4.7.2 Reliability and Convergent Validity

Table 4.7 represents the result of Cronbach's alpha and convergent validity for the CFA model of project factors with 9 items.

Table 4-7:

Results of Cronbach's alpha and Convergent Validity for project factors

Construct	Item	Factor Loading	Average Variance Extracted (AVE)[a]	Composite Reliability (CR)[b]	Internal Reliability Cronbach's alpha
Project Mission (PRM)	PRM1	0.844	0.730	0.931	0.931
	PRM2	0.874			
	PRM3	0.846			
	PRM4	0.862			
	PRM5	0.847			
Project Schedule /Plan (PSP)	PSP1	0.839	0.715	0.909	0.909
	PSP2	0.836			
	PSP3	0.816			
	PSP4	0.889			

[a]: Average Variance Extracted = (summation of the square of the factor loadings)/ {(summation of the square of the factor loadings) + (summation of the error variances)}.

[b]: Composite reliability = (square of the summation of the factor loadings)/ {(square of the summation of the factor loadings) + (square of the summation of the error variances)}.

As shown in Table 4.7, all indicators have high factor loadings ranging from 0.816to 0.889 indicating that the meaning of the factors has been preserved by these indicators.

The AVE values for project mission (PRM) and project Schedule/Plan (PSP) were 0.730 and 0.715 respectively which were above the cut-off 0.5as suggested by Nunnally and Bernstein (1994).

The composite reliability values for project mission (PRM) and project Schedule/Plan (PSP) were 0.931 and 0.909 respectively which exceeded the recommended value of 0.6 as recommended by Bagozzi and Yi (1988).

The Cronbach's alpha values for project mission (PRM) and project Schedule/Plan (PSP) were 0.931 and 0.909 respectively which were above the cut-off 0.7 as suggested by Nunnally and Bernstein (1994).

4.7.3 Discriminant Validity

Table 4.8 represents the discriminant validity of the CFA model for factors related to the project.

Table 4-8:
Discriminant validity of CFA Model for Factors related to the Project

	PRM	PSP
Project Mission (PRM)	0.854	
Project Schedule /Plan (PSP)	0.548	0.846

The inter-correlation between project mission (PRM) and project Schedule/Plan (PSP) as the two sub-constructs in project factors was 0.548, below the threshold 0.85. Further, as shown in Table 4.8, the correlations were less than the square root of the AVE by the indicators, demonstrating good discriminant validity between these factors (Kline 2005).

Upon examining goodness to fit of data, convergent validity and discriminant validity of the CFA model, it can be concluded that the measurement scale to assess the constructs and their relative items in project factors was reliable and valid.

4.8   CFA Model for Project Team Factors (PTF)

This model was made up of 21 items to measure 5 first-order constructs, namely Communication (CMU), Trouble Shooting (TRS), Technical Task (TCT), monitoring, and feedback (MNF) and Personnel (PRN). The initial Team Factor CFA model with all 21 items was portrayed in Figure 4. 1
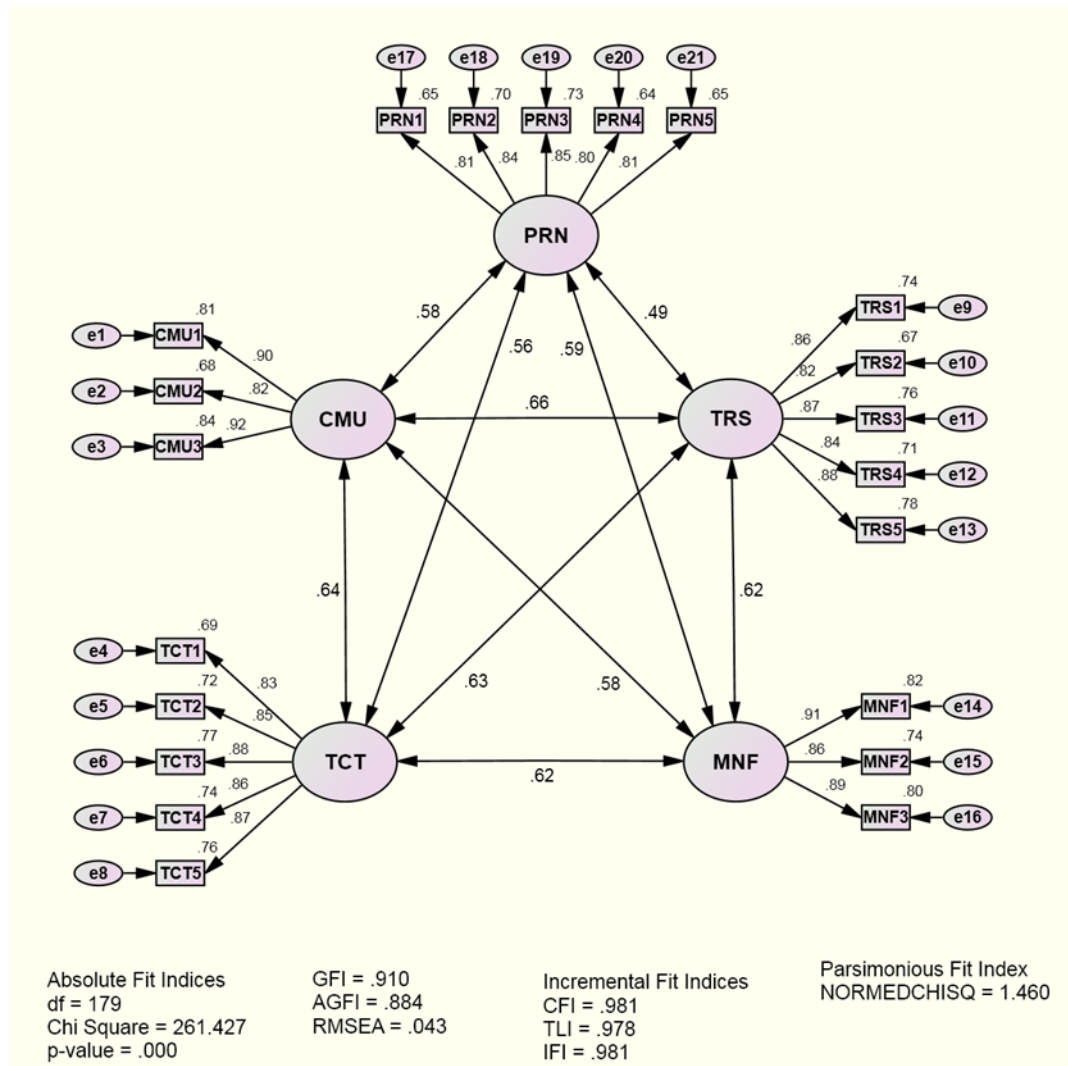
Figure 4-4: CFA Model for project team factors with 21 Items

4.8.1 GOF

The GOF results of the CFA for project team factors with 21 items indicated that the model adequately fitted the data. Chi-Square = 261.427, df = 179, p=0.000, GFI = 0.910, AGFI = 0.884, CFI = 0.981, TLI = 0.978, IFI = 0.981, RMSEA =0.043 and NORMEDCHISQ = 1.460.

4.8.2 Reliability and Convergent Validity

Table 4.9 represents the result of Cronbach's alpha and convergent validity for the CFA model of project team factors s with 21 items

Table 4-9:
Results of Cronbach's alpha and Convergent Validity for Project Team Factors

Construct	Item	Factor Loading	Average Variance Extracted (AVE)[a]	Composite Reliability (CR)[b]	Internal Reliability Cronbach's alpha
Communication	CMU1	0.901	0.778	0.913	0.911
	CMU2	0.824			
(CMU)	CMU3	0.919			
Trouble	TRS1	0.859	0.734	0.932	0.932
	TRS2	0.821			
Shooting (TRS)	TRS3	0.871			
	TRS4	0.845			
	TRS5	0.885			
Technical Task	TCT1	0.828	0.734	0.933	0.932
	TCT2	0.85			
(TCT)	TCT3	0.875			
	TCT4	0.861			
	TCT5	0.87			
Monitoring and	MNF1	0.908	0.785	0.916	0.916
	MNF2	0.858			
Feedback	MNF3	0.892			
Personnel	PRN1	0.807	0.675	0.912	0.912
	PRN2	0.839			
(PRN)	PRN3	0.854			
	PRN4	0.798			
	PRN5	0.807			

[a]: Average Variance Extracted = (summation of the square of the factor loadings)/ {(summation of the square of the factor loadings) + (summation of the error variances)}.
[b]: Composite reliability = (square of the summation of the factor loadings)/ {(square of the summation of the factor loadings) + (square of the summation of the error variances)}.

As shown in Table 4.9, all indicators have high factor loadings ranging from 0.798 to 0.919 indicating that the meaning of the factors have been preserved by these indicators.

The AVE values, were above the cut-off 0.5as suggested by Nunnally and Bernstein (1994), ranged from 0.675 to 0.785.

The composite reliability values exceeded the recommended value of 0.6 as recommended by Bagozzi and Yi (1988), ranged from 0.912 to 0.933.

The Cronbach's Alpha values were above the cut-off 0.7 as suggested by Nunnally and Bernstein (1994), ranged from 0.911 to 0.932

4.8.3 Discriminant Validity

Table 4.10 represents the discriminant validity of the CFA model for project team factor.

Table 4-10:
Discriminant validity of CFA Model for Project Team Factors

	CMU	TRS	TCT	MNF	PRN
Communication (CMU)	0.882				
Trouble Shooting (TRS)	0.657	0.856			
Technical Task (TCT)	0.635	0.627	0.857		
Monitoring and Feedback (MNF)	0.583	0.618	0.615	0.886	
Personnel (PRN)	0.581	0.492	0.561	0.585	0.821

Note: Diagonals represent the square root of the AVE while the other entries represent the correlations.

The inter-correlations between the five sub-constructs in project team factors ranged from 0.492 to 0.657, which were below the threshold 0.85. Further, as shown in Table 4.10, the correlations were less than the square root of the AVE by the indicators, demonstrating good discriminant validity between these factors (Kline 2005).

Upon examining goodness to fit of data, convergent validity and discriminant validity of the CFA model, it can be concluded that the measurement scale to assess the constructs and their relative items in project team factors was reliable and valid.

4.9 CFA Model for Leadership Styles (LDS)

This model was made up of 12 items to measure 2 first-order constructs, namely: Transactional (TRN) and Transformational (TRF). The leadership styles CFA model with all 12 items was portrayed in Figure 4.5.
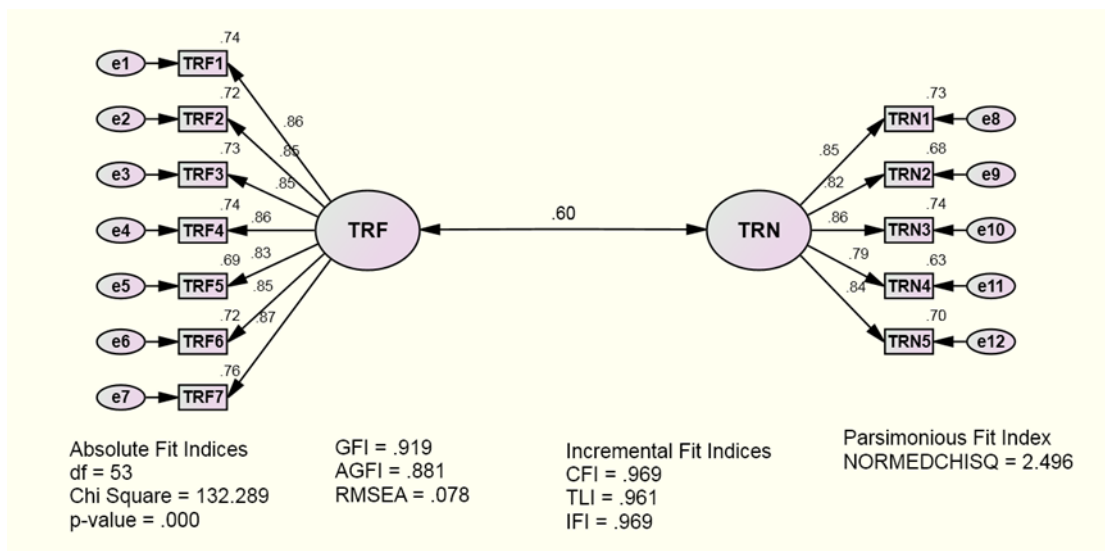
Figure 4-5: CFA Model for leadership styles with 12 Items

4.9.1 GOF

The GOF results of the CFA for leadership styles with 12 items indicated that the model adequately fitted the data. Chi-Square = 132.289, df = 53, p=0.000, GFI = 0.919, AGFI = 0.881, CFI = 0.969, TLI = 0.961, IFI = 0.969, RMSEA =0.078 and NORMEDCHISQ = 2.496.

4.9.2 Reliability and Convergent Validity

Table 4.11represents the result of Cronbach's alpha and convergent validity for the CFA model of leadership styles with 12 items.

Table 4-11:
Results of Cronbach's alpha and Convergent Validity for Leadership Styles

Construct	Item	Factor Loading	Average Variance Extracted (AVE)[a]	Composite Reliability (CR)[b]	Internal Reliability Cronbach's alpha
Transactional (TRN)	TRN1	0.854	0.696	0.920	0.919
	TRN2	0.823			
	TRN3	0.86			
	TRN4	0.794			
	TRN5	0.838			
Transformational (TRF)	TRF1	0.858	0.727	0.949	0.949
	TRF2	0.846			
	TRF3	0.854			
	TRF4	0.858			
	TRF5	0.832			
	TRF6	0.847			
	TRF7	0.872			

[a]: Average Variance Extracted = (summation of the square of the factor loadings)/ {(summation of the square of the factor loadings) + (summation of the error variances)}.
[b]: Composite reliability = (square of the summation of the factor loadings)/ {(square of the summation of the factor loadings) + (square of the summation of the error variances)}.

