ADDIS ABABA UNIVERSITY
SCHOOL OF COMMERCE
DEPARTMENT OF PROJECT MANAGEMENT

Critical Factors Influencing Project Success: Assessment of Mega Public Construction Projects in Addis Ababa City Administration

By

Wondirad Aschegier Getachew

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Advisor: Dr. Birhanu Denu

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APPROVAL SHEET

SUBMITTED BY: WONDIRAD ASCHEGIER GETACHEW

APPROVED BY THE EXAMINING COMMITTEE

ADVISOR

Name: _____ Signature: _____ Date: _____

INTERNAL EXAMINER

Name: _____ Signature: _____ Date: _____

EXTERNAL EXAMINER

Name: _____Signature: _____ Date: _____

DECLARATION

I, Wondirad Aschegier, declare that the project work titled " Critical Factors Influencing Project Success: Assessment of Mega Public Construction Projects in Addis Ababa City Administration " is the result of my own efforts, and that all sources of materials used in the study have been properly acknowledged. With the exception of the research advisor's advice and suggestions, I have developed this research entirely on my own. It is provided as part of a Master of Art in Project Management degree program.

Name: _____ID:_____Signature:_____Date:_____

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STATEMENT OF CERTIFICATION

This is to confirm that Wondirad Aschegier worked under my supervision on the project " Critical Factors Influencing Project Success: Assessment of Mega Public Construction Projects in Addis Ababa City Administration " This work is original, and it is sufficient for submission as partial fulfillment for a Masters of Art in Project Management degree.

ADVISOR	**SIGNATURE**	**DATE**
_____	_____	_____

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Abstract

The success of project measured with respect to time, budget, scope and quality. Any project to meet its objectives and to become successful different factors were considered and well managed. But success factors of project are specific to each project and determined by its sector, size, ownership, stakeholders etc. Therefore, the general objective of this study was to assess critical success factors of Addis Ababa City Administration Mega Construction projects. In order to meet the objectives of this research, the study adopted quantitative explanatory method and the relationships proposed in the framework were tested using descriptive and inferential research method. The primary data was collected from 81 respondents from the project office by using Likert scale type questionnaire as measuring instrument for collection of the respondents' perception towards the variables and the collected data were analyzed using descriptive statistics, correlational and multiple regression analysis. The major finding of the study indicated that the success factors: project definition, management commitment, team capabilities, stakeholder involvement, quality and risk management, monitoring and control were critical and have significant effects on the success of the project. The study suggested further evaluation of additional factors those affect the success of projects.

Key words: *critical success factors, project success, mega projects,*

CHAPTER ONE

INTRODUCTION

1.1.Background of the study

Typically there is a difference between project success and project management success; the former relates to the achievement or realization of project(company's) goals and objectives, whereas the later relates to the evaluations of traditional measurement factors of project iron triangle: cost, time and quality (Radujkovic, 2017). Cooke-Davies (2002) also distinctively explain project management success as management process that leads to meeting the desired project objectives within specified time and cost, and project success as to what extent that the project delivers the business objectives.

In project management field of study determination of project success factors get back to longer. many researches were done on identification of project success factors but common understanding on critical success factors (CSF) that lead to project success were not made(Pinto & Slevin, 1987 cited in Dakhil, 2013) . Despite of the fact that researches devoted to enormous lists of CSFs, debates are on places in several areas of project management and their critical success factors in several areas (Müller & Jugdev, 2012). A prerequisite to determine critical success factors is to knowing if a project is successful. For the last fifty years project success has been considered and restricted to project cost, time and quality. Critics however argue that these criteria are too limited and therefore suggest alternatives such as satisfactions of stakeholder, organizational goal achievement or environmental safety (Turner and Zolin, 2012).

According to Kerzner and Saladis (2017), in traditional project management clearly understood course of project, well defined scope, agreement of stakeholders on their expectations, and detailed assessment of risk enhance the success of the project. Morris and Hough (1986) introduce safety aspects into project success factors and mentioned four success factors: time, cost and quality and safety. Lately, Radujkovic (2017) incorporated Stakeholder's satisfaction, benefits to project's owner-organization and long-term impacts on project environment as elements of project success factors.

According to Pinto (1986) as cited in Iram et al. (2016) the project management process is complex, usually required extensive and collective attention to a broad aspect of human,

budgetary and technical variables. Furthermore, each project is consists of various critical success factors which determine the success of the projects. If these factors are well organized and managed guarantee the project success (Pinto and Slevin,1987 cited in Radujkovic, 2017), but if these projects success factors are not given the required importance then these factors can lead the whole project to failure (Iram et al., 2016).

The project organization should understand the critical success factors those contribute to success of the project management; and systematically as well as quantitatively assess these critical factors, antedating their possible effects, and finally selecting proper methods to handle an already identified critical success factors (Mobey and Parker, 2002).

The construction industry is a sector of the economy which is responsible for the planning, design, construction, maintenance and eventual demolition of buildings and works. It is essential to a contraction industry that obtaining its inputs and delivering its outputs from and to various sectors of the economy with which it is interrelated and interlinked, often in quite complex ways as a result it is mandatory to identify critical factors for their success (Salleh, 2009). The importance of construction derives from its role in the generation of constructed physical facilities, and in employment, which in turn, play a critical and highly visible role in the process of development of the country.

Construction industries all over the world are susceptible to to various difficulties and challenges (Gale and Fellows, 1990 and Ofori, 1990 cited in Nugroho, 2018). However, the problems facing the construction industry in developing countries are significantly more fundamental. In developing countries, these difficulties and challenges sit alongside the general situation of socioeconomic stress, chronic resource shortages and a general inability to deal with key issues (Salleh, 2009).

In developing countries, the construction industry play crucial role on their economic development through significant contribution to their gross domestic product and creation of job opportunities (Khan, 2008), accounting for about half of the capital formation, and interacting strongly with other sectors of the economy (Hillebrandt, 1985 cited in Dakhil, 2013).

The City Administration of Addis Ababa has approved large amounts of money for the implementation of projects in its development plan. The funds being allocated to seven sectors as

follows: Industry and Trade; Transportation and Communication; Social Services; Public Utilities; Public Buildings; Security and others.

In many Addis Ababa government construction projects it has been noted that poor performance is often interpreted as project failure. Such project failures are commonly due to delay factors where projects are well behind schedule. One of the critical failures faced by government authorities is the frequent and lengthy delay in such projects. It was found that delayed projects accounted for approximately 70% of projects undertaken by the City Administration project coordination office.

1.2.Statement of the problem

A project is described by the Project Management Institute as a temporary effort undertaken to create a product, service or exclusive result. Hence, projects are under take to meet organizational objectives through product and service delivery on time basis (Pereira, 2022). Their temporary nature indicates they have a definitive start and end (PMI, 2017). According to Hartono et al. (2019) project management is essential for both public and private companies because it represents a competitive strategy that aims to attain growing levels of quality and bring added-value to the interests of customers.

Success in project management recognized as an achievement of something desired to be performed in accordance of the plan and it include on time delivery of project, with in predetermined budget as well as compliance with goals and missions of the organization (Joslin and Müller, 2015). According to Nursin and Latief (2018), to determine the success of project performance standard development is mandatory during the course of the project and served as benchmark to compare the result of the project.

According to Moeuf et al. (2019), critical success factor can be used to manage work programs since they represent principal areas that can be under constant attention and careful administration. Hence, a deep understanding of critical success factor allows organizations to assess threats and opportunities, which is indispensable in the development of a firm strategy to achieve project results. Therefore, according to Meredith & Zwikael (2019), the main challenge in contemporary project management is to determine which critical measures can assure the project will be successful for all stakeholders.

In project management there are two viewpoints with respect to project success: the project success factors and the project management success criteria. The project management success criteria are associated with standard measures of cost, time and scope, which are called “iron triangle” and can be taken retrospectively after the completion of the project (Rezvani & Khosravi, 2018). Critical success factors are understood as elements that can be influenced to increase the chances of success/failure of a project (ibid). They focus more specifically on addressing behavioral capabilities of project teams and the satisfaction of customers and stakeholders; and it can be measured before the completion of the project.

In addition, success factors are management system inputs that lead directly or indirectly to project or business success. Nevertheless, the criteria by which a project is considered successful have to be decided in the initial stages of the project to avoid differences emerge among the project teams (Altarawneh & Samadi, 2019). According to Almarri & Boussabaine (2017) success factors are instruments that make it easier to achieve project aims and that critical success factors depend on the type and life cycle of projects. Therefore, critical success factors are used to improve the result of projects and project management.

Researchers suggest that success criteria should be project-specific and therefore determined by stakeholders at the start of each project (Nelson, 2005 and Turner, 2004). This view has considerable merit because of the broad range of project types, project objectives, and other variables that can contribute to project outcomes (Bannerman, 2008). However, there is also a role for a common reference framework to enable project success to be discussed in a uniform way and to provide a standard benchmark by which project outcomes can be compared especially within the same discipline (Pinto and Slevin, 1988a cited in Bannerman, 2008).

Most projects have multiple stakeholders with different views on the project’s purpose and different expectations of what the project must achieve (Lyytinen and Hirschheim, 1987). These stakeholders might include the people who originally identified the need for the project, those who fund the project, and those who stand to benefit from the project, the people who are impacted by the project and its outputs, the project team members, and the people who have to oversee the project (Nugroho, 2018). Each has a vested interest in the project’s outcome, with different expectations and perceptions (ibid).

Hence, this study is supposed to analyze critical success factors of Mega construction projects of Addis Ababa City Administration as mega project refers to range of projects, construction project dictate project type, and public project to describe its objective.

1.3.Objectives of the study

1.3.1. General objective

The general objective of this study is to assess the critical success factors of public mega projects in Addis Ababa City administration.

1.3.2. Specific objectives

The specific objectives of the research are:

- To identify the critical success factors which are most influential in Mega construction projects of Addis Ababa.
- To analyze the relationship between critical success factors and project success for Mega construction projects in Addis Ababa.
- To assess the effects the critical success factor on the success of Mega construction projects in Addis Ababa.

1.4.Research Questions

The main question of the study is what are the critical success factors those affect the successfulness of mega public construction projects in Addis Ababa?

In addition the study is intended to address the following specific questions:

1. What are the critical success factors which are most influential in Mega construction projects of Addis Ababa?
2. Is there a relationship between the identified critical success factors and success of mega construction projects in Addis Ababa?
3. What are the effects of the critical success factor on the success of Mega construction projects in Addis Ababa?

1.5.Significance of the study

The findings of this study will be utilized in both theoretical and practical aspects of project management. The results of this study will identify critical success factors that are considered as important factors to be kept critically into consideration by the project managers and project executives in order to attain the goals and success of the projects in construction projects in Addis Ababa as well as in the whole Ethiopia.

The findings of this research can give benefits to the management in recognizing those success factors that will lead their projects towards success and decrease the maximum chances of failure.

Hence, project managers and executives should promote the use and consideration of critical success factors in Addis Ababa and other related sectors of Ethiopia in order to make the success of the projects are accomplished effectively and efficiently.

1.6.Scope of the study

The construction industry in Ethiopia especially developmental projects had high rate of running over budget and delay those extremely affect their success. However this research is concerning public mega construction projects of Addis Ababa City Administration.

Different scholars suggested and identified various critical success factors to guarantee project success. This study encompasses a list of 10(ten) critical success factors forwarded by Pinto and Slevin (1986).

1.7.Limitation of the study

One of the limitations in this study is ten factors adopted from Slevin and Pinto (1989) as there are other researchers who have given some other variables which need to be studied in further researches.

Another limitation of the study is that the findings of this research might vary by doing research in other cities of Ethiopia; therefore further researches are needed to be conducted in other cities in different situations and different environmental contexts.

Additional limitation is the use of quantitative techniques for this study, it would be better if in further researches the same variables are analyzed by both qualitative and quantitative techniques for data collection and analysis.

1.8.Definition of Terms in the Study

Project is a temporary endeavor undertaken to create a unique product, service, or result" (PMBOK, 2017).

Success factors are "main factors that increase the ability of organization to carry a project through its full implementation" (Constantino et. al., 2015).

Project leadership is a style of behaviour to integrate both the organizational requirements and personal interests in the pursuit of some project objectives (Zulch & Benita 2014, 173).

Strategic planning in the project management defined as development of necessary tools for project management (Kerzner, 2019).

Failed Project is a project with also overrun in schedule, budget, unsatisfactory quality and scope exceeds the acceptable tolerance limit and it cannot be rescued (Alaskar, 2013).

1.9.Structure of the Thesis

The study is made up of five chapters. Chapter One comprises introduction to the study, statement of problem, research questions, research objectives, scope, significance and limitation of the study. The second chapter comprises review of related theoretical and empirical literature. Chapter Three deals with the methodology, research design, sampling techniques, data source &type, and data collection tools. Chapter Four is about data presentation, data analysis and finding of the study. Finally, Chapter Five focuses on the summary of findings, conclusion and recommendation of the study.

CHAPTER TWO

LITRATURE REVIE

2.1. Introduction

This chapter of the paper provided the outline of literature specific to concepts or ideas of critical success factors and the success of a project. The relevant conceptual issues, theoretical, empirical literatures' related to the topic of the study are reviewed and based on the reviewed literature, the selected conceptual framework are also presented on this chapter.

2.2. Theoretical Literature Review

The successes of a project as well as the factors that affect this success are considered in various ways by different project management scholars. There is no unified treatment and definitions of these concepts although there is a consensus about the importance of this aspect for the project management practice.

2.2.1. Project success

According to Radujkovic (2017) project success relates to the achievement of project or company's goals and objectives, while project management success commonly refers to the traditional measurement factors of project triangle, iron triangle or triple restriction: cost, time and quality. As a result project management success associated to meeting the desired objectives within stated time and cost, while project success related to delivery of project the business objectives (Cooke-Davies, 2002). Project success is evaluated in two fields: customer satisfaction and client relationship quality in project management, whereas project management creates tangible and intangible benefits of organization (Bryde and Robinson, 2005).

2.2.2. Definition of Success Factors

Success factors defined as main factors that increase the ability of organization to carry a project through its full implementation. In this regard, project manager must continuously evaluate decisions which were taken during the whole lifecycle of a project, concentrating on risks and possible factors of success, because this will allow the project manager to identify the best possible actions and solutions which could lead a project to success (Aleksejevec, 2020). According to the success factors in the project management can be related to performance of the

project manager, project team members and their capacities, organization as well as the external project environment (Ihuah et al., 2014).

2.2.3. Project Success Factors

There are different project success and the project management success factors identified and forwarded by different scholars. Thomas and Anu (2017) states that the most important factors of success in the project management field are: selecting the right project; end user's satisfaction; strong and capable project team; the necessity for the project; value for money; and quality of workmanship. Nugroho (2018) also listed out five project success factors namely: project's innovation, team performance, risk management, resources controlling and schedule monitoring.

Project risk management concept is also considered as an important factor of project success and projects are often highly complex therefore there are a lot of possible risks and the project manager has to oversee and prevent them (Kendrick, 2015). Satisfaction issues on project as success factors initiated by Turner et al. (2018) and he ranked the most important factors of success related to satisfaction as: team satisfaction, user satisfaction and customer satisfaction in rank from first to third respectively.

Besteiro et al. (2015) indicate that project scope definition, meeting project deadline, commitment of stakeholder, proper planning, effective communication and meeting project budget as factors influencing project success. Abylova and Salykova (2019) derived nine critical success factors these are communication, planning approval by stakeholders, formal and well-structured approach, commitment to the project, influence of stakeholders, stakeholders understanding and accepting the proposal, restrictions of the project, stakeholders flexibility in the execution, and their influence over the project processes.

Bhoola (2015) forwarded the combination of the following factors as they can lead a project to success:

- ✓ An effective project planning
- ✓ Delivery on time based on customer expectations
- ✓ Well-followed project processes
- ✓ Inspiring leadership and team coordination
- ✓ Flexible HR policies

- ✓ Advanced technologies and
- ✓ Positive work environment and appealing rewards.

According to Radujković and Mariela (2017) a project can be successfully managed and project success can be attainted when the following key critical success factors exist in a project.

- ➢ Competent project manager
- ➢ Competent team
- ➢ Coordinated manager and team
- ➢ Adequate organizational structure
- ➢ Culture
- ➢ Atmosphere and
- ➢ High usage of project management methodologies, methods, tools and techniques

2.2.4. Traditional Project Management Triangle

Traditional project management triangle was the first model of project management success. It appears in every definition of project. "project success relates to the achievement of project or company's goals and objectives, while project management success commonly refers to the traditional measurement factors of project triangle – cost, time and quality", Abylova and Salykova (2019) . According to Reich, Gemino and Sauer (2010) there are many other approaches of project management success like integration, scope, human resources, communication, management of risk and procurement. One of the most important ideas is that project triangle should include factors that create and transmit value (ibid). While Morris and Hough (1986) added the fourth dimensions of success factor: safety on cost, time and quality. Radujkovic and Mariela (2017) also added that stakeholder's satisfaction, benefits to project's owner-organization and long-term impacts on project environment should be considered as part of success as well.

2.2.5. Critical Success Factors

According to Nogeste (2004) practices related to factors that impact project success vary from company to company. Despite the multitudinous studies on project success factors there are still limited empirical data related to the identification of the project success factors to the successful

project operation (Fortune et al., 2013). In their exploration stated that success factors are part of strategic perspective and several influences are deduced from the prospects of the stakeholders.

According to Abylova and Salykova (2019) factors under the direct control or influence of the company facilitate the success of project management. Hence, the project manager should understand monitoring and controlling these influential factors for the benefit of the project and its success (Pulmanis, 2019).

The parameters determine success of project changed constantly and imposing ongoing constraints for industry professionals. In such a situation, the development of a strategic framework that tactically deals with project success and the identification of critical success factors (CSFs) is an important starting point (Storm and Jansen, 2004). According to Dvir et al. (1998) there are no common success factors to all projects. So to define success factors, a different approach is necessary to develop an improved framework that can include these widely diverging views.

Two level success factors categorization: micro level and macro level were forwarded by Lim and Mohamed's (1996). The micro level included time, cost, performance and safety; and the macro level encompass total project time, level of satisfaction during the operation of the final product as well as the use of the final project product. Different from Lim and Mohamed's (1996) Pinto and Covin (1989) categorize project success factors as internal and external factors at prior and later stage of the project respectively: the internal success factors includes budget, schedules and technical performance, while the external factors related to customer needs and satisfaction . Other scholars such as Freeman and Beale (1992) suggested that project success factor differentiation is subjected to multi-dimensional and multi-criteria approach adapted by the project evaluator.

Baker, Murphy and Fischer (1983) described that projects success factors include both general factors such as iron triangle, and specific factors those are unique to the project or project organization. According to Pinto and Prescot (1988) arising from project's nature, objectives and perception critical success factors change accordingly as a result critical success factors should investigated over the project life cycle. They also concluded that relative importance of several critical factors change significantly based on the life-cycle stages. Hence there is a need to

understand priorities of different success factors according to project phases such as project's objectives, influence of managers, communication, control and learning. The followings are some of critical success factors of projects forwarded by different scholars.

2.2.5.1.Stakeholders Involvement

Stakeholders have different understanding and perception of success. Interestingly that at the end of 20th century the idea to consider stakeholders to evaluate success appeared in literature (Sebestyen, 2017). Stakeholders can be defined as any person, group, or organization that can place a claim on an organization's (or other entity's) attention, resources, or output. In order to successfully manage any project, it is important to determine the parties who are interested in the outcome of that project and who can influence it in the positive way (Smith, 2000). Later, it is necessary to understand what motivates those parties, try to interact with them and finally to cooperate with them in order to attain the mutual benefits (Pacagnella et al., 2015).

Stakeholders have different understanding and perception of success so the project success is best judged by the primary stakeholders, especially the primary sponsor (Turner and Zolin, 2012). The satisfaction of primary stakeholder i.e. project owner's get top priority in project success valuation (Collins and Baccarini, 2004). Initially customer as a single stakeholder appeared in the project works. Interactions with stakeholders as well as stakeholder management in general in projects often does not include logical strategy, planning or appropriate methods. Stakeholder management can be often seen as spontaneous and characterized by causal actions, which are not always controlled and communicated to the project team which can lead to an unpredictable outcome (Yitmen, 2014).

The project managers should always actively engage stakeholders into decision making and inform them regarding the developments in a project. It will allow both sides to see the project from different perspectives and in such a way present different idea which is especially important in the initial phases of the project management. It also important to continuously involves the stakeholders in the process which will increase the opportunity to achieve the success (Adzmi and Zainuddin, 2018). It is supreme to involve the stakeholders who are related to a project in the earliest phases when the project planning takes place. It will help to avoid any ambiguities and ameliorate the interaction as well as communication among participants of a project (Yong et. al, 2017).

2.2.5.2.Monitoring and Control

Project monitoring is the systematic and regular collection and analysis of data over a period of time to identify and measure changes. Monitoring involves the collection of data prior to and during project implementation (Raut, Pimplikar and Sawant, 2013). The primary purpose of monitoring is to document the implementation process, facilitate decision making, and provide feedback for plan review and lessons learnt.

Project control is project management function that comprises of monitoring, evaluating and comparing actual versus planned results. It tracks the project progress towards achieving the stated objectives within project constraints; identifies deviations; evaluates alternative courses of action and takes remedial actions (Larson and Gray, 2011).

According to Müller and Jugdev (2012) monitoring and control comprises: plan making; plan implementing; actual output monitoring and recording; actual output reporting, and finally; take corrective action on the variations. This phase of the project enables to understand the project's progress so that appropriate corrective action can be taken when the project's performance deviates significantly from the plan (Muszynska et al., 2015).