As shown in Table 4.11, all indicators have high factor loadings ranging from 0.794to 0.872 indicating that the meaning of the factors has been preserved by these indicators.

The AVE values for transactional (TRN) and Transformational (TRF) were 0.696 and 0.727 respectively which were above the cut-off 0.5as suggested by Nunnally and Bernstein, 1994.

The composite reliability values for transactional (TRN) and Transformational (TRF) were 0.920 and 0.949 respectively which exceeded the recommended value of 0.6 as recommended by Bagozzi and Yi (1988).

The Cronbach's alpha values for transactional (TRN) and Transformational (TRF) were 0.919 and 0.949 respectively which were above the cut-off 0.7 as suggested by Nunnally and Bernstein (1994).

4.9.3 Discriminant Validity

Table 4.12 represents the discriminant validity of the CFA model for leadership styles.

Table 4-12:*Discriminant validity of CFA Model for Leadership Styles*

	TRN	TRF
Transactional (TRN)	0.834	
Transformational (TRF)	0.597	0.853

Note: Diagonals represent the square root of the AVE while the other entries represent the correlations.

The inter-correlation between transactional (TRN) and Transformational (TRF) as the two sub-constructs in leadership styles was 0.597, below the threshold 0.85. Further, as shown in Table 4.12, the correlations were less than the square root of the AVE by the indicators, demonstrating good discriminant validity between these factors (Kline 2005).

Upon examining goodness to fit of data, convergent validity and discriminant validity of the CFA model, it can be concluded that the measurement scale to assess the constructs and their relative items in leadership styles was reliable and valid.

4.10 The Overall Measurement Model

Confirmatory factor analysis was used to assess the overall measurement model for organisational factors (ORF), project factors (PRF), project team factors (PTF), leadership styles (LDS) and project success (PRS). The overall measurement model included all latent constructs with their respective measured indicators specified in the previous individual CFA models.

As highlighted earlier, SEM is a data analytic technique commonly used to examine patterns of relationships among constructs (Cooper and Schindler, 2003). The latent constructs in the individual CFA models were all measured by several multi-item scales. The inclusion of all items and relative errors in the measurement and structural models leads to a complex and non-stable model because too many parameters need to be estimated. Thus, to overcome this problem, this research utilised parcels as indicators

of latent constructs in the individual CFA models. Parcels are aggregations (sums or averages) of several individual items. Using parcels as indicators of latent constructs commonly have better reliability as compared with the single items (Coffman and MacCallum, 2005). As the result of using item parcelling procedure, the latent first-order constructs of organisational factors (ORF), project factors (PRF), project team factors (PTF) and leadership styles (LDS) model were converted into observed variables so that they could easily construct the overall measurement and structural model and reduce the model complexity. The overall CFA model was portrayed in Figure 4.6.
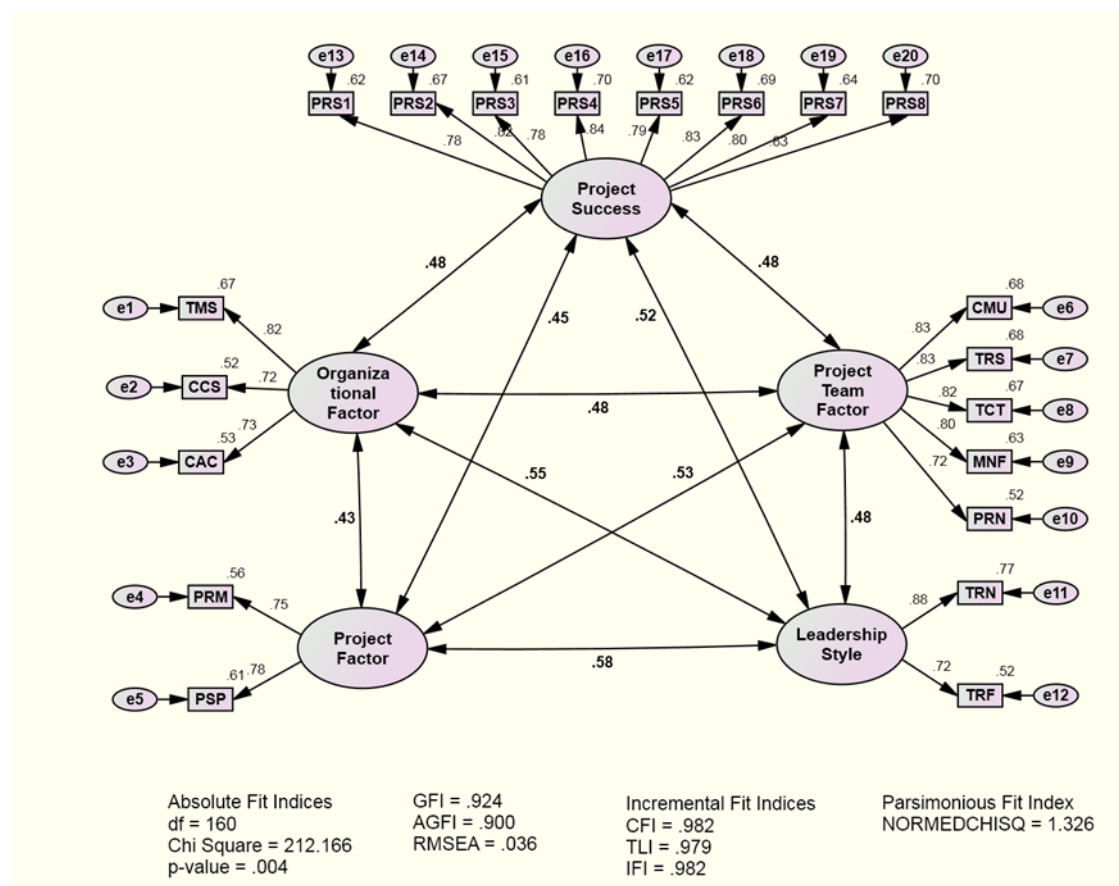
Figure 4-6: Overall CFA Model

4.10.1 GOF

The GOF results of the overall CFA model indicated that the model adequately fitted the data. Chi-Square = 212.166, df = 160, p=0.004, GFI = 0.924, AGFI = 0.900, CFI = 0.982, TLI = 0.979, IFI = 0.982, RMSEA =0.036 and NORMEDCHISQ = 1.326.

4.10.2 Reliability and Convergent Validity

Table 4.13 represents the result of Cronbach's alpha and convergent validity for the overall CFA model.

Table 4-13:
Results of Cronbach's alpha and Convergent Validity for Overall CFA Model

Construct	Item	Factor Loading	Average Variance Extracted (AVE)[a]	Composite Reliability (CR)[b]	Internal Reliability Cronbach's alpha
Organisational Factors (ORF)	Top Management Support (TMS)	0.819	0.574	0.801	0.803
	Client Consultation (CCS)	0.723			
	Client Acceptance (CAC)	0.728			
Project Factors(PRF)	Project Mission (PRM)	0.751	0.589	0.741	0.741
	Project Schedule /Plan (PSP)	0.783			
Project Team Factors (PTF)	Communication (CMU)	0.827	0.638	0.898	0.897
	Trouble Shooting (TRS)	0.825			
	Technical Task (TCT)	0.819			
	Monitoring and Feedback (MNF)	0.796			
	Personnel (PRN)	0.723			
Leadership Styles (LDS)	Transactional (TRN)	0.877	0.645	0.783	0.775
	Transformational (TRF)	0.722			
Project Success (PRS)	PRS1	0.784	0.654	0.938	0.938
	PRS2	0.816			
	PRS3	0.779			
	PRS4	0.837			
	PRS5	0.787			
	PRS6	0.83			
	PRS7	0.798			
	PRS8	0.834			

[a]: AVE = (summation of the square of the factor loadings)/ {(summation of the square of the factor loadings) + (summation of the error variances)}.

[b]: Composite reliability = (square of the summation of the factor loadings)/ {(square of the summation of the factor loadings) + (square of the summation of the error variances)}.

As shown in Table 4.13, all indicators have high factor loadings ranging from 0.722to 0.877 indicating that the meaning of the factors has been preserved by these indicators.

The AVE values, were above the cut-off 0.5as suggested by Nunnally and Bernstein (1994), ranged from 0.574 to 0.654.

The composite reliability values exceeded the recommended value of 0.6 as recommended by Bagozzi and Yi (1988), ranged from 0.741 to 0.938.

The Cronbach's alpha values were above the cut-off 0.7 as suggested by Nunnally and Bernstein (1994), ranged from 0.741 to 0.938.

4.10.3 Discriminant Validity

Table 4.14: represents the discriminant validity of the overall CFA model.

Table 4-14:

Discriminant validity of Overall CFA Model

	ORF	PRF	PTF	LDS	PRS
Organisational Factors (ORF)	0.758				
Project Factors(PRF)	0.434	0.767			
Project Team Factors (PTF)	0.478	0.525	0.799		
Leadership Styles (LDS)	0.550	0.579	0.478	0.803	
Project Success (PRS)	0.479	0.451	0.475	0.519	0.808

Note: Diagonals represent the square root of the AVE while the other entries represent the correlations.

The inter-correlations between the five latent constructs Overall CFA model ranged from 0.434 to 0.579, which were below the threshold 0.85. Further, as shown in Table 4.14, the correlations were less than the square root of the AVE by the indicators, demonstrating good discriminant validity between these factors (Kline 2005).

Upon examining goodness to fit of data, convergent validity and discriminant validity of the CFA model, it can be concluded that the overall measurement scale to assess the constructs and their relative items was reliable and valid.

4.11 Structural Models - Stage 2 of SEM

The structural equation model is the second main process of SEM analysis. Once the measurement model is validated, representation of the structural model can be made by specifying the relationships among the constructs. The structural model provides details on the links between the variables. It shows the specific details of the relationship between the independent or exogenous variables and dependent or endogenous

variables (Hair, Black, Babin, Anderson, and Tatham, 2006; Ho, 2006). Evaluation of the structural model focuses firstly on the overall model fit, followed by the size, direction and significance of the hypothesised parameter estimates, as shown by the one- headed arrows in the path diagrams (Hair et al., 2006). The final part involved the confirmation of the structural model of the study which was based on the proposed relationship between the variables identified and assessed.

In this study the structural model was estimated, using the maximum likelihood estimate (MLE) and regression technique, to examine the research hypothesises. In the structural model, the relationships between organisational factors (FRO), project factors (PRF), project team factors (PTF), leadership styles (LDS) and project success (PRS) were examined.