Since Monitoring and controlling process is continuously performed through the life of the project; it oversees all the task and metrics necessary to ensure that the approved and authorized project is within scope, on time and on budget, the project proceeds with minimum risk to fail (Wysocki, 2014). Routine monitoring of key factor of a project helps the project team to have insight in to a project's potential success or failure as well it helps project manager to make important decision with verified data and with evidence which can make the corrective action efficient to prevent the project from failure, which means the project, become successful (Rodolfo, 2018; Langović et al., 2014).

Karangwa, Mbabazi and Mbera (2016) stated that effective monitoring and controlling enable the project manager and project teams to identify the potential problems encountered during the course of the project so that they can make Suitable corrective action to ensure the project is back on track and eventually lead to project success.

2.2.5.3.Management Commitment

Leadership can be described as a style of behaviour to integrate both the organizational requirements and personal interests in the pursuit of some objectives (Stanciu et al., 2016). The leadership is considered to be an important factor of success because a good leader is able to

solve conflicts between team members and motivate them and other participants of a project in such way creating a positive environment and allowing the team to attain better results (Zulch, Benita 2014). Therefore, it is important for the project success that a project manager is able to be an effective leader.

Analyzing the most important qualities of leadership as well as identifying their impact can help project managers to successfully finish their projects. Some factors influencing the leadership and in the same turn the project success are establishing clear relations and roles between project members, openness, self-confidence, organization, clearly defining project successes, reevaluating when necessary (DuBois et al. 2015).

An efficient leader should have the capability to adapt a particular leadership style or even a combination of styles which are the most appropriate in the given circumstances. Leaders can choose different styles of communication which will depend on situation or a type of project. Project manager's actions have significant impact on the promotion of cooperation between project team members. Moreover, they state that project manager's leadership style is associated with project success in each type of a project. It is paramount for the project manager to be flexible in order to make use of the most fitting leadership styles in the given types of projects and situations (Podgórska and Pichlak, 2019).

Raziq et al (2018) emphasize the importance of the transformational leadership style because a leader should be a person who inspires as well as motivates team members to reach their full potential. A good leader must care about needs and expectations of the followers and only in such way the mutual trust can be build and creativity as well as opportunity for the development to be created. Hence, an effective leader is a person who leads his team to changes which positively affect the well-being of team members at work as well as the performance and successful attainability of the project goals.

Miyamoto (2015) in Aleksejevec (2020) underlines the value of the transformational leadership for the project success by stating that a leader must be sensitive and care about expectations and needs of his team members in order to understand them better and give support for attaining the mutual project goals. Aga et al. (2016) also agree that the leadership style used by a project manager can highly influence the success of a project and suggest that especially, the

transformational project managers should inspire and motivate their team members in such way to build a strong project team.

According to Benita (2014) the best applicable leadership style that the leader can use is considered to be the situational leadership style. As its name suggests this style can be characterized as a style adopted according to current circumstances. According to this style, the project manager should encourage project team members to feel responsible for their work and engage them in the decision-making.

According to (Liphadzi et al (2015) many projects failed because of incompetent leadership or management, lack of support from senior management , lack of support from project team members or organization and Liphadzi et al.(2015) also revealed that there is correlation between leadership styles and project success. Human factors do not only affect project performance but they have impact on client satisfaction and project acceptance and There is a positive connection between project manager, team competences and project performance (Procaccino and Verner, 2006).

Besteiro et al. (2015, 31) also describe The managerial abilities essential for achieving project success which are listed by order of their importance as: ability to communicate; defining the schedule; accepting the proposal of the project; indicating roles and responsibilities; defining realistic goals and objectives; and team qualifications.

2.2.5.4.Defining clear goals and objectives

At early stage of every project it is indispensable to determine and clearly define goals and objectives in order to have a clear vision of what should be done during the lifecycle of particular project (Schwalbe, 2015). Defining clear project goals and objectives will absolutely contribute to the project success. Only having clearly described project goals and objectives in the initial phase of a project, it can be possible to develop precise and detailed plans needed to execute a project effectively in all future phases (Li et al., 2019).

Precisely described and realistic objectives and goals can minimize the possibility of changes during life cycle of a project which can cause cost overrun, delays and the probability of a project failure (Besteiro et al, 2015). The project goals must be clearly defined as well as explained in detail to the project team and suggest to indulge the project team members in the

planning phase of a project when goals are set so that the project team members could express their opinion on clarity and attainability of the project goals (Aga et al., 2016 in Aleksejevec, 2020). Costantino et al. (2015) also agree with above-mentioned authors and state that clearly defined goals and objectives as well as directions for the project team which are planned in the project initiation phases highly contribute to the project success. Schopp et al. (2019) added that clearly defined goals can be useful in order to effectively exploit resources given for the project. Because if goals and objectives are not clear, there is a risk that resources can be used ineffectively and cause problems within a project. Hence, clearly defined goals and objectives can be considered to be the critical factor of project success (Tesfaye et al., 2017).

2.2.5.5.Competent project team

The success of a project highly depends on the project team, therefore it is vital to select the appropriate team members for a particular project taking into account their competencies and capabilities in the given area of a project (Zou et al., 2014). In addition it is essential to build the trust-based relationships and work together collaboratively towards the shared goals.

Various writers confirmed that competent project team members also play an important role in the successful implementation of projects. Since, project team members directly contribute to the implementation of project objectives and perform different project tasks it is important to choose the most suitable team members for a particular project. It is important to take into consideration individuals who will compose the project team, it is necessary to evaluate their capabilities as well as skills and how they can contribute to the project success. Therefore, in case it is possible to choose the project team members, the project manager must carefully select the most appropriate and competent individuals according to project type and existing needs which will increase the possibility of completing objectives successfully and attaining project goals (Rogers, 2019).

According to Yong and Nur (2017) the project team evidently contributes to the project success and emphasize that competencies, knowledge as well as experience and proficiency of the project team members positively affect communication, effective project planning and also time planning within the team. Nugroho (2018, 82) note that people play a significant role in projects which means that project success can significantly depend on chosen team members and their abilities. Therefore, competent team members have a huge impact on success of a project,

because their knowledge, skills and experience certainly help to effectively perform tasks and attain project objectives. Moreover, as was mentioned by Yong and Nur (2017) competencies of project team members can contribute to distribution of information as well as knowledge within a team.

Measuring the impact of human factor on project performance is not an easy task since it is difficult to quantify it. As a result different scholars started introducing in their works such concepts of human factors affecting success including flexibility, adaptability, enthusiasm, spontaneity, aggressiveness, confidence, initiative and leadership, ambition, verbal abilities etc. (Fabi and Pettersen, 1992). According to Johnson et al. (2001) human factor is perceived as the most influential factor that causes failure or success and project process aspects are dependent on human factor, which is described as management competence.

Taherdoost and Abolfazl (2018) present five success factors related to people: including project manager, project team, customer and other. These human factors are characterized by competent team members, their great motivation, manager's knowledge, adaptive style, and superior customer relationship".

Dincer and Yuksel (2020) the degree of trust within a project team is mostly influenced by the following factors: the expectations among the project team, knowledge exchange in between project team, and the degree of trust that is imported from other familiar settings.

2.2.5.6.Risk management

The main aims of risk management are to increase the probability and reach of the potential positive events (Buganova, 2019). The process of managing the risk can be divided into planning, foreseeing, identifying and managing in order to prepare the preventive actions. At the present time, the risk management is considered to be one of the most significant internal processes which reinforces the resilience against the failures and errors in the prevention phase and helps to ensure safety of a process.

Since all projects are different and complex there is always a particular level of uncertainty which can lead to particular risks. In case, a project lacks an effective risk management strategy or tools there are always a possibility of negative consequences because of the absence of preventive actions needed to effectively avoid uncertainties and risks (Kendrick, 2015).

Taherdoost (2018) described that the risk management has an enormous impact on the project management quality. According to Shojaei et al. (2019) project managers most often manage risks based on their own experiences and suggest that they should also make use of the analytical tools which can be found in the literature. Combining knowledge of project management practitioners and scholars can highly increase possibility of preparing preventive actions against risks.

2.2.5.7.Quality Management

Quality management is the process for ensuring that all project activities necessary to design, plan and implement a project are effective and efficient with respect to the purpose of the objective and its performance. Project quality management is not a separate, independent process that occurs at the end of an activity to measure the level of quality of the output (Jeldor et al., 2016). Quality management composed of definition of quality, quality assurance, quality control and quality improvement. The first step on the quality management is to define quality, the project manager and the team must identify what quality standards will be used in the project, it will look at what the donor, beneficiaries, the organization and other key stakeholders to come up with a good definition of quality. In some instances the organization or the area of specialization of the project (health, water or education) may have some standard definitions of quality that can be used by the project (Kerzner, 2001).

Quality Assurance is a process to provide confirmation based on evidence to ensure to the donor, beneficiaries, organization management and other stakeholders that product meet needs, expectations, and other requirements (ISO, 1994). It assures the existence and effectiveness of process and procedures tools, and safeguards are in place to make sure that the expected levels of quality will be reached to produce quality outputs. Quality assurance is done not only to the products and services delivered by the project but also to the process and procedures used to manage the project, that includes the way the project uses the tools, techniques and methodologies to manage scope, schedule, budget and quality (Joseph, 2012).

Quality control is the use of techniques and activities that compare actual quality performance with goals and define appropriate action in response to a shortfall. It is the process that monitors specific project results to determine if they comply with relevant standards and identifies different approaches to eliminate the causes for the unsatisfactory performance (Mishra and Mahanty, 2016). The goal of quality control is to improve quality and involves monitoring the

project outputs to determine if they meet the quality standards or definitions based on the project stakeholder's expectations.

Quality improvement refers to the application of methods and tools to close the gap between current and expected levels of quality by understanding and addressing system deficiencies and strengths to improve, or in some cases, re-design project processes. A variety of quality improvement approaches exists, ranging from individual performance improvement to redesign of entire project processes (Jainendrakumar, 2015).

2.3.Review of Empirical Studies

A study in South Africa on construction sector showed that scheduling and planning as the most important elements for process. So, project manager should place simultaneous attention in timely scheduling and planning in the project implementation phase to ensure complete projects within the specified time while meeting quality and cost requirements (Els et al. (2012).

Research by Abdullah and Ramly (2009) study In Malaysia control and monitoring is the highest ranked element for process with regard to project success factors. Successful projects with good monitoring and control systems allowed project to stay within a realistic budget.

Industry sectors significantly affect the causal relationship between success factor and project success. This is in line with the findings of Hyväri (2006) whereby she found "there is variation both across industry sectors and project phases as to the relative importance of factors."

Empirical study showed that projects are managed, planned, organized, and controlled in different ways. It is necessary to understand the project traits based on different industry sector to find out what factor contributes to success and in which sector perceptions of success are most perceived (Shenhar and Dvir, 2007).