Further, the mediating effects of leadership styles (LDS) on the effects of organisational factors (ORF), project factors (PRF) and project team factors (PTF) on project success (PRS) were evaluated. Therefore, a total of 10 research hypotheses described and were examined in the structural model. Figure 4.7 illustrates the structural model in AMOS graph before conducting item parcelling procedure while Figure 4.8 illustrates the structural model after using item parcelling procedure.
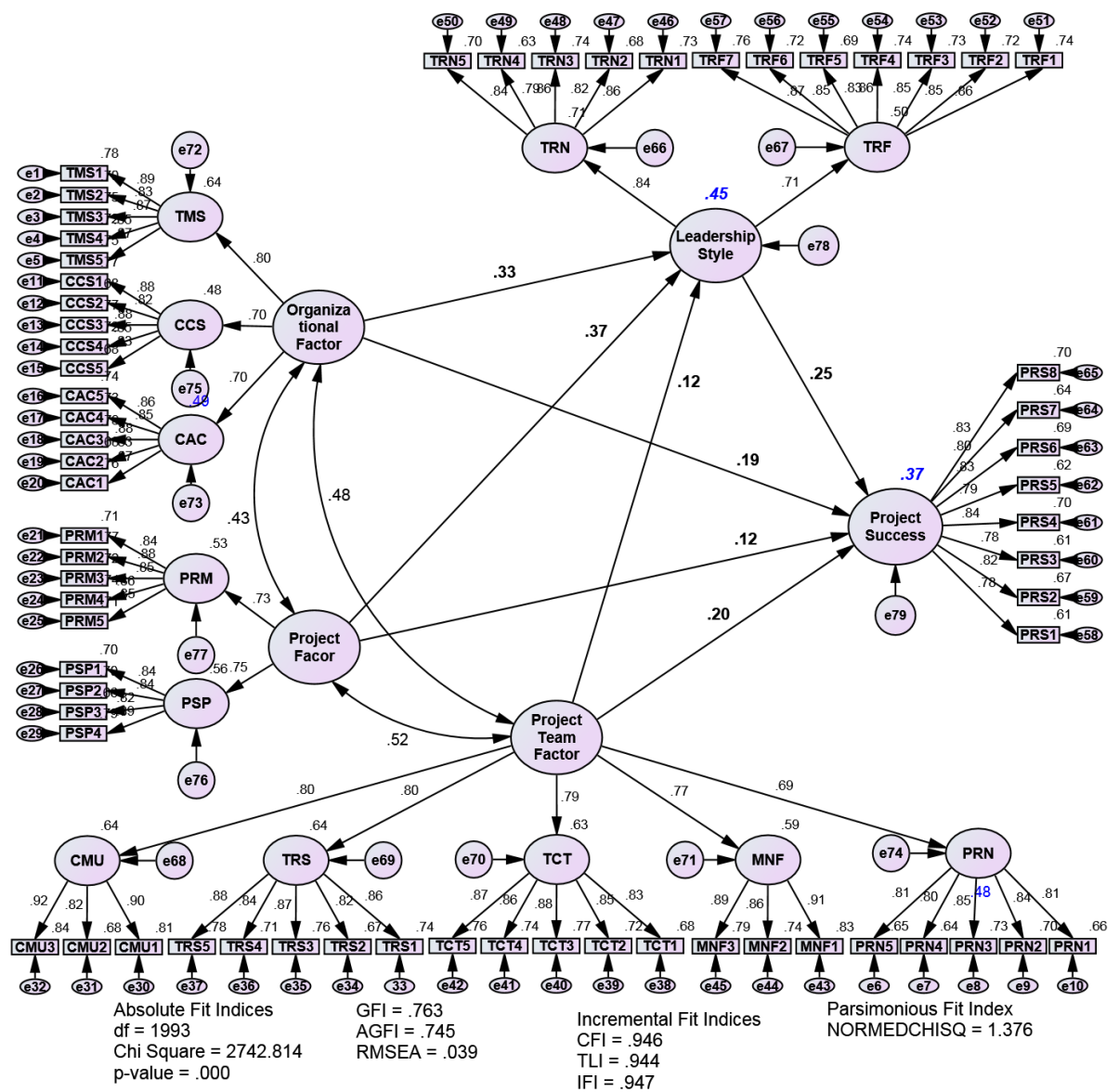
Figure 4-7: Structural Model before parcelling
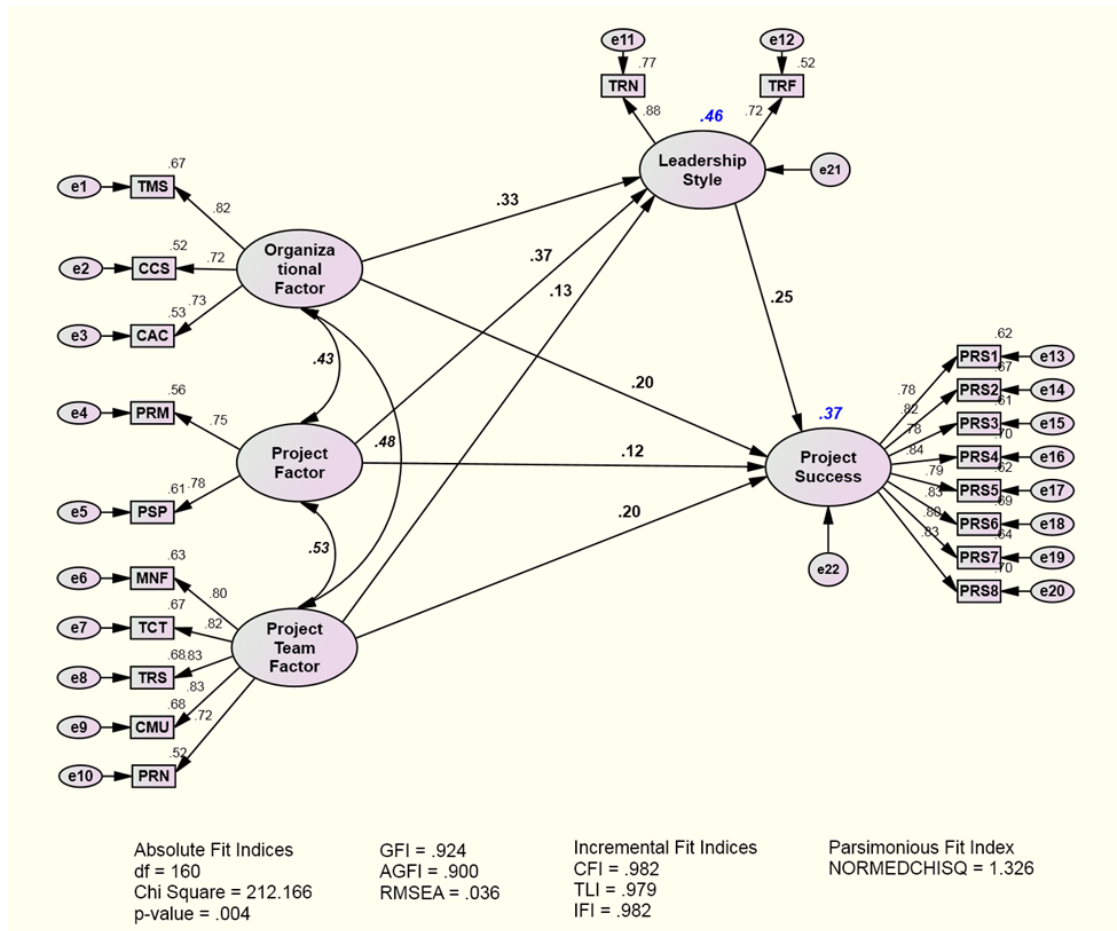
Figure 4-8: Structural Model

An examination of goodness-of-fit indices indicates that the structural model adequately fitted the data: Chi-Square = 212.166, df = 160, p=0.004, GFI = 0.924, AGFI = 0.900, CFI = 0.982, TLI = 0.979, IFI = 0.982, RMSEA =0.036 and NORMEDCHISQ = 1.326. Although the chi-square statistic is statistically significant, this is not deemed unusual given the 250 sample size (Bagozzi, Yi, and Phillips 1991).

The values of R2 for leadership styles (LDS) and project success (PRS) were 0.46 and 0.37 respectively. This indicates, for example, the error variance of project success is approximately 37% of the variance of project success itself. In other word, 37% of variations in project success are explained by its four predictors (i.e., organisational factor, factors related to the project, project team factors and leadership styles). Overall findings showed that both scores of R² value satisfy the requirement for the 0.30 cut-off value (Quaddus and Hofmeyer, 2007).

4.11.1 Direct Effects of the Variables

The coefficient parameters estimates were then examined to test the hypothesised effects of the variables which were addressed in Table 3.6, while the results of testing the hypotheses in the structural model are portrayed in Figure 4.9.
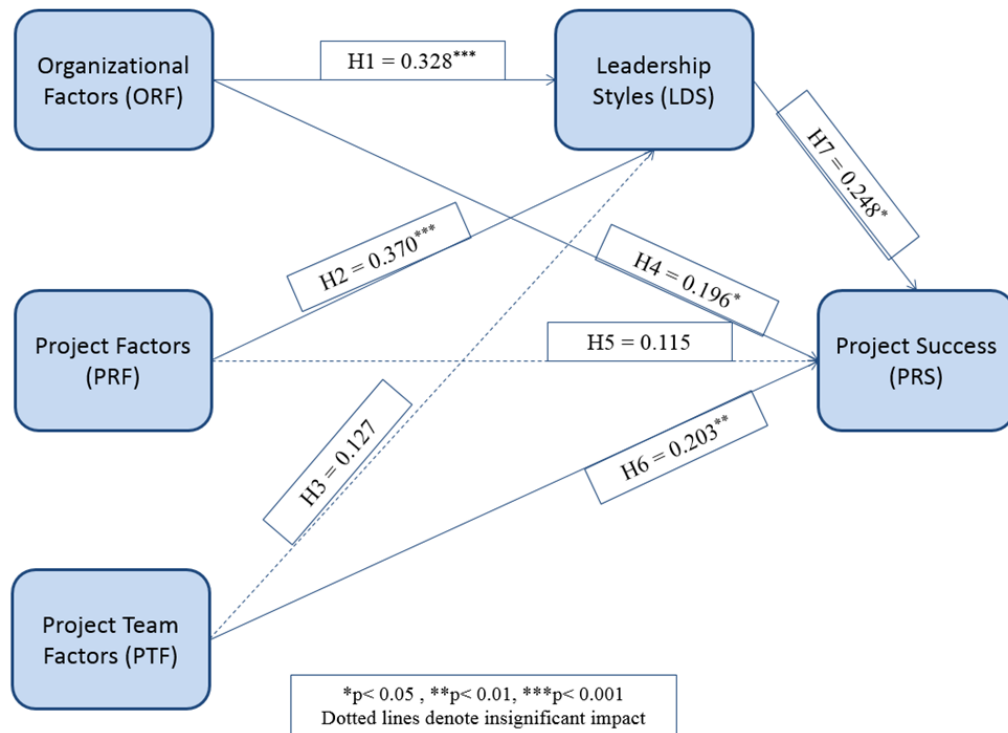
Figure 4-9: Hypotheses Results of Structural Model

The standardised regression weight and the results of examining hypothesised effects are displayed in Table 4.15.

Table 4-15:
Examining Results of Hypothesised Effects of the Variables

Path	Unstandardised Estimate		Standardised Estimate	C.R.	P-value	Hypothesis Result
	Estimate	S.E.	Beta (β)			
ORF → LDS	0.309	0.076	0.328***	4.036	0.000	H1) Supported
PRF → LDS	0.428	0.11	0.37***	3.898	0.000	H2) Supported
PTF → LDS	0.124	0.082	0.127	1.507	0.132	H3) Rejected
ORF → PRS	0.205	0.088	0.196*	2.346	0.019	H4) Supported
PRF → PRS	0.148	0.121	0.115	1.227	0.22	H5) Rejected
PTF → PRS	0.22	0.084	0.203**	2.61	0.009	H6) Supported
LDS → PRS	0.276	0.11	0.248*	2.51	0.012	H7) Supported

*p<0.05, **p< 0.01, ***p< 0.001

Table 4-16:
Summary of Examining Results of Hypothesised Effects of the Variables

Hypothesis	Beta (β)	P-value	Hypothesis Result
Organisational Factors (ORF) has a positive effect on leadership styles (LDS)	0.328***	0.000	H1) Supported
Project factors (PRF) has a positive effect on leadership styles (LDS)	0.37***	0.000	H2) Supported
Project Team Factors (PTF) has a positive effect on leadership styles (LDS)	0.127	0.132	H3) Rejected
Organisational Factors (ORF) has a positive effect on project success (PRS)	0.196*	0.019	H4) Supported
Project factors (PRF) has a positive effect on project success (PRS)	0.115	0.22	H5) Rejected
Project Team Factors (PTF) has a positive effect on project success (PRS)	0.203**	0.009	H6) Supported
Leadership Styles (LDS) has a positive effect on project success (PRS)	0.248*	0.012	H7) Supported

*$p<0.05$, **$p< 0.01$, ***$p< 0.001$

As shown in Table 4.15, two paths from organisational factors (ORF) and project factors (PRF) to leadership styles (LDS) as well as three paths from organisational factors (ORF), project team factors (PTF) and leadership styles (LDS) to project success (PRS) were statistically significant as their p-values were below the standard significance level of 0.05. Therefore, the hypotheses: H1, H2, H4, H6 and H7 were supported.

Conversely, two paths from project team factors (PTF) to leadership styles (LDS) and project factors (PRF) to project success (PRS) were not found as statistically significant because of having p-value above the standard significance level of 0.05. Thus, the hypotheses H3 and H5 were rejected.

The following section discusses the results of path analysis in relation to the below hypotheses in the research structural model.

H1) Organisational Factors (ORF) has a positive effect on Leadership Styles (LDS)

As shown in Table 4.15, the C.R and p-value of organisational factors (ORF) in predicting leadership styles (LDS) were 4.036 and 0.000 respectively. It means that the probability of getting a critical ratio as large as 4.036 in absolute value is 0.000. In other words, the regression weight for organisational factors (ORF) in the prediction of leadership styles (LDS) is significantly different from zero at the 0.001 level (two-tailed). Thus, H1 was supported. Further, the standardised estimate of Beta was 0.328, indicating a positive relationship. It means, when organisational factors (ORF) goes up by 1 standard deviation, leadership styles (LDS) goes up by 0.328 standard deviations.

H2) Project Factors (PRF) has a positive effect on Leadership Styles (LDS)

The C.R and p-value of project factors (PRF) in predicting leadership styles (LDS) were 3.898 and 0.000 respectively. It means that the probability of getting a critical ratio as large as 3.898 in absolute value is 0.000. In other words, the regression weight project factors (PRF) in the prediction of leadership styles (LDS) is significantly different from zero at the 0.001 level (two-tailed). Thus, H2 was supported. Further, the standardised estimate of Beta was 0.370, indicating a positive relationship. It means, when project factors (PRF) goes up by 1 standard deviation, leadership styles (LDS) goes up by 0.370 standard deviations.

H3) Project Team Factors (PTF) has a positive effect on Leadership Styles (LDS)

As shown in Table 4.15, the results showed no significant relationship between the project team factors (PTF) and leadership styles (LDS); $\beta = 0.127$, C.R. $= 1.507$, p$= 0.132$. Thus, H3 was rejected.

H4) Organisational Factors (ORF) has a positive effect on Project Success (PRS)

The C.R and p-value of organisational factors (ORF) in predicting project success (PRS) were 2.346 and 0.019 respectively. It means that the probability of getting a critical ratio as large as 2.346 in absolute value is 0.019. In other words, the regression weight for organisational factors (ORF) in the prediction of project success (PRS) is significantly different from zero at the 0.05 level (two-tailed). Thus, H4 was supported. Further, the standardised estimate of Beta was 0.196, indicating a positive relationship. It means, when organisational factors (ORF) goes up by 1 standard deviation, project success (PRS) goes up by 0.196 standard deviations.

H5) Project Factors (PRF) has a positive effect on Project Success (PRS)

As shown in Table 4.15, the results showed no significant relationship between the project factors (PRF) and project success (PRS); $\beta = 0.115$, C.R. = 1.227, p= 0.22. Thus, H5 was rejected.

H6) Project Team Factors (PTF) has a positive effect on Project Success (PRS)

The C.R and p-value of project team factors (PTF) in predicting project success (PRS) were 2.61and 0.009 respectively. It means that the probability of getting a critical ratio as large as 2.61in absolute value is 0.009. In other words, the regression weight for project team factors (PTF) in the prediction of project success (PRS) is significantly different from zero at the 0.01 level (two-tailed). Thus, H6 was supported. Further, the standardised estimate of Beta was 0.203, indicating a positive relationship. It means, when project team factors (PTF) goes up by 1 standard deviation, project success (PRS) goes up by 0.203 standard deviations.

H7) Leadership Styles (LDS) has a positive effect on Project Success (PRS)

The C.R and p-value of leadership styles (LDS) in predicting project success (PRS) were 2.51and 0.012 respectively. It means that the probability of getting a critical ratio as large as 2.51in absolute value is 0.012. In other words, the regression weight for leadership styles (LDS) in the prediction of project success (PRS) is significantly different from zero at the 0.05 level (two-tailed). Thus, H7 was supported. Further, the standardised estimate of Beta was 0.248, indicating a positive relationship. It means, when leadership styles (LDS) goes up by 1 standard deviation, project success (PRS) goes up by 0.248 standard deviations.

4.11.2 Indirect Effects of the Variables (Mediation Effects of Leadership Styles)

The mediation analysis was used to determine the mediation effects of leadership styles (LDS) as mediating variable on the effects of organisational factors (ORF), project factors (PRF) and project team factors (PTF) as independent variables on project success (PRS) as the dependent variable (i.e., H8, H9 and H10respectively). Furthermore, the indirect effects of organisational factors (ORF), project factors (PRF) and project team factors (PTF) on project success (PRS) through leadership styles (LDS) were also examined.
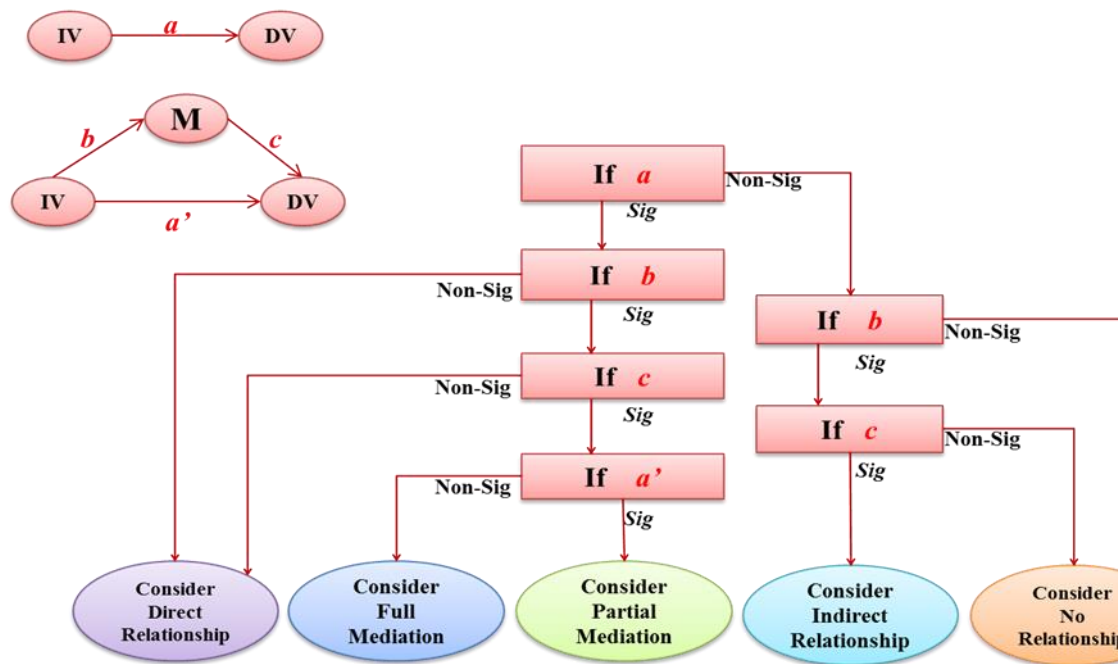
Figure 4-10: Decision tree for evidence supporting different intervening effects
(Source: Mathieu and Taylor, 2006)

The statistics behind mediation are correlation. Mathieu and Taylor (2006) suggested a decision tree framework to test the covariance relationships among three variables: an independent variable (IV), a potential mediating variable (M) and a dependent variable (DV). Figure 4.9 illustrates this framework.

Based on this framework, the most important precondition that must be met to find significant mediation is that all three correlations among the three variables (paths A, B and C) must be statistically significant. If even one of these three correlations is not significant, then there would be no possibility to find significant mediation (Baron and Kenny, 1986; Mathieu and Taylor, 2006). Upon significant relations among the three variables (paths A, B and C), once the direct effect of IV on DV in the multiple regression (path A) is not statistically significant, then the mediating variable act as a full mediator. Otherwise, the mediation can be considered as partial mediation. In absence of full or partial mediation, the relationships between IV and DV comprise to direct, indirect or no any relationship.

Independent variable has non-significant indirect effect on dependent variable through mediating variable in the absence of significant effect in path A and presents of significant effects in paths B and C. At the other side, independent variable has only a direct effect on dependent variable in the present of significant effect in path A and a

none significant effect in paths B or C. There would be no any relationship between independent variable and dependent variable in the absence of significant relationship in path A and then absence of significant relationship in the paths B or C.

The SEM technique is claimed to be preferable to regression techniques for testing mediation because SEM permit modelling of both measurement and structural relationships and yield overall fit indices (Browne et al., 1993; Garver and Mentzer, 1999). This research employed the bootstrapping approach with 2000 samples (Bagozziand Yi, 1988) to assess the mediating effects of leadership styles (LDS).

The significance of the regression coefficients between the independent variables, mediating variable and dependent variable were examined to determine the occurrence of the mediation effect and its mediating degree.

Thus, three hypotheses (i.e., H8, H9, and H10) depicted in Table 3.6, were examined in this section. The results of examining these hypotheses are displayed in Table 4.17 with the standardised effects of different paths.

Table 4-17:
Results of Examining Mediation Effects of Leadership Styles, Using Bootstrapping

DV = project success (PRS) M = leadership styles (LDS)	Independent Variable (IV)		
	Organisational Factors (ORF)	Project Factors(PRF)	Project Team Factors (PTF)
Total Effect of IV on DV without M (path a)	$0.278^{**(sig:0.003)}$	$0.207^{*(sig:0.026)}$	$0.234^{**(sig:0.008)}$
Direct Effect of IV on DV with M (path a')	$0.196^{*(sig:0.047)}$	$0.115^{(sig:0.248)}$	$0.203^{*(sig:0.019)}$
Indirect Effect of IV on DV through M (path bc)	$0.081^{**(sig:0.005)}$	$0.092^{**(sig:0.005)}$	$0.031^{(sig:0.099)}$
Effect of IV on M (path b)	$0.328^{**(sig:0.001)}$	$0.370^{**(sig:0.001)}$	$0.127^{(sig:0.173)}$
Effect of M on DV (path c)	$0.248^{**(sig:0.009)}$	$0.248^{**(sig:0.009)}$	$0.248^{**(sig:0.009)}$
Mediation Path	ORF → LDS → PRS	PRF → LDS → PRS	PTF → LDS → PRS
Mediation Effect	Yes	Yes	No
Degree of Mediation	Partial	Full	---
Hypothesis Result	H8) Supported	H9) Supported	H10) Rejected

*p<0.05, **p< 0.01, ***p< 0.001

Table 4-18:
Summary Results of Examining Mediation Effects of Leadership Styles

Hypothesis	Beta (β)	P-value	Hypothesis Result
Leadership Styles (LDS) mediates the relationship between organisational factors (ORF) and project success (PRS)	0.278** 0.196* 0.081** 0.328** 0.248**	0.003 0.047 0.005 0.001 0.009	H8) Partially Supported
Leadership Styles (LDS) mediates the relationship between project factors (PRF) and project success (PRS)	0.207* 0.115 0.092** 0.370** 0.248**	0.026 0.248 0.005 0.001 0.009	H9) Fully Supported
Leadership Styles (LDS) mediates the relationship between project Team Factors (PTF) and project success (PRS)	0.234** 0.203* 0.031 0.127 0.248**	0.008 0.019 0.099 0.173 0.009	H10) Rejected

*p<0.05, **p< 0.01, ***p< 0.001

As shown in Table 4.17, leadership styles (LDS) mediates the effects of organisational factors (ORF) and project factors (PRF) on project success (PRS). Thus, hypotheses H8 and H9 were supported. Conversely, the mediating effect of leadership styles (LDS) on the relationship between project team factors (PTF) and project success (PRS) could not be supported. Thus hypothesis H10 was rejected. The following section discusses the results of the mediation analysis and indirect effects

H8) Leadership Styles (LDS) mediates the relationship between Organisational Factors (ORF) and Project Success (PRS)

As shown in Table 4.17, the result showed that there was a significant relationship between organisational factors (ORF) and project success (PRS) in the absence of leadership styles (LDS), with the standardised total effect of 0.278 and the p-value of 0.003. Thus, the total effect of organisational factors (ORF) as IV on project success (PRS) as DV without the inclusion of leadership styles (LDS) as M was statistically significant at 0.01 level.

This relation was still significant even after including leadership styles (LDS) into the model, with the standardised direct effect of 0.196 and the p-value of 0.047. Thus, the direct effect of organisational factors (ORF) as IV on project success (PRS)

as DV with the inclusion of leadership styles (LDS) as M was statistically significant at 0.05 level.

As depicted in Table 4.17, the effects of organisational factors (ORF) as IV on leadership styles (LDS) as M (path B) was statistically significant at 0.01 level, with the standardised effects of 0.328.

At the other side, the effects of leadership styles (LDS) as M on project success (PRS) as DV (path C) was statistically significant at 0.01 level with the standardised effects of 0.248.

These results indicated that leadership styles (LDS) mediates the relationship between organisational factors (ORF) and project success (PRS). The degree of mediation was partial since the paths A, A', B and C were all statistically significant. The phenomenon supported the hypothesis H8.

Further, the result revealed that organisational factors (ORF) had a significant indirect positive effect on project success (PRS) through leadership styles (LDS) with the standardised indirect effect of 0.081 and the p-value of 0.001.

H9) Leadership Styles (LDS) mediates the relationship between Project Factors (PRF) and Project Success (PRS)

As shown in Table 4.17, the result showed that there was a significant relationship between project factors (PRF) and project success (PRS) in the absence of leadership styles (LDS), with the standardised total effect of 0.207 and the p-value of 0.026. Thus, the total effect of project factors (PRF) as IV on project success (PRS) as DV without the inclusion of leadership styles (LDS) as M was statistically significant at 0.05 level.

This relation became insignificant after including leadership styles (LDS) into the model, with the standardised direct effect of 0.115 and the p-value of 0.248. Thus, the direct effect of project factors (PRF) as IV on project success (PRS) as DV with the inclusion of leadership styles (LDS) as M was statistically insignificant.

As depicted in Table 4.17, the effects of project factors (PRF) as IV on leadership styles (LDS) as M (path b) was statistically significant at 0.01 level, with the standardised effects of 0.370. At the other side, the effects of leadership styles (LDS) as M on project success (PRS) as DV (path C) was statistically significant at 0.01 level with the standardised effects of 0.248.

These results indicated that leadership styles (LDS) mediates the relationship between project factors (PRF) and project success (PRS). The degree of mediation was full since the paths a, b and c were statistically significant but bath a' was insignificant. The phenomenon supported the hypothesis H9. Further, the result revealed that project factors (PRF) had a significant indirect positive effect on project success (PRS) through leadership styles (LDS) with the standardised indirect effect of 0.092 and the p-value of 0.005.

H10) Leadership Styles (LDS) mediates the relationship between Project Team Factors (PTF) and Project Success (PRS)

As shown in Table 4.17, the result showed that there was a significant relationship between project team factors (PTF) and project success (PRS) in the absence of leadership styles (LDS), with the standardised total effect of 0.234 and the p-value of 0.008. Thus, the total effect of project team factors (PTF) as IV on project success (PRS) as DV without the inclusion of leadership styles (LDS) as M was statistically significant at 0.01 level.

This relation was still significant even after including leadership styles (LDS) into the model, with the standardised direct effect of 0.203 and the p-value of 0.019. Thus, the direct effect of project team factors (PTF) as IV on project success (PRS) as DV with the inclusion of leadership styles (LDS) as M was statistically significant at 0.05 level.

As depicted in Table 4.17, the effects of project team factors (PTF) as IV on leadership styles (LDS) as M (path b) was not statistically significant, with the standardised effects of 0.127 and p-value of 0. 173.However, the effects of leadership styles (LDS) as M on project success (PRS) as DV (path C) was statistically significant at 0.01 level with the standardised effects of 0.248.

These results indicated that leadership styles (LDS) cannot mediate the relationship between project team factors (PTF) and project success (PRS) since path b was statistically insignificant. The phenomenon rejected the hypothesis H10.

As a result, the indirect effect of project team factors (PTF) on project success (PRS) through leadership styles (LDS) was not statistically significant; standardised indirect effect = 0.031, p-value of 0.099.

CHAPTER FIVE

DISCUSSION, IMPLICATIONS, RECOMMENDATIONS

5.1   Introduction

This chapter culminates and finalises the study. It presents the summary of the study and recaptures why the study was conducted. The review of relevant literature and the theoretical framework applied in this study were covered in the various chapters of the study.