Kim and Choi (2013) indicated that effective communication and coordination among stakeholders would result in enhanced project performance. Saadé et al. (2015) findings also presented that the top three critical factors as relevant to project success is ability to communicate at multiple levels among stakeholders, ability to coordinate and effective leadership.

Based on Pinto and Slevin (1987) and Davis (2014) studies Beleiu, Crisan, and Nistor (2015) developed an elaborated list of success factors that have the highest influence on project success. They concluded that clearly defined goal and directions, competent project team members, clearly defined roles and responsibilities, communication and consultation with stakeholders and

compliance with the planned budget, time frame and performance criteria to be the five critical success factors that have the highest impact on project success.

According to Gemunden (2015) research on project success in Indonesia monitor and control had strongest positive correlation with project success ($r = 0.325$, $p = 0.002$) among the six factors, followed by ability to coordinate ($r = 0.260$, $p = 0.013$), organizational adaptability ($r = 0.237$, $p = 0.020$), project definition ($r = 0.227$, $p = 0.025$), project schedule and plan ($r = 0.221$, $p = 0.032$) and team capabilities ($r = 0.210$, $p = 0.037$).

Alexandrova and Ivanova (2013) came up with 15 critical factors for project success of South Africa. They selected 132 project managers to participate in their study and found that "Competence of project manager" is an extremely important factor in project success with a mean of 4.69. Meanwhile, they showed that "Clarity of project goals" is perceived as the second important factor with mean value of 4.13. Lastly, they concluded "Precision in documenting and archiving of project information" and "Competence and adequate support from a project consultant" are viewed as medium importance factor in realization of project success.

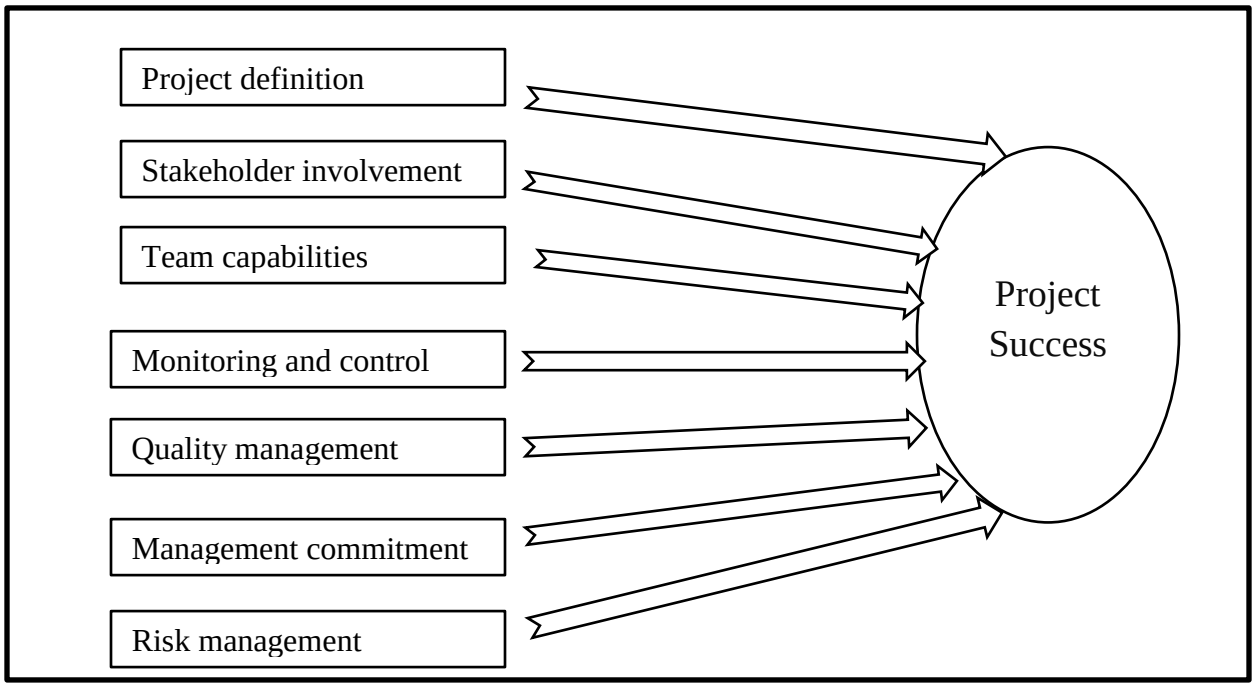
2.4.Research Gap

However the identification of critical success factors and measures of project management success vary from organization to organization and project to project. Many publications and researches had proposed project success factors but there has no any official guideline by PMBOK on what success factor that contributes to project success. Project that was completed on time, on budget and fulfilled all originally specified scopes, features and function might not fully represent the expected outcome of stakeholder. Traditional measures of time, cost, and quality are still important in the early stages of the project, while later stages should focus more on other project success criteria such as overall customer benefit and customer satisfaction. The purpose of this study is to investigate the success factors perceived by project managers influencing the project success in Addis Ababa City Administration mega construction projects as project managers play an important role in determining success criteria and success factors at the project phase. It had been revealing that success criteria and project success rates differ by industry. This empirical research was served to fill the gaps about the success factors in different industry sectors.

2.5.Conceptual Framework

Conceptual framework is a hypothesized model identifying the concepts under the study and their relationships. The Conceptual framework of the study, adopted from (Nazia et al, 2016) modified by the researcher is illustrated on the following diagram.

Pinto in Nazia 2016 suggested 10 critical success factors: project mission top management support project schedule/plan client consultation competent personnel technical tasks client acceptance monitoring and feedback communication trouble shooting. Belassi and Tukel (1996) further divided troubleshooting dimensions into quality management and risk management. And he integrated communication into management commitment and team capabilities. Baccarini (2017) transpose project schedule into project success attributes. Similarly, Jugdev and Muller (2015) considered client acceptance as project success dimensions than critical success factors.



(Adapted from Nazia et al, 2016)

Table 2. 1 Conceptual Framework

Therefore, the researcher considered seven critical success factors (independent variables): project definition, management commitment, monitoring and control, team capabilities, quality management and risk management, and stakeholder involvement; and project success (dependent variable) evaluated with respect to time, budget, scope, and customer satisfaction (scope).

In the conceptual framework, the independent variables which are believed to have impact on the success of mega construction projects of Addis Ababa are project definition, quality management, monitoring and control, team capabilities, risk management, management commitment and stakeholder management.

The previous empirical studies conducted by various scholars confirms the above assumptions such as Taherdoost (2018) described that the risk management has an enormous impact on the project management quality; Liphadzi et al (2015) added that many projects failed because of incompetent leadership or management, lack of support from senior management , lack of support from project team members; competent team members have a huge impact on success of a project, because their knowledge, skills and experience certainly help to effectively perform tasks and attain project objectives (Young and Nur, 2017) and so on. Therefore, based on this research finding how much is the influence of critical success factors on the success of Addis Ababa mega construction projects were tested.

2.6.Hypothesis of study

The followings hypothesis formulated to test the effect of independent variables on project success.

H1: Project definition has significant effect on mega construction project success.

H2: Stakeholder involvement has significant effect on mega construction project success.

H3: Management commitment has significant effect on mega construction project success.

H4: Team capability has significant effect on mega construction project success.

H5: Monitoring and control has significant effect on mega construction project success.

H6: Quality management has significant effect on mega construction project success.

H7: Risk management has significant effect on mega construction project success.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1.Introduction

This chapter explores the methodological approach, research design, research approach, sampling techniques, data type and data source, data collection tools, data gathering techniques and data analysis methods along with appropriate justification associated with each approach.

3.2.Research Design

Research design is the framework that has been created to find answers to research questions. Survey research is one type of quantitative research design. It provides a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population. It includes cross-sectional and longitudinal studies using questionnaires or structured interviews for data collection with the intent of generalizing from a sample to a population (Fowler, 2008).

Correlational design is a research design in which researchers use the correlational statistic to describe and measure the degree or association (or relationship) between two or more variables or sets of scores. These designs have been elaborated into more complex relationships among variables found in techniques of structural equation modeling, hierarchical linear modeling, and logistic regression (Creswell, 2005).

Therefore, the research designs employed in this study are descriptive and explanatory research design. Descriptive research design is preferred for better descriptions of the response of group of individuals over the set of variables. Correlation is applied to investigate the association of variables and the regression is used to show the cause and effect relationship between the dependent variables and the independent variables of project management. The rationale behind selection of this method is to get an accurate representation of characteristics of a particular situation and group. In addition it facilitated gathering of reliable data describing the true characteristics of factors affecting successful completion of projects.

3.3. Research Approaches

This research employed quantitative method to collect, to organize and to analyses the data. Quantitative make use of statistical analysis in order to obtain results. According to Creswell (2005) quantitative research is a type of research in which the researcher decides what to study, asks specific, narrow questions, collects numeric (numbered) data from participants, analyzes these numbers using statistics, and conducts the inquiry in an unbiased and objective manner.

This research study used survey method and mainly based on primary data which was collected through a structured questionnaire form the project managers and executives in mega construction projects in Addis Ababa. Because questionnaire is a popular method of collecting data because researchers can gather information fairly easily and the questionnaire responses are easily coded (Sekaran, 2003 quoted in Iram, Khan and Sherani, 2016).

3.4.Sample Design

This section contains population of the study, sample and sampling methods, and sample size of the study.

3.4.1. Population of the Study

Bull (2005) says population is the combination of all those members, cases and element that is used by the researcher for the interest of his/her study. Therefore, population of this research included all those employees who were working as project managers and executives in mega construction projects in Addis Ababa, Ethiopia. The study population comprised of 121 staff working at main office of Mega project office and different sites of mega construction projects.

3.4.2. Sample and Sampling Methods

As larger the sample size the minimum will be the standard error (Singh, 2006 in Iram, Khan and Sherani, 2016). The study will apply a probability sampling design that is random sampling technique. This sampling technique is selected on the basis of accessing representative sample of the whole population and categories of selected employees of different levels. Random sampling is considered appropriate since it gives all respondents an equal chance of being selected as a study respondent and thus it has no bias and eases generalization of the obtained findings (Dempsey, 2003 cited in Orodho, 2009). Sample respondents were selected from the population through stratified random sampling. Stratified random sampling held through grouping of

potential respondents into three strata namely: top, middle and low level based on their relative responsibilities in the project. Then, a total of 93 sample respondents are select by using Yamane Taro (1967) formula of sample size determination from a total of 121 target population.

Finally, the determined sample size is proportionately distributed with respect to the four strata in the organization. The summaries of population and sample sizes are presented in table 3.2.

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

Where,

N = is total number of population

n = number of sample

e = margin of error

Sampling Error: 5 % of error (95% confidence interval) is selected and used in this study.

N = 121

e = 0.05

Substituting these values in the equation, estimated sample size (n) was:

$$n = \frac{121}{1+121(0.05^2)}$$

= 92.89

Therefore the sample size of this study is 93 (Ninety three) respondent working at different mega construction projects in Addis Ababa.

3.5.Source of Data

This section comprises data type and source, and data collection tools.