A quantitative online survey methodology was applied in the study, which examined and analysed the responses of the project managers, team members from various departments in different telecommunication industries in Yemen in order to assess the important relationship between the project managers' leadership styles and critical success factors in relation to project success. Descriptive statistics were generated and analysed to further build on the investigation of the research questions, and the study's data responses were utilised to evaluate normality and other parametric requirements. Based on the initially proposed minimum sample size of 235, there was a sufficient sample size for the study, and the results of the study can be generalised to the general population. This study was successfully answer the research questions that mentioned in Chapter 1 which are as enumerated as follows:

1-   Is there a relationship between organisational factors and project success?

2-   Is there a relationship between project factors and project success?

3-   Is there a relationship between project team factors and project success?

4-   Is there a relationship between leadership style and project success?

5-   To what extent does the leadership styles and critical success factors contribute to project success?

5.2   Summary of the Results

The objectives of the study were to evaluate the direct empirical relationship between the critical success factors, and project success with effective of project managers' leadership styles as mediator. The research questions examined in the study investigated the relationship between project managers' leadership styles, critical

success factors, and project success as perceived and reported by project managers team members.

H1 was highly supported. Specifically, the results from the study showed there was a statistically significant relationship between organisational factors and project managers' transformational and transactional leadership styles.

H2 was also highly supported. Specifically, the results from the study showed there was a statistically significant relationship between project factors and project managers' transformational and transactional leadership styles.

H3 however was rejected. Specifically, the results from the study showed there was no statistically significant relationship between project team factors and project managers' transformational and transactional leadership styles.

H4 was highly supported. Specifically, the results from the study showed there was a statistically significant relationship between organisational factors and project success.

H5 was rejected. Specifically, the results from the study showed there was no statistically significant relationship between factors related to project and project success.

H6 was highly supported. Specifically, the results from the study showed there was a statistically significant relationship between project team factors and project success.

H7 was also highly supported. Specifically, the results from the study showed there was a statistically significant relationship between project managers' transformational and transactional leadership styles and project success.

H8 was supported. Specifically, the results from the study showed Leadership Style partially mediates the relationship between organisational factors and project success.

H9 was highly supported. Specifically, the results from the study showed leadership style fully mediates the relationship between project factors and project success.

H10 was rejected. Specifically, the results from the study showed leadership style cannot mediate the relationship between project factors and project success. Overall, seven of the ten hypotheses in this research were supported.

5.3   Discussion of the Results

Based on the research design used in the study, 580 respondents were invited to participate in the study, however, 250 respondents fully completed the questionnaire for the study, thus, corresponding to a 43.10% response rate. As noted in Chapter 3, only the completed responses were used in the study. The sample size was deemed sufficient since it met the minimum required sample size of 235 independent cases. A key criterion for the study required that the target sample frame were practising project managers, head of units and head of departments, and were based in Yemen. The participants' responses were captured using an online survey tool (Google Doc) utilising the demographic questionnaire and variables instruments. The demographic questionnaire contained 9 items including, gender, age, marital status, major, education level, years of experience, monthly income, departments, and position. The dependent variable questionnaire involved 8 items designed to measure the project success, while the mediator variable questionnaire involved 12 items designed to evaluate leadership styles and leadership outcomes using a 5-point Likert scale, and the independent variables questionnaire involved 43 items designed to evaluate 10 critical project success factors and using a 5-point Likert scale.

After the survey responses for the study were completed and collected, the data was first downloaded into an Excel file, and then imported into SPSS and AMOS for analysis. The results gathered from the study were used to establish whether there was a statistically significant relationship between the project managers' leadership styles, critical success factors, and project success as perceived and reported by project managers.

The review of the literature throughout this study demonstrated the scholarly works conducted and recorded by previous researchers as well as the seminal works that contributed to the objectives of this study.

This research is a study of the critical success factors of the project in Yemeni telecommunication industries. The research used a model that has five variables that have an impact on project success, moreover with mediating effect by transactional and transformational leadership styles. The research studied the hypothesis on the four major telecommunication industries in Yemen. In so doing, the hypotheses assumed by the study were tested using statistical approaches and the relationship between the variables identified.

The study was successful in meeting the first objective which was to explore the Organisational factors (telecommunication industries) and its importance to the project success. Organisational factors (top management support, client consultation and client's acceptance) is an important subject to the project success. In ensuring the successful of projects is achieved, clients' involvement and top management support should be presented on the way that acts as main function to deliver a successful project.

The research also sought to examine the factors that related to the project and leadership styles. It can be clearly seen that these factors (project mission and project planning/schedule) is the most important variable in the relationship with leadership styles. Moving to the third, fourth, and fifth objectives, the result of the analysis shows that all of the objective has been achieved successfully with high reliability, normality, and significant relation and positive impact to the leadership styles and project success except the factors that related to the team members had a negative impact to the leadership styles.

On the topic of project management, leadership styles, and critical success factors as it relates to project success, previous studies did not show the specific relationships that evaluate the effects of the project managers' leadership styles, critical success factors, and project success. Thus, as noted by several researchers including, Turner and Muller (2005), Hyväri (2006), Ika (2009), and Anantatmula (2010), there was a need for further study on these key study variables, which have been addressed in the current study. The main research question in the study was to examine to what extent does the project manager's leadership style and CSFs contribute to project success? As indicated, this study built on various seminal research studies that have shown that certain leadership styles can affect employees' level of effort exerted at work, satisfaction, exhaustion, and productivity (Burns, 1978; Bass, 1985; Bass and Avolio, 1993; Bennett, 2009). Hyväri (2006) observed that it is possible to identify critical success factors in project management that are significantly related to the project managers. In addition, according to Ika (2009), the exercise of lessons learned from measuring CSFs is more productive when we take into account both the project success factors and the success criteria.

5.4   Hypotheses Testing

5.4.1   Organisational Factors and Leadership Styles

In the proposed model, this researcher hypothesised that organisational factors will have a positive effect on the leadership styles (H1). The parameter estimate results (H1: ORF → LDS; β = 0.328, CR-value = 4.036, p = 0.000) for the above hypothesis was found both positive and statistically significant. This suggests the existence of a positive effect of the organisational factors on the leadership styles. As such, this hypothesis was accepted. This study suggests that top management support, client consultation, and client acceptance have a significant effect on transactional and transformational styles. These results further suggest that client's involvement and top management support are a driving force for the leadership styles of the project manager. In summary, the result of this hypothesis indicated that the top management support, client consultation, and client acceptance play important functions in determining the leadership styles of the project manager which enhances the potential of the project manager to deliver a successful project.

5.4.2   Project Factors and Leadership Styles

In the proposed model, this researcher hypothesised that project factors will have a positive effect on the leadership styles (H2). The parameter estimate results (H2: PRF → LDS; β = 0.37, CR-value = 3.898, p = 0.000) for the above hypothesis was found both positive and statistically significant. This suggests the existence of a positive effect of the project factors on the leadership styles. As such, this hypothesis was accepted. This study suggests that project mission and project plan/schedule have a significant effect on transactional and transformational styles. These results further suggest that project mission and project plan/schedule are a driving force for the leadership styles of the project manager. In summary, the result of this hypothesis indicated that the project mission and project plan/schedule play important functions in determining the leadership styles of the project manager which enhances the potential of project manager to deliver a success project.

5.4.3   Project Team Factors and Leadership Styles

In the proposed model, this researcher hypothesised that project team factors will have a positive effect on the leadership styles (H3). The parameter estimate results (H3: PTF → LDS; β = 0.127, CR-value = 1.507, p = 0.132) for the above hypothesis

was statistically found not significant. This hypothesis was therefore rejected. This finding suggests that the project team factors do not influence transactional and transformational styles of the project manager. Although, Bond (2015) empirically identified the presence of significant relationship between project team factors (e.g. communication, personnel, monitoring, and feedback) on transactional and transformational styles, the results of this study suggests that the project team factors (e.g. communication, personnel, monitoring, and feedback) did not significantly influence transactional and transformational styles. The most likely explanation for this inconsistent result between the PTF and LDS may lie in the nature of the factors classification. It should be noted that previous studies have mainly considered communication as one variable and personnel as another main variable such as Bond (2015). In contrast, this research classified and group these factors together as one main variable. Another plausible justification is based on the fact due to the lack of awareness among the organisation and teamwork for the importance of the leadership style and it is impact on boosting and increasing the rate of project success, in the same vein Yemeni culture could be another reason for this hypothesis to be rejected. Most of the individuals in Yemen consider him /her self as leader and others as followers which you can clearly observe in certain projects the leaders more than the followers. Lastly, there is a lack of training among organisations to train managers for practising the different types of leadership styles with the different types of projects. Different types of projects suit with a different type of leadership style. Therefore, it can reasonably be concluded that project team factors cannot influence transactional and transformational styles.

5.4.4 Organisational Factors and Project Success

In the proposed model, this researcher hypothesised that organisational factors will have a positive effect on the project success (H4). The parameter estimate results (H4: ORF $\rightarrow$ PRS; $\beta = 0.196$, CR-value = 2.346, p = 0.019) for the above hypothesis was found both positive and statistically significant. This suggested existence of a positive effect of the organisational factors on the project success. As such, this hypothesis was accepted. The results of this research are consistent with those of prior research. Several researchers have provided empirical evidence of a significant effect of the ORF (e.g. top management support, client consultation and client acceptance on the project success (Amponsah and Darmoe, 2014; Bond, 2015; Kuen et al, 2009; Pinto and Slevin, 1987). The top management support, client consultation and client

acceptance are often found to have a significant relationship with project success. These results further suggested that clients' involvement and top management support are a driving force for the project success. In summary, the result of this hypothesis are in agreement with the prior research indicating that the top management support, client consultation and client acceptance plays an important function in determining and shaping the project success.

5.4.5 Project Factors and Project Success

In the proposed model, this researcher hypothesised that project factors will have a positive effect on project success (H5). The parameter estimate results (H5: PRF → PRS; $\beta = 0.115$, CR-value = 1.227, p = 0.22) for the above hypothesis was statistically found not significant. This hypothesis was therefore rejected. This finding suggests that the project factors do not influence project success. Although, previous research studies empirically identified the presence of significant relationship between project factors (project mission and project plan/schedule) and project success (Amponsah and Darmoe, 2014; Bond, 2015; Kuen et al., 2009; Pinto and Slevin, 1987). The most likely explanation for this inconsistent result between the PRF and PRS may lie in the nature of the factors classification. It should be noted that previous studies have mainly been considered project mission as one variable and project plan/schedule as another main variable, while this research classified and group these factors together as one main variable. Another plausible justification is based on the fact due to the lack of awareness among the project leaders for the importance of project mission and project schedule / plan.in the same vein other reason could be the unavailability of the proper software and tools that help project manager to set project schedule /plan. Therefore, it can reasonably be concluded that project factors cannot influence project success.

5.4.6 Project Team Factors and Project Success

In the proposed model, this researcher hypothesised that project team factors will have a positive effect on the project success (H6). The parameter estimate results (H6: PTF → PRS; $\beta = 0.203**$, CR-value = 2.61, p = 0.009)) for the above hypothesis was found both positive and statistically significant. This suggests the existence of a positive effect of the project team factors on project success. As such, this hypothesis was accepted. The results of this research are consistent with those of prior research. Several researchers have provided empirical evidence of a significant effect of project

team factors (e.g. communication, personnel, monitoring, and feedback) such as (Amponsah and Darmoe, 2014; Bond, 2015; Kuen et al, 2009; Pinto and Slevin, 1987). Communication, personnel, monitoring, and feedback are often found to have a significant relationship with project success. These results further suggested that team skills, communication, personnel, monitoring, and feedback are a driving force for the project success. In summary, the result of this hypothesis are in agreement with the prior research indicating that the team skills, communication, personnel, monitoring, and feedback plays an important function in determining and shaping the project success.

5.4.7   Leadership Styles and Project Success

In the proposed model, this researcher hypothesised that leadership styles will have a positive effect on project success (H7). The parameter estimate results (H7: LDS → PRS; β = 0.248, CR-value = 2.51, p = 0.012) for the above hypothesis was found both positive and statistically significant. This suggests the existence of a positive effect of the leadership styles on project success. As such, this hypothesis was accepted. The results of this research are consistent with those of prior research. Several researchers have provided empirical evidence of a significant effect of the LDS (transactional and transformational styles) on project success (Bond, 2015; Kalu et al., 2013; Khan et al., 2014; Morgan and Tanya L, 2012). The transactional and transformational styles are often found to have a significant relationship with project success. These results further suggest that transactional and transformational styles are a driving force for the project success. In summary, the result of this hypothesis are in agreement with the prior research indicating that the transactional and transformational styles of the project manager play an important function in determining and shaping the project success.

5.4.8   Leadership Styles (LDS) Mediates the Relationship Between Organisational Factors (ORF) and Project Success (PRS)

In the proposed model, this researcher hypothesised that leadership styles (LDS) will mediate the relationship between organisational factors (ORF) and project success (PRS) (H8). The result showed that there was a significant relationship between organisational factors (ORF) and project success (PRS) in the absence of leadership styles (LDS), with the standardised total effect of 0.278 and the p-value of 0.003. Thus, the total effect of organisational factors (ORF) as IV on project success (PRS) as DV without the inclusion of leadership styles (LDS) as M was statistically significant at 0.01 level. These results indicated that leadership styles (LDS) partially mediates the

relationship between organisational factors (ORF) and project success (PRS). As such, this hypothesis was accepted. This study suggests that leadership styles (LDS) play an important function in increasing the relationship between the factors related organisation (ORF) and project success (PRS). In summary, the result of this hypothesis indicated that the leadership styles of the project manager are a driving force for enhancing the relationship between factors related organisation (ORF) and project success (PRS)

5.4.9 Leadership Styles (LDS) Mediates the Relationship Between Project Factors (PRF) and Project Success (PRS).

In the proposed model, this researcher hypothesised that leadership styles (LDS) will mediate the relationship between project factors (PRF) and project success (PRS) (H9). The result showed that there was a significant relationship between project factors (PRF) and project success (PRS) in the absence of leadership styles (LDS), with the standardised total effect of 0.207 and the p-value of 0.026. Thus, the total effect of project factors (PRF) as IV on project success (PRS) as DV without the inclusion of leadership styles (LDS) as M was statistically significant at 0.05 level. These results indicated that leadership styles (LDS) fully mediates the relationship between project factors (PRF) and project success (PRS). This study suggests that leadership styles (LDS) play an important function in increasing the relationship between the project factors (PRF) and project success (PRS). In summary, the result of this hypothesis indicated that the leadership styles of the project manager are a driving force for enhancing the relationship between project factors (PRF) and project success (PRS).

5.4.10 Leadership Styles (LDS) Mediates the Relationship between Project Team Factors (PTF) and Project Success (PRS)

In the proposed model, this researcher hypothesised that leadership styles (LDS) will mediate the relationship between project team factors (PTF) and project success (PRS) H10. The result showed that there was a significant relationship between project team factors (PTF) and project success (PRS) in the absence of leadership styles (LDS), with the standardised total effect of 0.234 and the p-value of 0.008. Therefore, these results indicated that leadership styles (LDS) cannot mediate the relationship between project team factors (PTF) and project success (PRS). The phenomenon rejected the

hypothesis H10. The most likely explanation for this inconsistent result may lie in the nature of the factors classification and may be because of the different type of respondent. It should be noted that previous studies have mainly been targeting top management as responded, while this research has included team members as responded which may give a negative result. Therefore, it can reasonably be concluded that leadership styles (LDS) cannot mediate the relationship between project team factors (PTF) and project success (PRS).

Overall, with the strongest effects on project success, the results from the study showed that the project manager's adherence to critical success factors and the application of transformational and transactional leadership styles can give the project manager the highest likelihood to achieving project success and to acquiring or maintaining successful project performances. The research results also showed that the highly successfully project managers were also highly transformational with their leadership style, and then followed by those who practised transactional leadership style. These findings are theoretically similar to the research findings reported by Bond (2015), Kalu et al. (2013), Khan et al. (2014), and Morgan and Tanya L (2012) about the relationship between transformational, transactional, and passive/avoidant leadership styles, and performances in business units, however, the current study provides research findings and results in the context of the project managers' leadership styles and as it relates specifically to project success. Overall, the study provides strong evidence that leadership style can affect the project success positively or negatively.

5.5   Implications of the Study Results

5.5.1   Organisational Factors and Leadership Styles

This study has provided useful information and valuable insights of organisational factors and their positive impact on leadership style to deliver a successful project. This is particularly true when it comes to top management support as they provide the necessary resources and authority for project leaders to deliver a successful project. This impact can be increased by leadership style type, meaning that proper styles of leadership help to increase the efficiency of project success. This is associated with clients' involvement and top management support. When the leader receives support from top management, the leader will use the resources, authority, and power to boost the rate of successful projects.

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Since the leadership style is the relatively consistent pattern of behaviour that characterises a leader the organisations need effective leaders who understand the complexities of the projects' different leadership styles may affect organisational effectiveness or performance. The leader's performance on the project is affected by the factors related to the organisation. Leaders would be able to identify and eliminate the factors that have a negative effect on their performance. Similarly, leaders who perceive themselves as "marketers" consult their clients often and arrange meetings where team members participate to identify clients' requirements.

These activities result in the client's acceptance of the project outcome, which is then perceived as a success. This study shows that client's involvement and top management support represent a first step towards understanding the effect of using a proper leadership style to increase the rate of project success.

This research can be expanded in a variety of ways, locally and globally. It would be important to study the effect of using transactional and transformation styles among project leaders in different projects from different cultures within the Middle East.

5.5.2 Project Factors and Leadership Styles

This study suggests that to meet the mission and goals of the project it needs skilled leaders at the supervisory, management, and executive levels. In this research, it can be seen clearly that project leaders among the Yemeni telecommunication industries have defined and communicated expectations, roles, and responsibilities to employees, provide resources for employee development, and recognise employee accomplishments. Those with strong leadership skills inspire employees to meet the mission and goals of the project. Similarly, leadership style is a critical factor that affects project planning and scheduling. Thus, effective planning and scheduling are not factors but immediate effects of factors related to a project manager, such as leadership skills, styles, and technical background. This study asserted that the proper leadership style can act as an instrumental link to the project mission and goals. The leaders among telecommunication industries in Yemen have proved that their skills have simplified the scheduling complexity and deliver a successful project.

5.5.3 Organisational Factors and Project Success

This study attempted to minimise the paucity of the studies in the domain of client involvement and top management support for delivering a successful project. This study confirmed that top management support can be viewed in several forms such as helping teams in dealing with hurdles, exhibiting commitment to work, and encouraging subordinates. This study also asserted that top management support results in availability of financial resources, allocation of human and other physical resources, and also refers to the delegation of necessary power to project leaders and project team for successful completion of projects. Moreover, top management support is important for project success. Similarly, this study confirmed that client consultation and client acceptance have a direct relationship to the project success. The research also stresses the importance for both project team and clients to perform regular assessments to determine the "health" of the project and to involve team members in early planning and conceptual meetings. Doing so reinforces the goals of clients in the mind of the project team and obtains client's perceptions on the ability of the project to satisfy their expectation besides influencing team members to achieve a common project goal.

5.5.4 Project Factors and Project Success

This study has provided useful information and valuable insights into the relationship between project factors and project success. However, this study reveals a negative relationship between project mission, project plane/schedule, and project success but this inconsistent result may explain that these factors can be neglected if the other factors such as organisational factor and project team factor are implemented properly. This study also recommends that the plan, or schedule, should be prepared as early as possible so that can be effect the project success positively, Moreover, the plan should be prepared with as much detail as possible, including during the design process and throughout its phases. Additionally, the researcher recommends that the detail required should include individual actions for project implementation, the party responsible for each action (if known), and the technical standard required. The plan should be realistic and should identify the appropriate workload for the project team.

5.5.5 Project Team Factors and Leadership Styles

This study suggested the project team factor as another important determinant of project success. The thesis supports that the project team qualification and skills are fundamental elements for project success. The motivation of the project team members

has also been identified as an element contributing to project success. It can be seen clearly that the motivation has a positive impact on project implementation. It allows creating a favourable environment and promotes the team members' commitment. However, the explanations provided by various respondents alluded to the existence of other factors related to the team member's project that must be considered.

The respondents emphasised the perfect knowledge of the project by the team members. They should clearly know the project objectives and its long term vision in promoting the local development. The existence of synergy between the different members is identified as an element which can contribute to manage the project successfully.

Results revealed that the existence of this synergy among the project team creates a dynamic and favourable environment, where everyone cooperates and contributes to the project management success. This study found that there is a strong positive relationship between project team factor and project success. In all projects, almost all activities are dependent on human resources. In other words, it is fast becoming accepted wisdom that it is people who deliver projects and indeed people, who are directly involved in a project, facilitate achieving project goals and consequently "project success". A project team and its members are a key part of the human resource list of a project. Different researchers have introduced some project success factors, which are all related to having a competent project team.

5.5.6 Leadership Styles and Project Success

The results from the study revealed that there is a positive relationship between project manager's leadership styles and project success in terms of transformational and transactional leadership styles. This finding can provide organisations and their leaders and managers with the necessary tools to evaluate project success and to take the right types of proactive and corrective actions in terms of providing training programmes for their project managers, as needed, in order improve project success. Specifically, leaders and managers can be proactive about the improvement of project success by providing project managers with adequate and necessary transformational leadership and critical success factors training programmes to improve and maintain consistent project successes.

The significance of this study is that it contributes to more in depth and better understanding about the specific relationship between project managers' leadership

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styles and CSFs in association to project success. As attested by Thomas and Mullaly (2007), organisations investing in project management need to be assured of a concrete return from their investment. This study is important because it sheds light on key innovative leadership and management strategies for the improvement of project success rates across various organisations, and it can help to generate significant value based on the analyses gathered from the study. In addition, the findings from this study can contribute to the educational training programmes for current and future project managers. Given that the results from the study provides evidence that leadership styles and critical success factors do impact project success, this information can aid in the improvement of business practices, training programmes, and organisational policies that can influence project success rates across various organisations and business industries.

Based on the research findings, project managers should be informed and made aware of the possible positive effects of transformational and transactional leadership styles, as it relates to project success. In addition, the findings from this study can aid organisations in decision-making as it relates to investing in the necessary leadership and managerial training programmes that will improve the practice of transformational leadership and the adherence or practice of CSFs in order to improve project success across the organisation. Thus, the findings from the study contributed to the knowledge base of organisation and management as it explored the identified independent variables and reported on the empirical evidences that explain the relationship between the project managers' leadership styles and critical success factors in relation to project success. In addition, the results of the study contribute significantly to the understanding of effective strategies for the improvement of project success rate, provide justification for improved training programmes for project managers in terms of leadership and managerial training, and can serve as a base for further study.

5.5.7 Leadership Styles Mediate the Relationship Between Organisational Factors and Project Success.

This study provided an integrated model for achieving a successful project, which can be also applied for explaining other factors that increase the rate of project success. The significance of this study is that it contributes to more in depth and better understanding about the mediating role of leadership styles between organisational factors (top management support, client consultation, and client acceptance) and project

success. This study showed that leadership style is the relatively consistent pattern of behaviour that characterises a leader the organisations need effective leaders who understand the complexities of the projects. Different leadership styles may affect organisational effectiveness or performance. This study recommends that type of leadership style and client's involvement is very important to achieve and deliver a successful project. Industries should not ignore the presence of the clients due to the time of processing the project.

5.5.8 Leadership Styles Mediate the Relationship Between Project Factors and Project Success.

This study provided an integrated model for achieving a successful project, which can be also applied for explaining other factors that increase the rate of project success. The significance of this study is that it contributes to more in depth and better understanding about the mediating role of leadership styles between project factors (project mission and project plan/schedule) and project success. This study showed that leadership style is a critical factor that affects project planning and scheduling. Different leadership styles may affect project planning and scheduling which therefore effect the project success comprehensively either positively or negatively. Private and public industries in Yemen should adopt this model and implement it practically to enhance and increase the success rate of their projects.

5.5.9 Leadership Styles Mediate the Relationship Between Project Team Factors and Project Success.

This study emphasised that leadership styles of the project manager is not sufficient to increase the project team actions to boost the rate for the project to be succeed.it has been noted that a variety of leadership styles that may be applicable for dealing with the many challenges faced by project management. However, a leader is sensitive to the needs of people and what followers need to be exceptional employees but this study show that a team does not require any leadership style to be implemented by the project leader in order to function effectively. All in all, industries should be aware that even though the leadership styles do not play an important role to increase the relationship between project team factor (personnel, communication, trouble shooting, technical task, monitoring, and feedback) and project success, there is still a need for expert project managers to be responsible for leading the project team towards achieving the desired outcome of the project.

5.6   Contributions

This research has several contributions to the Yemeni telecommunications industries, some of which are theoretical while others are practical.

5.6.1   Theoretical Contributions:

With limited theory on project management in the Yemeni telecommunications industry, the research has successfully shown the relationship between different variables that play major roles in project success. The relationship of critical success factors to the leadership styles and project success is important and a major contribution to the existing research on the subject. The use of empirical data in testing the hypothesis is important for telecommunication staff who can seek to look for major differences between different regions as well as different telecommunication industries. The research is also important for Yemeni telecommunication industries that have never assessed the different variables that affect their projects success. Understanding such factors as top management support and leadership styles would enlighten them in making decisions and improving in future in regards to the implementation of project management throughout the industry.

5.6.2   Practical Contributions:

It was evident that different factors were being employed by the four telecommunication industries in achieving project success. All the departments in the telecommunication industry could use the research in understanding and applying the knowledge on improving and delivering successful projects. Thus, the findings from the study contributed to the knowledge base of organisation and management as it explored the identified independent variables and reported on the empirical evidences that explain the relationship between the project managers' leadership styles and critical success factors in relation to project success. In addition, the results of the study contribute significantly to the understanding of effective strategies for the improvement of project success rate, provide justification for improved training programmes for project managers in terms of leadership and managerial training, and can serve as a base for further research study. In understanding this, the top management could employ appropriate strategies in order to ensure that the variables identified in the study are adopted and improved for maximum results.

5.7   Limitations

One of the limitations previously mentioned in Chapter 1 was that generalisability can be affected if the desired sample size was not reached. However, this limitation was resolved in that there were sufficient sample responses for the study because the researcher acquired 250 completed survey responses for the study. Based on the selected online recruitment and data collection procedures, the study was limited only to project managers, head of departments, and head of units who had online access to computer technology and email.

The confronted some difficulties in getting permission or distribute the questionnaire in some utilities due to the under estimator for the academic research. However, the study succeeded in distributing the questionnaire in these utilities by using personal communication and permissions from the top management in these utilities. The study planned to collect the data using both qualitative and quantitative methods so that the data gathered could have been more varied and rich to enable the researcher to provide qualitative explanations for the impact of leadership styles on project success in the private sector. However, due to the current situation in Yemen, such approach was not feasible. In other words, the conflict that currently exists in Yemen prevented the researcher from conducting interviews with the target sample (top management). However, the study succeeded in obtaining the valid finding by using one method which is quantitative methods to achieve the study goals.