3.5.1. Data Type and Source

Primary and secondary data sources are used for the analysis of the study.

3.5.1.1.**Primary Data Source**

The primary data were gathered using survey questionnaire from the selected sample respondents/employees of Addis Ababa Mega Construction project office.

3.5.1.2. **Secondary Data Source**

Secondary data was collected from the office archives, form different online and off-line literatures mainly on Journals, Books, and Report and Proceedings.

3.5.2. Data Collection Tools

Critical success factors of mega construction projects in Addis Ababa are the independent variables for this study and project success is its dependent variable. This dependent variable is measured using 57 items adopted from the Project Implementation Profile (P.I.P) by Pinto (1987). All items would be rated using a 5-point Likert scale with 1 representing strongly disagree, 2 disagree, 3 neutral, 4 agree, and 5 representing strongly agree (Chan, 2007).

The primary aim of conducting this study was to analyze the critical success factors for project success in construction projects in Addis Ababa, Ethiopia. To collect the data required to this study, the researcher adopted and used a questionnaire developed by Pinto's Project Implementation Profile (PIP) which has been verified to be reliable and valid (Pinto, 1986 cited in Iram, 2016). Questionnaires are preferred because it is effective data collection instruments that allow respondents to give much of their opinions are pertaining the researched problem (Dempsey, 2003).

3.6. Data Analysis and Interpretation

The questionnaires collected from the respondents checked for completeness. The data is cleaned, coded, categorized per each of the research variables and then analyzed using descriptive analysis and inferential analysis. To analyze the data different statistical tools and techniques of SPSS (SPSS version 24) were used. Person correlation coefficient is used for measuring correlation among different variables. Liner Regression model was applied to determining and explaining dependence (effect) of dependent variable on different independent variable. To check the validity of questionnaire Cronbach’s Alpha was used (Iram, Khan and Sherani, 2016).

The findings were presented by using tables, since tables are user friendly and show response frequencies as well as percentages of the respondents' opinions on factors affecting the implementation of balanced scorecard.

3.7. Model Estimation

To test the cause and effect relationship between dependent and independent variables, the study have used multiple regression model to measure the level of significant relationship between the dependent and independent variables.

The model selected to display this influence between the variables is presented as :

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_5 + \varepsilon$$

Where:

Y = Mega construction project success.

$\beta 0$ = Constant (value of Y when X_1, X_2, X_3, X_4 , X_5, X_6 and X_7= 0)

β_1 = Regression coefficient for project definition (PD)

X_1= Project definition (PD)

β_2=Regression coefficient for management commitment (MC)

X_2= Management commitment (MC)

β_3=Regression coefficient for team capabilities (TC)

X_3= Team capabilities (TC)

β_4= Regression coefficient for stakeholder involvement (SI)

X_4= Stakeholder involvement (SI)

β_5=Coefficient of regression for risk management (RM)

X_5= Risk management (RM)

β_6=Regression coefficient for quality management (QM)

X_6 = Quality management (QM)

B_7=Regression coefficient for monitoring and control (M&C)

X_7 = Monitoring and control (M&C) and ε = the error

3.8. Validity and Reliability

Validity refers to the accuracy and meaningfulness of inferences, which are based on the research results and the usual procedures in assessing the content validity of a measure are discovering question content, correction in the wording of questions, the sequencing problems of questions before the actual study as well as exploring ways of improving overall quality of study (Mugenda and Mugenda, 1999 sited in Maryconsolata, 2020). The researcher collects opinions of experts in the field of study to establish the validity of the research instrument. The aforementioned issues intend to facilitate systematic revision and modification of the research instrument to guarantee the validity.

Reliability of the data collection instrument is the consistency of measurement and frequently assessed using a test–retest reliability method (Mugenda and Mugenda, 2003). Reliability enabled the researcher to identify the ambiguities and inadequate items in the research instrument; where the instrument reliability is the dependability, consistency or trustworthiness of a test.

The test-retest technique will be the measure, where questionnaires will be administered to a group of individuals (according to the tested number) with similar characteristics as the actual sample. Tests will be repeated at intervals of one week. The scores obtained from each tests will be correlated to get the coefficient of reliability.

3.9.Ethical Considerations

Ethics will a concern of a researcher while planning, designing, conducting and writing the research report. According to Punch (1994), implication and consequences of the research on participants' psychological, social, political, religious, cultural and economic life should be seriously considered. The researcher will commit to respect the ethical principles of conducting a research. The respondents, interviewees and discussants were asked to participate voluntarily, freely and even allowed discontinuing their participation if they feel discomfort. Moreover, their consent will solicit to tape-record their responses and to take their photos during key informant interview.

The top management of the projects will initially interview and permission was taken from them for data collection before the distribution of questionnaire. After the top management gave the

approval the questionnaires were distributed for data collection purposes. They will also informed about the confidentiality of the information they give through interview, and questionnaire in that it will be kept secret and will not be transferred to a third party or will not be used for any other purpose than this study. Above all, the researcher arranged and guided interview sessions through keeping the participants' privacy and providing the necessary respect for them.

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION

4.1. Introduction

This chapter focuses on presenting, analyzing, and interpreting primary data collected from respondents via questionnaires and secondary data collected through document analysis. The data gathered using questionnaires was analyzed using Statistical Package for the Social Science (SPSS version 26).

4.2. Response Rate

In this study, the researcher distributed 93 questionnaires to sample respondents. Out of these total numbers of questionnaires 81 were returned. Therefore, 87.1 percent response rate was achieved. Saunders et al. (2000) says that the higher the response rate the higher will be the chances of ensuring of the sample is representative of population.

4.3. Demographic Characteristics of Respondents

Profiles of respondent described in terms of seven parameters namely: gender, age, organization, qualification, project experience, number of project involvement, and handling of concurrent projects. Based on data collected from the sampled respondent the analyzed result was presented in Table 4.1 shown below.

In this survey 35.4% of respondents are between 20 to 29 years old, 48.8% of them are 30 to 39 years old, 40 to 49 years old project managers are just 13.4%, lastly 50 years old and above consists only 2.4%. Majority of the respondents have 2 to 5 years of working experience in project management (35.4%) followed by less than 2 years (28.0%) and 6 to 9 years (20.7%). Only a minority had 10 years and more (15.9%) working experience in project management. Project manager traits contribute as one of the factor for project success or even failure. From the respondent, 8.5% of them were certified project manager, follow by 39.0% of trained project manager while 52.4% of the rest project managers were neither certified nor trained. The term “neither certified nor trained” indicate for any project manager with working experience in project management without undergoing any training or possessed any project management related certification by any official project management institute/body.

Table 4. 1. Demographic Characteristics of Respondents

Parameters	Options	Frequency	Percentage
Gender	Male	57	70.4
	Female	24	29.6
Age	Less than 20	-	-
	20 to 29 years	15	18.5
	30 to 39 years	26	32.1
	40 to 49 years	31	38.3
	50 years and above	9	11.1
Organization	Project sponsor	19	23.5
	Consultant	18	22.2
	Main contractor	24	29.6
	Sub-contractor	12	14.8
	Outsource service provider	8	9.9
Qualification	Certified Project Manager	16	19.8
	Trained Project Manager	37	45.7
	Neither certified nor trained	28	34.6
Project experience	Less than 2 years	7	8.6
	2 to 5 years	26	32.1
	6 to 9 years	29	35.8
	10 years and more	19	23.5
Number of project involved	Less than 5	12	14.8
	5 to 10	50	61.7
	11 to 15	13	16.0
	More than 15	6	7.4
Concurrent project handling	Yes	56	69.1
	No	25	30.9

Source: own survey, 2023.

According to a research by Saadé et al. (2015), they found that “Engagement Traits, Education, and Experience are three project management constructs that need to be considered for project

success analysis". From the total sampled respondents 57(70.4 percent) of them were male, and 24(29.6 percent) were female. The second demographic factor of sampled respondent is age: more of respondents (38.3 percent) found in age range between 40 to 49 years, 32.1 percent were between age of 30 to 39 years, 18.5 percent from age group of 20 to 29 years, and the remaining 11.1 percent were from age range more than 50 years.

In terms of qualification of sampled respondents regarding to project management; only 19.8 percent of them were certified with project management, 45.7 percent were having training on project management, and the remaining 34.6 percent of study participants were neither certified nor trained in project management.

The survey also shows that the sampled respondents characterized by different work experiences in project managements activities: more of sampled respondents (35.8 percent) have experiences of 6 to 9 years on project management, 32.1 percent acquire 2 to 5 years of experience on the field, 23.5 percent of them having project management experience of 10 years and above, and the remaining 8.6 percent of study participant have experience of less than 2 years on project management. The result indicated that the sampled respondent have ample knowledge on project success and critical success factors.

Based on the data collected, 23.5 percent of project management teams are from organization that plays the role of project sponsor or developer, where by main contractor role consists of 29.6 percent, followed by 22.2 percent consultant organization, 14.8 percent sub-contractor role and the remaining 9.9 percent were as outsource service provider role.

With respect to number of project handling experience; majority (61.7 percent) of survey respondents handled 5 to 10 projects, 16.0 percent of them involved in handling of 11 to 15 projects, 14.8 percent of study participant involved in handling of 5 or less number of projects, and the remaining 7.4 percent of respondent take part in handling of more than 15 projects.

These result showed that the sampled respondent provide reliable information on project success factors. This survey indicates that majority (69.1 percent) of project managers (management teams) handle more projects concurrently, and the remaining 30.9 percent of them handle single project at one instance. This can be interpreted as most projects are considered parallel project

which you can work on multiple things at the same time while a small percentage of the projects are sequential projects whose actions must be performed in a certain order.

4.4. Project success

This section devoted to analyze the project success dimension with respect to iron triangle dimension of project success namely: time, budget and scope based on rating of sampled respondent participated on the survey.

4.4.1. Project success with respect to time

Time is one of the constraints that determine the success of project as a result projects can be categorized as lagging behind the scheduled time, on time (schedule) or ahead of schedule. The status of mega project in terms of time was interpreted based on rating of sampled respondents showed on Table 4.2 showed below:

Based on the survey result, only 16.0 percent of survey participant rated as the projects are on time or ahead of schedule with percentage proportions of 12.3 and 3.7 percent respectively; more than half (60.5 percent) of respondent rated Addis Ababa mega project are over time within range of 1 to 29 percent lag behind the schedule, the remaining 23.4 percent are 30 percent or more lagged than the planned time. Therefore, more than three fourth (76.5 percent) fall on acceptable range of time schedule.

Table 4. 2. Frequencies of project success rating with respect to Time

	Frequency	Percent	Mean	Standard deviation
>60% over time	6	7.4		
45 - 59% over time	9	11.1		
30 - 44% over time	4	4.9		
15 - 29% over time	24	29.6		
1 - 14% over time	25	30.9		
on time	10	12.3	4.1728	1.51484
Ahead of schedule	3	3.7		
Total	81	100.0		

Source: Own survey, 2023.