5.8   Recommendations for Further Research

This study investigated the relationship between the project manager's leadership style, critical success factors, and project success as perceived and reported by the project managers. Based on the research results and findings acquired from the study, it is recommended that further research can be conducted on the relationship between project manager's leadership styles as mediator, critical success factors, and project success, but with other types of leadership styles such as Laissez-faire Leadership style with a larger sample size. Moreover, given that this study was conducted with project managers based only in Yemen, a similar study can be conducted with project managers from various countries to assess whether there are variations in terms of the countries, ethnicities, or cultures of the project managers.

In addition, this study used a quantitative method for collecting the data and could not collect qualitative data due to the conflict between the political parties and the

civil war, which prevented this study from conducting the necessary interviews with the relevant individuals. Thus, future studies could consider employing qualitative methodology to gather qualitative information on project management. The researcher suggests that with the applications of observation or by interview, the qualities of leadership styles practised by the project manager can be evaluated as well as the adherence to critical success factors, and then the resulting project success or project performance acquired by the project manager can be assessed, in order to further examine the relationship with project success. This study emphasised the importance of team communication, trust, and commitment for effective teamwork and project team performance. Another methodological approach for future study can involve acquiring the assessments from the project team to evaluate project success.

5.9   Conclusion

Overall, the results from the study showed strong support for the relationship between transformational and transactional leadership styles, critical success factors, and project success. In addition, the highest effect on project success was due to the project manager's adherence to critical success factors, which provided strong support for the use and application of the Project Implementation Profile (PIP) in order to effectively and practically assess projects and to make improvements on the projects wherever there are identified weak areas based on the assessment. The results from the study showed that it is highly beneficial and effective for project managers to acquire transformational and transactional leadership training programmes.

The results from the study confirmed that it is important for organisations to champion and align with appropriate leadership and management styles that can contribute to the improvement of project success. This study adds to the body of knowledge in the areas covering the relationship between project managers' leadership styles, critical success factors, and project success. The study also provides more in depth understanding on the topics of project management, leadership styles, and project success. This study provides valuable insights on how project managers and organisations can take proactive steps to improve project success rates. This study also contributes to the body of knowledge in regards to providing tools and concepts for educating current and future project managers about effective methods to improve their perspective probability or chances of achieving project success.

Based on the study's findings, leadership styles and critical success factors significantly affect project success, and it is recommended that organisations provide the necessary trainings to their leaders and managers, and that they recruit managers with appropriate leadership and management styles that will contribute to effective leadership, extra effort, satisfaction and project success, which can lead organisations to acquiring and maintaining consistently high project performances and project success.

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All exogenous and endogenous variables together with their relative estimation errors. (65 items)
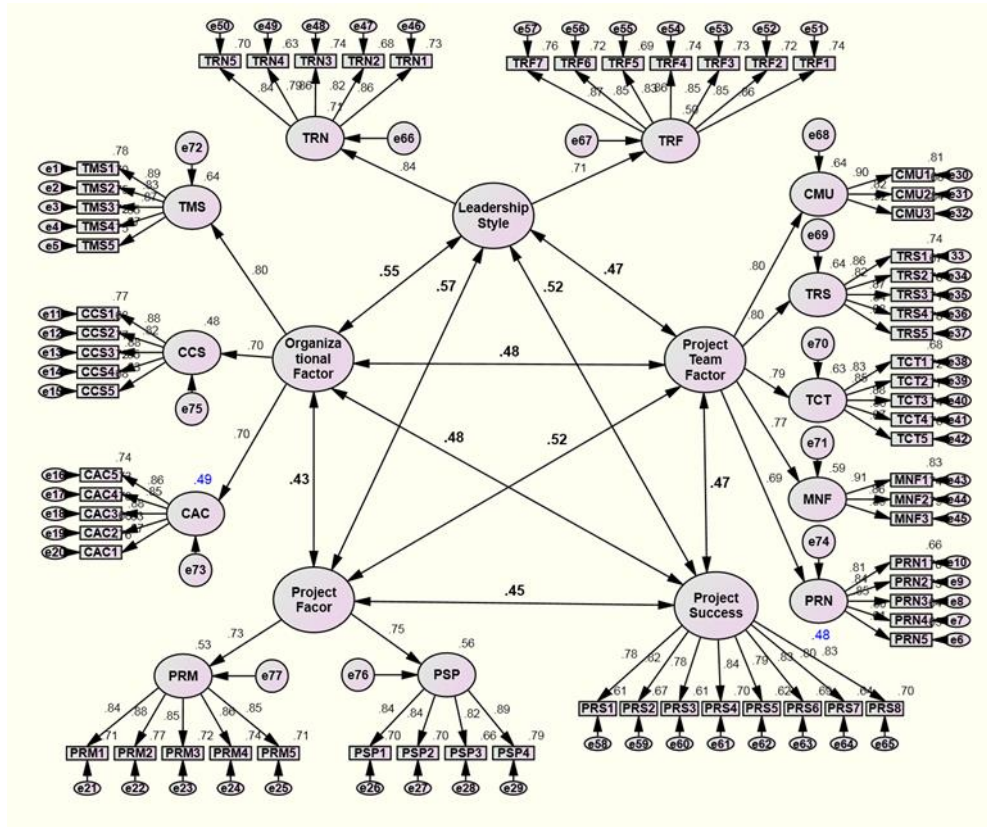

Figure A-1:xogenous and endogenous variables with their relative estimation errors

APPENDIX B

Observations farthest from the centroid (Mahalanobis distance)

Number of variables in the model = 159

Max (D^2) / (no. variables) = 93.587/ 159 = 0.588which is < 3.5 → No Multivariate Outliers

Table B-1:

Observations farthest from the centroid (Mahalanobis distance)

Observation number	Mahalanobis d-squared	p1	p2
234	93.587	.012	.946
237	88.335	.029	.994
226	87.476	.033	.990
206	87.466	.033	.967
243	86.002	.042	.980
44	85.526	.045	.970
48	85.395	.046	.942
12	85.365	.046	.892
240	85.319	.046	.822
201	82.693	.068	.979
238	81.734	.079	.989
101	81.670	.079	.980
199	81.529	.081	.970
60	81.424	.082	.953
65	81.344	.083	.929
236	81.317	.083	.891
207	80.606	.092	.926
105	80.577	.092	.890
197	79.407	.108	.963
250	79.166	.111	.958
235	78.771	.117	.963
248	78.727	.118	.946
205	78.549	.121	.936
118	78.399	.123	.922
80	78.232	.126	.909
223	77.916	.131	.914
227	77.851	.132	.888
148	77.648	.135	.880
228	77.266	.142	.899
217	76.980	.147	.904
109	76.948	.147	.873
39	76.946	.147	.831
92	76.339	.159	.896

APPENDIX C
DATA SCREENING

Data screening is necessary in ensuring that data are correctly entered, free from missing values, outliers and to confirm that the distribution of variables are normal. APPENDIX A depicts all the exogenous and endogenous variables together with their relative estimation errors in this study.

C.1 Replacing Missing Values

Missing data happens when respondents failed to answer one or more items in the survey. To ensure that the data was free from missing values, frequency and missing value analysis were conducted for each measurement item in this study. The screening results of the data showed that there was a minimal amount of missing data which was replaced by using the variable median responses for each measurement item.

C.2 Removing Outliers

The treatment of outliers is an imperative step in the data screening method. Outliers refer to observations with a unique combination of characteristics identifiable as distinctly different from the other observations (Hair et al. 1998). Outliers were identified using univariate (histograms, box-plots and standardised Z score) and multivariate detections (Mahalanobis D2 distance). Checking for outliers is important as outliers could affect the normality of the data which could then distort the statistical results (Hair et al. 1998; Tabachnick and Fidell 2001)

C.3 Univariate Outliers

For univariate detection, besides examining histograms and box-plots, each variable was examined for the standardised (z) score. According to Hair (1998) for large sample size above 200, Absolut (z) > 4 is evidenced of an extreme observation. The standardised (z) scores of the 250 cases are summarised in Table C-1 for the items in each constructs.

Table C-1:

Result of Univariate Outlier Based on Standardised values

Construct	Item	Standardised Value (Z-Score)	
		Lower Bound	Upper Bound
Top Management Support (TMS)	TMS1	-2.047	1.260
	TMS2	-2.176	1.328
	TMS3	-2.137	1.245
	TMS4	-2.177	1.427
	TMS5	-2.083	1.343
Client Consultation (CCS)	CCS1	-2.076	1.566
	CCS2	-1.966	1.471
	CCS3	-1.960	1.467
	CCS4	-2.023	1.526
	CCS5	-2.057	1.527
Client Acceptance (CAC)	CAC1	-2.048	1.365
	CAC2	-2.037	1.463
	CAC3	-2.030	1.353
	CAC4	-2.087	1.374
	CAC5	-2.041	1.442
Project Mission (PRM)	PRM1	-2.090	1.452
	PRM2	-1.996	1.404
	PRM3	-2.260	1.532
	PRM4	-1.985	1.408
	PRM5	-2.227	1.548
Project Schedule /Plan (PSP)	PSP1	-2.136	1.472
	PSP2	-2.173	1.355
	PSP3	-2.119	1.395
	PSP4	-2.083	1.332
Communication (CMU)	CMU1	-2.390	1.270
	CMU2	-2.433	1.270
	CMU3	-2.351	1.222
Trouble Shooting (TRS)	TRS1	-2.391	1.447
	TRS2	-2.269	1.500
	TRS3	-2.218	1.491
	TRS4	-2.375	1.630
	TRS5	-2.142	1.404
Technical Task (TCT)	TCT1	-2.337	1.432
	TCT2	-2.400	1.515
	TCT3	-2.256	1.412
	TCT4	-2.298	1.356
	TCT5	-2.137	1.326
Monitoring and Feedback (MNF)	MNF1	-2.033	1.295
	MNF2	-2.025	1.373
	MNF3	-2.118	1.314
Personnel (PRN)	PRN1	-2.313	1.581
	PRN2	-2.208	1.490
	PRN3	-2.223	1.501
	PRN4	-2.299	1.585
	PRN5	-2.304	1.669
Transactional (TRN)	TRN1	-2.299	1.310
	TRN2	-2.388	1.292
	TRN3	-2.469	1.377
	TRN4	-2.562	1.435
	TRN5	-2.362	1.369
Transformational (TRF)	TRF1	-2.390	1.356
	TRF2	-2.310	1.260
	TRF3	-2.574	1.362
	TRF4	-2.320	1.244

	TRF5	-2.460	1.336
	TRF6	-2.333	1.335
	TRF7	-2.376	1.291
Project Success (PRS)	PRS1	-2.751	1.343
	PRS2	-2.434	1.232
	PRS3	-2.724	1.224
	PRS4	-2.510	1.253
	PRS5	-2.786	1.246
	PRS6	-2.271	1.207
	PRS7	-2.553	1.229
	PRS8	-2.482	1.222

As shown in Table C-2, the results indicated that the standardised (z) scores of the cases for the research variables ranged from -2.78to 1.669, indicating that none of the variable exceeded the threshold of ±4. Thus there is no any univariate outlier among the initial 250 cases.

C.4 Multivariate Outliers

The data were further examined by applying multivariate detection. Mahalanobis distance has succeeded in identifying the multivariate outliers. Mahalanobis D-squared distances are generated for each case using AMOS regression with case number as the dependent variable and all non-demographic measures as independent variables. High D2 / df value greater than 3.5 represents potential multivariate outlier (Hair et al. 1998). As depict in APPENDIX B, the results showed that the largest D2 value is 93.587 (belong to case 234). Regarding the 159 exogenous and endogenous variables together with their relative estimation errors in this study (APPENDIX A), the maximum D2 / df was equal to 0.588 (93.587 / 159) which was far below the cut-off 3.5. Therefore, it could be concluded that examination of D2 values for all cases did not indicate the presence of multivariate outliers, meaning all observations were retained for analysis

C.5 Assessment of the Data Normality

The normality test was conducted as the main pre-assumption of maximum likelihood estimation to assess the normal distribution of the data of constructs. Table C.2 demonstrates the results of normality test for all 65 items in the model.

Table C-2:
Assessment of Normality for Measurement Model

Construct	Item	Skewness	c.r.	Kurtosis	c.r.	Distribution Statues
Top Management Support (TMS)	TMS1	-0.414	-	-0.861	-	Normal
	TMS2	-0.375	-	-0.745	-	Normal
	TMS3	-0.41	-	-0.816	-	Normal
	TMS4	-0.273	-	-0.677	-	Normal
	TMS5	-0.283	-	-0.866	-	Normal
Client Consultation (CCS)	CCS1	-0.188	-	-0.755	-	Normal
	CCS2	-0.131	-	-0.9	-	Normal
	CCS3	-0.195	-	-0.858	-	Normal
	CCS4	-0.195	-	-0.665	-	Normal
	CCS5	-0.202	-	-0.76	-	Normal
Client Acceptance (CAC)	CAC1	-0.321	-	-0.844	-	Normal
	CAC2	-0.326	-	-0.678	-	Normal
	CAC3	-0.345	-	-0.75	-2.42	Normal
	CAC4	-0.286	-	-0.844	-	Normal
	CAC5	-0.205	-	-0.832	-	Normal
Project Mission (PRM)	PRM1	-0.287	-	-0.634	-	Normal
	PRM2	-0.152	-0.98	-0.874	-	Normal
	PRM3	-0.176	-	-0.623	-2.01	Normal
	PRM4	-0.24	-	-0.945	-3.05	Normal
	PRM5	-0.127	-	-0.888	-	Normal
Project Schedule /Plan (PSP)	PSP1	-0.214	-1.38	-0.724	-	Normal
	PSP2	-0.283	-	-0.787	-	Normal
	PSP3	-0.363	-	-0.672	-2.17	Normal
	PSP4	-0.126	-	-1.149	-	Normal
Communication (CMU)	CMU1	-0.426	-	-0.755	-	Normal
	CMU2	-0.467	-	-0.528	-	Normal
	CMU3	-0.461	-	-0.642	-	Normal
Trouble Shooting (TRS)	TRS1	-0.299	-	-0.523	-	Normal
	TRS2	-0.203	-	-0.63	-	Normal
	TRS3	-0.191	-	-0.733	-	Normal
	TRS4	-0.19	-	-0.431	-	Normal
	TRS5	-0.043	-	-0.934	-	Normal
Technical Task (TCT)	TCT1	-0.2	-	-0.853	-	Normal
	TCT2	-0.244	-	-0.637	-	Normal
	TCT3	-0.409	-	-0.466	-	Normal
	TCT4	-0.372	-	-0.538	-	Normal
	TCT5	-0.259	-1.67	-0.817	-	Normal
Monitoring and Feedback (MNF)	MNF1	-0.431	-	-0.743	-	Normal
	MNF2	-0.32	-	-0.795	-	Normal
	MNF3	-0.365	-	-0.769	-	Normal
Personnel (PRN)	PRN1	-0.177	-1.14	-0.66	-2.13	Normal
	PRN2	-0.149	-	-0.807	-	Normal
	PRN3	-0.312	-	-0.406	-1.31	Normal
	PRN4	-0.251	-	-0.467	-	Normal
	PRN5	-0.175	-	-0.468	-1.51	Normal
Transactional (TRN)	TRN1	-0.529	-	-0.351	-	Normal
	TRN2	-0.332	-	-0.709	-2.29	Normal
	TRN3	-0.461	-	-0.398	-	Normal
	TRN4	-0.417	-	-0.389	-	Normal
	TRN5	-0.397	-2.56	-0.543	-	Normal
Transformational (TRF)	TRF1	-0.404	-	-0.643	-	Normal
	TRF2	-0.427	-	-0.575	-	Normal
	TRF3	-0.535	-	-0.177	-	Normal
	TRF4	-0.611	-	-0.32	-	Normal
	TRF5	-0.409	-	-0.535	-	Normal
	TRF6	-0.383	-	-0.686	-	Normal

	TRF7	-0.478	-	-0.475	-	Normal
Project Success	PRS1	-0.405	-	-0.382	-	Normal
(PRS)	PRS2	-0.365	-	-0.821	-2.65	Normal
	PRS3	-0.644	-	0.157	0.506	Normal
	PRS4	-0.595	-	-0.336	-	Normal
	PRS5	-0.479	-	-0.175	-	Normal
	PRS6	-0.537	-	-0.592	-	Normal
	PRS7	-0.523	-	-0.485	-	Normal
	PRS8	-0.642	-	-0.232	-0.75	Normal

The result indicated that the skew and kurtosis of all 65 items were laid between ±2 and ±7 respectively. Therefore, it can be concluded that the data set of all items were well-modelled by a normal distribution. As shown in Table C.2, the skew ranged from -0.644 to -0.043 and the kurtosis ranged from -1.149 to 0.157

C.6 Measurement Model (CFA) – Stage 1 of SEM

Operationalisation of constructs is a very important step (Hair, 2006) in the process of ensuring accuracy. Researchers have a choice of several established scales in attempting to ensure theoretical accuracy. However, despite the availability of a varied number of scales, researchers are often plagued by the problem of a lack of established scales and are thus driven to developing new measurement scales or greatly modifying existing scales to accommodate new context. Given all these considerations, the basis for the SEM analysis is in the selection of items to measure the constructs (Hair et al., 2006).

C.7 An Overview to SEM

SEM analyses encompass two major stages, the **measurement model** or confirmatory factor analysis (CFA) and the **structural equation model**. The measurement model (CFA model) is used to find out the links between manifest or observed and latent or unobserved variables. The measurement model could therefore be said to define the manner in which latent or unobserved variables are assessed in terms of the manifest variables (Ho, 2006). As suggested by Hairet al. (2006), individual CFA was performed for each of the constructs followed by the measurement model of study which provided specifics and evaluation based on the GOF indices and evidence of construct validity. This study employed the **Maximum Likelihood Estimation (MLE)** as the extraction technique. This is one of the most widely used estimation methods that allow testing of individual direct effects and error term correlation.

The main assumption in using MLE is the **normal distribution** of the data. As a general rule of thumb, the data may be assumed to be normally distributed if skew and kurtosis is within the range of -1 to +1, or -2 to +2 or even 3 (Schumacker and Lomax 2004). Byrne (2013) and Kline (2011) suggested using a cut-off point of less than **7** as an acceptable value for the kurtosis. She added that the data which is skewed within the range of **-2 to +2** could be considered as being normally distributed.

As mentioned earlier, one of the main advantages of the SEM is its ability to assess construct validity of measurements. In this instance, construct validity refers to the accuracy of measurements (Hairet al., 2006). In SEM analyses, construct validity is assessed by two main components, convergence validity and discriminant validity. **Convergent validity** refers to the similarity in degree of variance between the items which are the indicators of a specific construct. The convergent validity could be measured by considering the size of factor loading (standardised regression weights), Average Variance Extracted (AVE), and construct reliability (CR) among sets of items in the construct. The factor loading estimates with values **0.5** or greater and extracted average variance of **0.5** or higher show adequate convergence among the items in the construct (Hairet al., 2006). The average variance extracted can be calculated by dividing the sum square of the standardised factor loading by the factor loading number. The construct reliability (CR) should be **0.6** or higher to show adequate internal consistency (Bagozzi and Yi., 1988). The CR is computed from the square sum of factor loading and sum of error variance terms for a construct. CR can be calculated using the following formula (Hairet al., 2006, p. 777). The measurement items that represent each individual variable should also be verified through internal reliability analysis. Reliability is the degree to which a measure is error-free. To ensure that the items produce a reliable scale, Cronbach's alpha coefficient of internal consistency should be examined. The higher value of Cronbach's alpha refers to higher reliability, with a range from 0 to 1. Nunnally and Bernstein suggest that for a reliable scale, Cronbach's alpha should not be lower than **0.7** (Nunnally and Bernstein, 1994).

This study comprised four individual CFA models – as there are four-second order constructs - and an overall measurement model upon the individual ones. The next sub-sections discuss the development of each measurement model. The results of testing the unidimensionality of each construct are presented, using AMOS 18.0.

APPENDIX D

PHD DISSERTATION

MEDIATING ROLE OF LEADERSHIP STYLE BETWEEN CRITICAL SUCCESS FACTORS AND project success: A CASE OF YEMEN'S TELECOMMUNICATION industries.

Dear Respondent, this survey is being carried out as part of my PhD dissertation to identify the critical success factors for project success. Please answer the questions freely. Your privacy will be upheld in the information you provide. I hope you find completing the questionnaire enjoyable, and thank you for taking the time to help.

MEDIATING ROLE OF LEADERSHIP STYLE BETWEEN CRITICAL SUCCESS FACTORS AND project success: A CASE OF YEMEN'S TELECOMMUNICATION industries.

If you have any queries or would like further information about this research, please contact me via:

Phone number: 006-01121149096

Email: majedaldubai@gmail.com

Thank you for your cooperation

Your sincerely

Maged

* Required

Part 1: Personal Information (Please choose from the list)

Gender *

- o ☐ Male
- o ☐ female

Age *

- o ☐ 18 - 24
- o ☐ 25 - 34
- o ☐ 35 - 44

- ☐ 45 and over

Marital Status *

- ☐ Married
- ☐ Single

Major

- ☐ Business
- ☐ Social science
- ☐ IT
- ☐ Engineering
- ☐ Applied science
- ☐ Others

Highest level of education *

- ☐ High School
- ☐ Diploma
- ☐ Bachelor Degree
- ☐ Master Degree
- ☐ Doctorate
- ☐ Professional Certificates

Working Experience *

- ☐ Less than 5 years
- ☐ 5 - 10 years
- ☐ 11 - 15 years
- ☐ More than 16 years

Monthly Income *

- ☐ Less than USD 500
- ☐ USD 500 - USD 1,000
- ☐ USD 1,000 - USD 5,000

- o ☐ More than USD 5,000

Departments *

- o ☐ Finance

- o ☐ Administration

- o ☐ Operations

- o ☐ HR

- o ☐ Others

Position *

- o ☐ Top Management

- o ☐ Senior Management

- o ☐ Middle Management

- o ☐ Supervisory

- o ☐ Subordinate

Part 2: Please indicate your level of disagreement/ agreement with the following: using a rating scale of 1 to 5 (1=Strongly Disagree, 2=Disagree, 3= Neither disagree nor Agree,4= Agree, 5 = Strongly Agree)

Statement of project success-

Q1 *

The project has completed on time

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q2 *

The project has completed according to the budget allocated.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q3 *

The project was used by its intended clients.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q4 *

The project that has been developed works

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q5 *

I am satisfied with the process by which the project was implemented.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q6 *

Important clients, directly affected by the project, made use of it.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q7 *

The project has made a positive impact on those who make use of it.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q8 *

The results of the project represent a definite improvement in performance over the way clients used to perform these activities.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Project Mission-

Q9 *

The goals of the project were in line with the general goals of the organisation.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q10 *

The basic goals of the project were made clear to the project team.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q11 *

The results of the project benefited the parent organisation.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q12 *

I am enthusiastic/confidence about the chances for success of the project.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q13 *

I was aware of and can identify the beneficial consequences to the organisation of the success of the project.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Top Management Support –

Q14 *

Upper management was responsive to the requests for additional resources, when the need arises.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q15 *

Upper management shared responsibilities with project team for ensuring the project's success.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q16 *

I agreed with upper management on the degree of my authority and responsibility for the project.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q17 *

Upper management supported me in a crisis.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q18 *

Upper management has granted us the necessary authority and has supported our decisions concerning the project.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Project Schedule / Plan –

Q19 *

We know which activities contain slack time of slack resources which can be utilised in other area during emergencies.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q20 *

There was a detailed plan (including time, schedules, milestones, manpower requirements, etc.) for the completion of the project.

	1	2	3	4	5	
Strongly disagree	◉	○	○	○	○	Strongly agree

Q21 *

There was a detailed budget for the project.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q22 *

Key personnel needs (who, when) were specified in the project plan.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Client Consultation –

Q23 *

The clients were given the opportunity to provide input early in the project development stage.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q24 *

The client (intended users) was kept informed of the project's progress.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q25

The value of the project has been discussed with the eventual clients.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q26 *

The limitations of the project have been discussed with the clients (what the project is not designed to do).

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q27 *

The clients were told whether or not their input was assimilated into the project plan.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Personnel –

Q28 *

Project team personnel understood their role on the project team.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q29 *

There was sufficient manpower to complete the project.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q30 *

The personnel on the project team understood how their performance will be evaluated.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q31 *

Job description for team members have been written and distributed and were understood.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q32 *

Adequate technical and /or managerial training (and time for training) was available for members of the project team.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Transactional Leadership style-

Q33 *

The project leader makes clear expectation.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q34 *

The project leader will take action before problems are chronic.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q35 *

The project leader tells us standards to carry out work.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q36 *

The project leader works out agreements with me.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q37 *

The project leader Monitors my performance and keeps track of mistake.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Transformational Leadership Style-

Q38 *

The project leader spends time teaching and coaching.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q39 *

The project leader considers moral and ethical consequences.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q40 *

The project leader listens to my concerns.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q41 *

The project leader encourages me to perform.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q42 *

The project leader Increases my motivation.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q43 *

The project leader encourages me to think more creatively.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q44 *

The project leader sets challenging standards

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Technical Tasks –

Q45 *

Specific project tasks were well managed.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q46 *

The project engineers and other technical people were competent.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q47 *

The technology that is being used to support the project worked well.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q48 *

The appropriate technology (equipment, training programmes, etc.) has been selected for project success.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q49 *

The people implementing the project understood it.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Client Acceptance-

Q50 *

There was adequate documentation of the project to permit easy use by the clients (instructions, et c.).

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q51 *

Potential clients have been contacted about the usefulness of the project.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q52 *

An adequate presentation of the project has been developed for clients.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q53 *

Clients knew who to contact when problems or questions arise.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q54 *

Adequate advanced preparation has been done to determine how best to "sell" the project to clients.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Monitoring and Feedback –

Q55 *

All important aspects of the project were monitored, including measures that will provide a complete picture of the project's progress (adherence to budget and schedule, manpower and equipment utilisation, team morale, etc.)

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q56 *

Regular meetings to monitor project progress and improve the feedback to the project team were conducted.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q57 *

The results of project reviews were regularly shared with all project personnel who have impact upon budget and schedule.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Communications –

Q58 *

The results (decisions made, information received and needed, etc.) of planning meetings were published and distributed to applicable personnel.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q59 *

Individuals/groups supplying input have received feedback on the acceptance or rejection of their input.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q60 *

All groups affected by the project know how to make problems known to the project team.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Trouble Shooting-

Q61 *

The project leader was not hesitant to enlist the aid of personnel not involved in the project in the event of problems.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q62 *

"Brain storming" sessions were held to determine where problems were most likely to occur.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q63 *

In case of project difficulties, project team members knew exactly where to go for assistance.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q64 *

Problems that raised were solved completely.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Q65 *

Immediate action was taken when problems came to the project team's attention.

	1	2	3	4	5	
Strongly disagree	○	○	●	○	○	Strongly agree

Submit