4.4.2. Project success with respect to Budget

Budget is the second constraints that determine the success of project due to these projects can be classified as over budgeted, on budget or under budgeted. The status of mega project in terms of budget was interpreted based on rating of survey respondents. The result is displayed on Table 4.3 showed below:

Table 4. 3. Frequencies of project success rating with respect to Budget

	Frequency	Percent	Mean	Standard deviation
45 - 59% over budget	3	3.7		
30 - 44% over budget	2	2.5		
15 - 29% over budget	16	19.8		
1 - 14% over budget	31	38.3	5.0494	1.07123
on budget	25	30.9		
Under budget	4	4.9		
Total	81	100.0		

Source: Own survey, 2023.

Based on Table 4.3 showed above, 35.6 percent of survey participant replied Addis Ababa mega projects are on budget or under budget; 59.4 percent infer that 1 percent to 29 percent over budget (38.3 percent 1 to 29% over budget and 19.8 percent 15 to 29% over budgeted respectively; the remaining 6.2 percent of Addis Ababa mega projects over budgeted within range between 30 percent to 59%. Hence, majority (93.8 percent) of Addis Ababa City Administration mega projects placed within acceptable range of budget requirements of project.

4.4.3. Project success with respect to Scope

Scope is the last constraints (iron triangle of project) that determine the success of project due to these projects can be classified as missed their scope (requirements), meet their requirement or exceeding their requirements. The status of mega project in terms of scope was interpreted based on rating of survey respondents. The result is displayed on Table 4.4 showed below:

The majority (67.9 percent) of sampled respondent confirmed that mega projects of Addis Ababa meet their requirements, 16 percent exceeding scope of the project; 14.8 percent of projects missed their requirements in between 1 to 29% (with equal proportion of 7.2 percent to 1-14% missing their requirements and missing 15 to 29% of their requirements.

Table 4. 4. Frequencies table of project success rating with respect to Scope

Scope	Frequency	Percent	Mean	Standard deviation
30 - 44% requirements missed	1	1.2		
15 - 29% requirements missed	6	7.4		
1 - 14% requirement missed	6	7.4		
requirements meet	55	67.9	5.9012	0.80008
requirements exceeded	13	16.0		
Total	81	100.0		

Source: Own survey, 2023.

4.4.4. Project success with respect to quality

Project success with respect to quality evaluated in terms of three categories: not meet project quality standard or in some extent meet, meet the quality standard and exceeded the quality standards.

Table 4.5 showed that, more of (60.5 percent) of sampled respondent confirmed that mega projects of Addis Ababa meet their quality standards, 17.3 percent exceeding quality standard of the project; 13.6 percent some extent meet quality standard, and the remaining 8.6 percent not meet the quality standard.

Table 4. 5. Frequencies table of project success rating with respect to Quality

Scope	Frequency	Percent	Mean	Standard deviation
Not meet quality standard	7	8.6		
Some extent meet quality standard	11	13.6		
Meet quality standard	49	60.5		
Exceeded quality standard	14	17.3	3.8642	0.80239
Total	81	100.0		

Source: Own survey, 2023.

4.4.5. Satisfaction

Project is characterized by the involvement of multiple stakeholders. These stakeholders have diversified interest, level of influence, status of satisfaction, and implications on the success of the project.

Table 4.6 showed that satisfaction levels of different stakeholders: project sponsor, project team, project clients and project end users. Majority (86.4 percent) of sampled respondents confirmed that project sponsors of Addis Ababa mega projects were satisfied or very much satisfied with

proportions of 28.4 and 58.0 percent respectively; the remaining 13.6 percent of project sponsors satisfaction were indeterminate. Therefore, the projects are fulfilling satisfactions of the sponsors through meeting their requirements.

Table 4. 6. Frequencies table of project stakeholder satisfaction

Satisfaction	Rates	1	2	3	4	5
How do you rate the project sponsor's satisfaction with the project's deliverables?	Frequencies			11	23	47
	Percentage			13.6	28.4	58.0
	Mean					4.14
	Std. dev.					0.63
How do you rate the project team's satisfaction with the project?	Frequencies	1		15	43	22
	Percentage	1.2		18.5	53.1	27.2
	Mean					4.06
	Std. dev.					0.71
How do you rate the client's satisfaction with the project's results?	Frequencies	2	2	9	47	21
	Percentage	2.5	2.5	11.1	58.0	25.9
	Mean					4.02
	Std. dev.					0.83
How do you rate the end user's satisfaction with the project's product?	Frequencies	1	8	11	46	15
	Percentage	1.2	9.9	13.6	56.8	18.5
	Mean					3.81
	Std. dev.					0.89
How do you rate the overall success of the project?	Frequencies		5	10	49	17
	Percentage		6.2	12.3	60.5	21.0
	Mean					3.96
	Std. dev.					0.76

Source: Own survey, 2023.

From Table 4.6, more than two third (80.3 percent) of sampled respondents indicated that project team members of Addis Ababa mega projects were satisfied or very much satisfied with proportions of 53.1 and 27.2 percent respectively; the remaining 18.5 percent of project team members satisfaction were indeterminate, and the remaining 1.2 percent of survey participant not

satisfied by the project . Therefore, the projects are successful and bring satisfactions for the project team members.

Regards to clients satisfaction, majority (83.9 percent) of respondent rated the projects as successful and the clients were satisfied with the mega project deliverables; the remaining 16.1 percent of them rated either as project clients were not fully satisfied or indeterminate their satisfaction. Thus, mega projects of Addis Ababa city government guarantees satisfaction of clients due to its successfulness.

The reactions of end users of project towards its deliverables also used to scale out project success, 75.3 percent of survey participant rated satisfaction of end users with project deliverables as very well satisfied; the remaining 24.7 percent of them confirmed that end users were not satisfied with deliverables of the project. So, these higher proportions of end users satisfaction with the deliverables indicated that the mega projects of Addis Ababa were successful in terms of provisions of product or services that meet the needs of end users.

4.5. Project Management Success

Under this section aspects of project management success presented in seven sub-section: project definition, Stakeholder involvement, project team capabilities, management commitment, monitoring and controlling, quality management and risk management. The survey result analyzed based on sampled respondent response on five scaled rating questionnaire.

4.5.1. Importance of Project Management Success Factors

Under this section relative importance of project management success factors evaluated from sampled survey respondent rating by using five scale measurement techniques: unimportant (1), little importance (2), moderately importance (3), often important (4) and most important (5).

4.5.1.1. Project Definition

Project definition is preliminary stage of project management that is associated to definition of project scope, assignment of project manager, formulation of project objectives, prior risk analysis, determination and evaluation of project cost.

From Table 4.7 placed below, sampled respondent rating the importance of analyzing the potential risk before starting of the project as 26(32.1 percent) often important, 40 (49.4 percent) very important, 13(16.0 percent) moderately important, and the remaining 2.4 percent either little important or unimportant. Therefore, conducting up-front risk analysis before the project starts is

often important issues for project management success with mean value of 4.27 and standard deviation of 0.86.

Table 4. 7. Frequencies table of importance of project definition

Project definition	Rates	1	2	3	4	5
Up-front risk analysis was conducted before the project starts	Frequencies	1	1	13	26	40
	Percentage	1.2	1.2	16.0	32.1	49.4
	Mean					4.27
	Std. dev.					0.86
The key persons for project management were knowledgeable in principles and process	Frequencies		2	8	33	38
	Percentage		2.5	9.9	40.7	46.9
	Mean					4.25
	Std. dev.					0.73
An effective progress tracking mechanisms was followed	Frequencies			4	32	45
	Percentage			4.9	39.5	55.6
	Mean					4.34
	Std. dev.					0.57
Well-defined project scope and objectives were developed for the project	Frequencies			4	35	42
	Percentage			4.9	43.2	51.9
	Mean					4.46
	Std. dev.					0.59

Source: Own Survey, 2023.

Assignment of key person (project manager) who is knowledgeable in principle and process of project is rated as 38(46.9 percent) most important, 33(40.7 percent) often important, and the remaining (12.4 percent) either moderately important or less important with proportions of 9.9 and 2.5 percent respectively. Hence, assigning manageable project manager is important to project management success with mean value of 4.25 and standard deviation of 0.73.

Establishing effective progress tracking is should include while define the project to enhance successfulness of projects. The study participant rated this aspect as 32(39.5 percent) often important, 45(55.6 percent) most important and the remaining 4(4.9 percent) moderately

important. So, following an effective progress tracking mechanisms was most important for successful project management with mean value 4.34 and standard deviation 0.57.

The development of well-defined project scope and objectives were contributing more on success of project management. The sampled respondent rated this as 35(43.2 percent) often important, 42(51.9 percent) most important and 4(4.9 percent) moderately important. Consequently, defining project scope and objectives is crucial to project management success with mean value of 4.46 and standard deviation 0.59.

4.5.1.2. Stakeholder Involvement

Stakeholder involvement in all life cycle of project management is mandatory for project success. Stakeholders are actively involved in decisions making, committed in project execution, maintaining good relationship among stakeholders, and add input during planning of project.

Table 4. 8. Frequencies table of importance of Stakeholder involvement

Stakeholder Involvement	Rates	1	2	3	4	5
The Stakeholder representative on the project had full authority and knowledge to make decisions on-site	Frequencies	1	4	15	32	29
	Percentage	1.2	4.9	18.5	39.5	35.8
	Mean					4.03
	Std. dev.					0.92
The project was conducted with strong Stakeholder commitment and presence	Frequencies	1	5	4	32	39
	Percentage	1.2	6.2	4.9	39.5	48.1
	Mean					4.27
	Std. dev.					0.90
A good relationship with the Stakeholder was maintained throughout the project	Frequencies			6	28	47
	Percentage			7.4	34.6	58.0
	Mean					4.27
	Std. dev.					0.59
The clients were given the opportunity to provide input early in the project development stage	Frequencies			2	36	43
	Percentage			2.5	44.4	53.1
	Mean					4.50
	Std. dev.					0.55

Source: Own survey, 2023.

Full authority and knowledge of Stakeholder's representatives in decision making process in determining project management success rated by study participant as 32(39.5 percent) often important, 29(35.8 percent) most important, 15(18.5 percent) and the remaining 6.1 percent rated as less important and unimportant. So, knowledge and authority of Stakeholders in decision making process is often important in project management success with mean value of 4.03 and standard deviation of 0.92.

The presence and commitment of Stakeholder in project execution is enhance the success of project and rated by survey participant as 32(39.5 percent) often important, 39(48.1 percent) most important and the remaining 12.4 percent moderately important, less important or unimportant. As a result the presence and commitment of Stakeholders in different stage of project management nurture the success of project with mean value 4.27 and standard deviation of 0.90.

Not only is the presence of project Stakeholder but also maintaining good relationship with the Stakeholder throughout the project an input for project management success. The result obtained from rating of this issues by survey participant was obtained as 28(34.6 percent) often important, 47(58.0 percent) most important and the remaining 6(7.4 percent) moderately important. The result implied that maintaining good relationship with Stakeholders guarantees the success of project by mean value of 4.27 and standard deviation of 0.59 through minimizing change in project scope that initiate a change in time and budget schedule.

Project clients must get opportunity to offer input at the early stage of project development to enhance better planning and implementation of the project. The respondent witnessed that 36(44.4 percent) often important, 43(53.1 percent) very important, and the remaining 2(2.5 percent) moderately important. The result confirmed that while client get access to deliver own input in project life cycle promote successfulness of the project with mean value of 4.50 and standard deviation of 0.55.

4.5.1.3. Team Capabilities

In this sub section the importance of team capabilities in project management success discuss in terms of five issues: capabilities of working in coherence, availability of sufficient manpower, presence of team members with higher technical competence as well as expertise, availability of

adequate technical and managerial training, and preparation of well described job description for project team members.

A capability of project team members in order to working in coherent and self-organizing way is one of requirements to facilitate project success. Based on this assumption participant of the study rated it as more than half (54.3 percent) often important, 28(34.6 percent) most important and the remaining 11.1 percent of them rated it in range between moderately important and unimportant. Then, proficiency of project team members working in coherent way promotes project management success.

Table 4. 9. Frequencies table of importance of project team capabilities

Team capabilities	Rates	1	2	3	4	5
All the team members in the project were capable of working in a coherent, self-organizing teamwork manner	Frequencies	2	3	4	44	28
	Percentage	2.5	3.7	4.9	54.3	34.6
	Mean					4.14
	Std. dev.					0.86
There was sufficient manpower to complete the project	Frequencies			7	21	53
	Percentage			8.6	25.9	65.4
	Mean					4.56
	Std. dev.					0.65
A high technical competence and expertise was demonstrated by the team members	Frequencies		1	4	29	47
	Percentage		1.2	4.9	35.8	58.0
	Mean					4.50
	Std. dev.					0.65
Adequate technical and /or managerial training (and time for training) was available for members of the project team	Frequencies		3	8	33	37
	Percentage		3.7	9.9	40.7	45.7
	Mean					4.58
	Std. dev.					0.89

Source: Own survey, 2023.

In addition to capabilities of team members, availabilities of sufficient manpower to execute the project are necessitating to manage the project successfully. The sampled respondent confirmed that the availability of sufficient manpower is often or most important in proportions of 25.9

percent and 65.4 percent respectively. Then, the presence of capable and sufficient number of project personnel brings successful execution of project with mean value of 4.56 and standard deviation of 0.65.

High technical competence and expertise dimension of project team capabilities brings the success of the project. From survey result of respondent, it is true that high technical competence and expertise of project team members associated to success of project management and supported by 93.8 percent of participant either as often important or most important. The mean value 4.50 indicated that technical competence and expertise of team members contribute more on success of the project.

Once the project team acquires sufficient manpower equipped with technical competences and expertise in order to working in coherent manner while the project is executed adequate technical and /or managerial training should be provided for them to fill any knowledge and skill gap. The importance of training for team members in order to facilitate project success rated by survey participant as 40.7 percent often important, 45.7 percent most important and 9.9 percent moderately important. Therefore, training of project team members intended to secure the success of project management.

4.5.1.4. Management commitment

Commitment of top management is critical aspects of project management success. In this section the importance of management commitment towards project success discussed in accordance with four aspects: support from sponsors organization management, support from executive management, leadership style of management, and competency and skills of project manager.

Table 4.10 below showed that, majority (90.1 percent) of sampled respondent from Addis Ababa City government mega projects rated support by top management commitment from sponsor organization as often important or most important with mean value of 4.39 and 0.66.

In similar manner, strong executive and managerial support from top management harness successful project management. This idea rated as often important and most important by majority (91.4 percent) of individuals take part in the survey.

Table 4. 10. Frequencies table of importance of project team capabilities

Management commitment	Rates	1	2	3	4	5
The project was supported by management commitment through a committed sponsor or a committed organization manager	Frequencies			8	33	40
	Percentage			9.9	40.7	49.4
	Mean					4.39
	Std. dev.					0.66
The project received strong executive and management support from top governmental bodies	Frequencies	2	2	3	49	25
	Percentage	2.5	2.5	3.7	60.5	30.9
	Mean					4.14
	Std. dev.					0.80
Project manager leadership style had influenced the performance of the project team and led to successful implementation of projects	Frequencies			6	24	51
	Percentage			7.4	29.6	63.0
	Mean					4.55
	Std. dev.					0.63
The project manager was competent and possessed with the necessary skills, experience and qualification.	Frequencies			9	44	28
	Percentage			11.1	54.3	34.6
	Mean					4.23
	Std. dev.					0.63

Source: Own survey, 2023.

Success of project is affected by leadership style of project manager through influencing the performance of the project team and led to successful implementation of projects. Majority (92.6 percent) survey participant evaluated the influence of project manager leadership style on project success as often important (29.6 percent) and most important (63.0 percent) with mean value of 4.55 and standard deviation 0.63.

Competent project manager who possessed the necessary skills, experience and qualification is necessary for successful execution of project. This idea supported by majority (88.9 percent) of sampled respondents rated as often important and most important. The remaining 11.1 percent level its importance as moderate. Therefore, the aforementioned explanation confirmed that the role of top management is very important for the success of the project.

4.5.1.5. Monitor and control

Monitor and control is project management process to track the project activity progress as per its plan and to take measure in order to keep back to its intended path. As a result monitoring and control directs the project to its success. The importance of monitor and control for project success discussed with respect to three issues: which features of project should be monitored, communicate monitoring findings and provision of feedback to the project team, and support from executive management, and controlling to adjust changes. Monitoring activity focus on all spans of project life cycle those determine the success of project management. Very nearly all (95.1 percent) of sampled respondents of the study recognized that monitoring all spans of project life cycle is often important or most important.

Findings of project monitoring should communicate with all project team members and project sponsors to inform the status of project activities and signaling them about any deviation of project activities against the plan. More than three fourth (80.2 percent) of selected survey participant referred that communicating the finding of monitoring on timely basis is most important or often important to facilitate the success of project through unveiling any change on project activities than planned one.

Table 4. 11. Frequencies table of importance of Monitor and control

Monitor and control	Rates	1	2	3	4	5
All important features of the project were should monitored	Frequencies		1	3	27	50
	Percentage		1.2	3.7	33.3	61.8
	Mean					4.55
	Std. dev.					0.63
Regular meeting to communicate monitoring findings and provide feedback to the project team	Frequencies		6	10	30	35
	Percentage		7.4	12.3	37.0	43.2
	Mean					4.16
	Std. dev.					0.91
Control was precisely adjusted by taking into account any changes and feedback from project performance monitoring	Frequencies			4	25	52
	Percentage			4.9	30.9	64.2
	Mean					4.59
	Std. dev.					0.58

At project controlling section precise adjusted should be taking through considering feedback from project performance monitoring. Majority (95.1 percent) of selected respondent confirmed that it is most important to adjust any changes on project activities which may affect project success due to change on time, budget and scope of the project.

4.5.1.6. Quality Management

Quality is critical element of project success that brings the satisfactions for all project clients in various ways such as providing deliverables to project end users that meet their needs, maximize satisfactions of project sponsors, realize goal achievement of organization that owned the project etc. Project quality guarantee project success if requirements of projects acquires within time and budget bounds.

Table 4. 12. Frequencies table of importance of Quality Management

Quality management	Rates	1	2	3	4	5
Organization had developed quality plan with project technical quality standards, quality assurance processes, quality standards	Frequencies			2	25	54
	Percentage			2.5	30.9	66.6
	Mean					4.64
	Std. dev.					0.53
Owners, suppliers, contractors, and all tiers of sub-contractors conform to quality management process and practices	Frequencies			4	28	49
	Percentage			4.9	34.6	60.5
	Mean					4.55
	Std. dev.					0.59
There was a proper documenting and tracking procedure for the quality performance of contractors, sub-contractors and suppliers	Frequencies		3	6	26	46
	Percentage		3.7	7.4	32.1	56.8
	Mean					4.41
	Std. dev.					0.78

Source: Own survey, 2023.

The importance of quality management for project success discussed with respect to three issues: preparation of quality plan with project technical quality standards, confirmation of all project

clients with quality management process and documenting and tracking procedure for the quality performance.

Table 4.12 showed above displayed the rating of quality management issues importance for project success by sampled respondents. The development of quality plan that considers technical quality standards, quality assurance process and quality standards of product are rated most important for the success of project by almost all (97.5 percent) of survey participant. So, the standards are established to assess outputs, and corrective action must be performed during the project

Preparation of project quality plan is not sufficient for project success, just about all (95.1 percent) of sampled respondents from Addis Ababa city mega projects also added that all clients of the project find at all tiers of the project conformity with the established quality standard is very important for success of the project management.

To check conformity of project clients with the quality standard proper documentation and tracking procedures are needed to enhance the success of project. This idea rated as often important or most important by more than three fourth (88.9 percent) of survey participant as factors contribute more on success of the project. Therefore, the ultimate purpose of project quality management is to ensure deliverables that meet the goals and expectations of clients, stakeholders, or Stakeholders, depending on the end user.

4.5.1.7. Risk Management

Risk management is an essential aspect of project management, and it plays a critical role in the success of any project. Risk management aims to identify, assess, and prioritize potential risks that could impact the project's objectives and then develop strategies to mitigate or avoid those risks.

The importance of risk management to success of project is examined in terms of three traits: inclusion of risk analysis and management into project plan, risk assessment and continuity to risk assessment on decision making.

The inclusions of risk analysis in project plan to identify threats and evaluate risks in the projects rated as often important (38.3 percent) and most important, in order to guarantee project success by sampled respondent selected from Addis Ababa City mega projects.

Table 4. 13. Frequencies table of importance of Risk Management

Risk management	Rates	1	2	3	4	5
Project plan included risk analysis to identify threats and evaluate risks in the project	Frequencies	1	2	2	31	45
	Percentage	1.2	2.5	2.5	38.3	55.6
	Mean					4.4
	Std. dev.					0.77
Risk assessment was carried out to identify the likelihood and severity of risk/hazard	Frequencies	2	5	3	24	47
	Percentage	2.5	6.2	3.7	29.6	58.0
	Mean					4.34
	Std. dev.					0.98
Continuous assessment was held on decisions taken during project life cycle which leads to project risk enhancement	Frequencies	1		4	43	33
	Percentage	1.2		4.9	53.1	40.7
	Mean					4.32
	Std. dev.					0.68

Source: Own survey, 2023.

More than three fourth (87.6 percent) of survey participants argued on the importance of risk assessment to identify likelihood and severity of risk to light up project success by rating as often important and most important. In addition, trends of continues risk assessments during project life cycle on the process of decision making process is supported by 93.8 percent of respondent either as most important or often important. Overall, risk management is an essential part of project management and a critical factor in the success of any project. By identifying, assessing, and managing potential risks, project managers can help to ensure that their projects stay on track and meet their objectives while minimizing negative impacts and maximizing the chances of success.

4.6. Comparing Mean Rank of Project Success Factor

The main aim of this sub-section is to explore the common success factors perceived by team members of Addis Ababa Mega projects particularly construction sector in Addis Ababa. Kendall's Coefficient of Concordance (as known as Kendall's W) is a measure of agreement among raters. From Table 4.14 it showed that the factor with the highest mean rank is project definition with mean ranks of 5.17 as perceived by 81 survey participant.

Project definition is important to align the interests of the key project stakeholders and project team with the project mission so that project members have a clear direction of what the project needs to achieve.

The second ranked success factor is management commitment at 4.79 mean ranks. According to Mishra and Mahanty (2016) project manager plays the utmost important role to recognize every personnel ability, skill and talent, then develop them, and coordinate them for handling the suitable tasks in a project. Other than that, project managers should focus their attention and set priorities on important work.

Table 4. 14. Ranking of success factor in Mega construction projects

Success factor	Mean Rank	Rank
Stakeholder involvement	3.94	Fifth
Management commitment	4.79	Second
Monitoring and control	4.01	Fourth
Project definition	5.17	First
Quality management	3.00	Sixth
Risk management	2.98	Seventh
Team capabilities	4.11	Third

Source: Own survey, 2023.

Team capabilities ranked third at 4.11 mean. Saadé et al. (2015) added that every great project success is the product of worthwhile talent, but it takes a team with many different talents to bring those efforts to achievement. That is why getting the right people doing the right job is essential to a project success. Project team personnel that possessed adequate technical, interpersonal and administrative skills can enhance project success.

Monitoring and control ranked the fourth success factor at 4.01. Abdullah and Ramly (2009) showed that control and monitoring is the highest ranked element for process with regard to project success factors". Successful projects with good monitoring and control systems allowed project to stay within a realistic budget

Stakeholder involvement is the fifth rank at 3.94 mean, Kim and Choi (2013) deal with that "effective communication and coordination among stakeholders would result in enhanced project performance".

Quality management ranked sixth at mean rank 3.00. Boynton and Zmud, (1984) states that quality management of this type seems much more concerned with internal efficiency than with user satisfaction.

On the other hand, the factor with the lowest mean rank score of 2.98 is project risk management. Therefore, we can conclude that the top three common success factors perceived by survey participant of Addis Ababa mega project are project definition, top management commitment and team capabilities.

4.7. Relationship between Project Success and the Success Factors

Kendall's tau correlation analyses used to test associations (relationship) between the independent and dependent factors of the study.

The hypotheses testing were used to determining whether the success factor variables were significantly related to project success or not. The hypothesis formulated to test the relationship between critical success factors and mega construction project success presented in Table 4.15).

Table 4.16 shows the output for Spearman's rho correlation and Kendall's tau correlation on both project success factor and project success. There is positive and significant correlation between project success factors i.e. project definition ($r = 0.458$ and $p = 0.000$), management commitment ($r = 0.408$ and $p = 0.000$), monitoring and control ($r = 0.339$ and $p = 0.000$), quality management ($r = 0.220$ and $p = 0.017$), Stakeholder's involvement ($r = 0.251$ and $p = 0.011$), risk management ($r = 0.238$ and $p = 0.032$), and team capabilities($r = 0.409$ and $p = 0.000$), and project success.

Table 4. 15. Hypothesis to test relation between critical success factor and project success

H_0-There is no significant relationship between project definition and mega project success
H_1-There is significant relationship between project definition and mega project success
H_0-There is no significant relationship between stakeholder involvement and project success
H_2-There is significant relationship between stakeholder involvement and mega project success
H0-There is no significant relationship between management commitment and project success
H_3-There is significant relationship between management commitment and mega project success
H0-There is no significant relationship between team capability and mega project success
H_4-There is significant relationship between team capability and project success
H_0-There is no significant relationship between monitoring and control and mega project success
H_5-There is significant relationship between monitoring and control and mega project success
H_0-There is no significant relationship between quality management and mega project success
H_6-There is no significant relationship between quality management and mega project success
H_0-There is no significant relationship between risk management and mega project success
H_7-There is significant relationship between risk management and mega project success

Source: Own survey, 2023.

Table 4. 16. Spearman's correlation and Kendall's tau test

Success factors	Kendall's tau		Spearman's rho	
	Correlation cof.	Sig. (2-tailed)	Correlation cof.	Sig. (2-tailed)
Stakeholder involvement	0.251**	0.011	0.284**	0.010
Management commitment	0.408**	0.000	0.472**	0.000
Monitoring and control	0.339**	0.000	0.419**	0.000
Project definition	0.458**	0.000	0.540**	0.000
Quality management	0.220**	0.017	0.260**	0.019
Risk management	0.238**	0.032	0.250**	0.048
Team capabilities	0.409**	0.000	0.467**	0.000

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

The p values less than 0.05 obtained for all critical success factors showed that there is a significant relationship between the independent and dependent variables (project success factors and project success). Based on Spearman's and Kendall's tau correlation coefficient the entire hypotheses are accepted. That means project definition; stakeholder's involvement, management commitments, team capability, monitoring and control, quality management and risk management are significantly related to the success of mega construction project in Addis Ababa.

4.8. Regression Analysis for Project Success Factors and Project Success

Multiple regression analysis is done to test the effect of independent variables on dependent variable. This regression analysis is conducted to know by how much the independent variable explains the dependent variable. This part is consists of two sub section: assumptions of multiple regression analysis and the analysis itself.

4.8.1. Assumptions of Multiple Regressions

In order to get the reliable and dependable result of the analysis, all the assumptions of the multiple regressions should be fulfilled before making the regression analysis interpretation. The followings are major assumptions of multiple regression analysis.

4.8.1.1. Reliability Test

Reliability test measures the extent to which item responses obtained at the same time correlate highly with each other and widely accepted social science cut off is that alpha should be 0.70 or higher for a set of items to be considered (Field, 2009).

Table 4. 17. Cronbach's Alpha coefficients of Reliability Test

Constructs	Variables	Number of items	Cronbach's Alpha
Project success factors	Stakeholder involvement	5	0.811
	Management commitment	5	0.727
	Monitoring and control	3	0.831
	Project definition	5	0.803
	Quality management	3	0.758
	Risk management	3	0.815
	Team capabilities	5	0.759

Project success	Project success	5	0.789

Source: Own survey, 2023.

From Table 4.17 coefficient of Cronbach's alpha for this study was found to be greater than 0.700 for all variables, which is confirming the variables to be internally consistent for each variable for project success.

4.8.1.2. Multi-collinearity Test

According to Shapiro and Wilk (2013) the multi- collinearity test is a test to identify a strong correlation between two or more predictors in a regression model. This assumption can be assessed by examining tolerance and the variance inflation factor (VIF). VIF values well below 10 and the tolerance statistics well above 0.2 can safely to conclude that there is no collinearity within the data.

A good regression model must not have a strong correlation among its independent variables or must not have a multi-collinearity problem and that the value of variance inflation factor (VIF) must have a value between 1 and 10 and the tolerance level should be more than 0.2 (SPSS Inc., 2017).

Table 4. 188. Multi-Collinearity Test

Variables	Collinearity Statistics	
	Tolerance	VIF
Stakeholder involvement	0.863	1.159
Management commitment	0.830	1.204
Monitoring and control	0.886	1.128
Project definition	0.938	1.066
Quality management	0.828	1.207
Risk management	0.847	1.180
Team capabilities	0.805	1.242

Source: Owen survey, 2023.

Based on the result of Table 4.ZZ, the variance inflation factor (VIF) values of all variables find in between 1 and 10 and the tolerance level is more than 0.2. Therefore, it can be concluded that there are no multi-collinearity symptoms on this regression model.

4.8.1.3. Test of Heteroscedasticity

According to Field (2009) it is basic to plot *ZRESID (Y-axis) against *ZPRED (X-axis) on SPSS because this plot is useful to determine whether the assumptions of random errors and homoscedasticity have been met. Homoscedasticity assumed that, the variance of error terms are similar across the independent variables. At each level of the predictor variable(s), the variance of the residual terms should be constant. This just means that the residuals at each level of the predictor(s) should have the same variance (homoscedasticity).

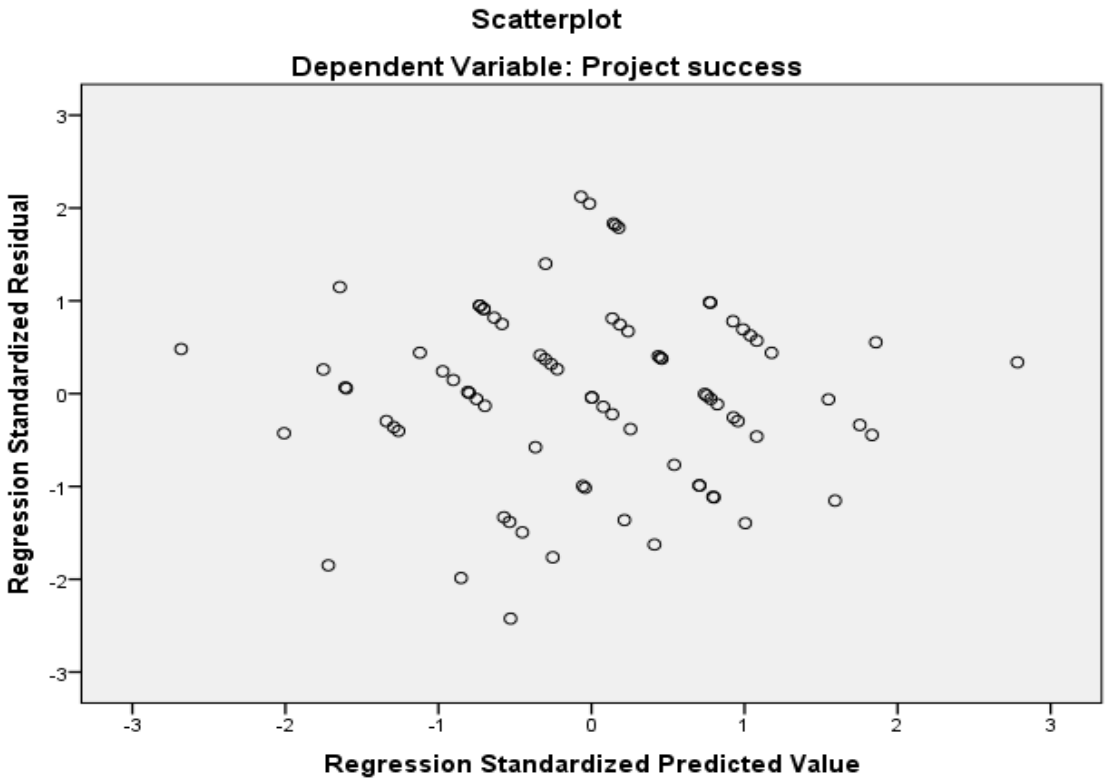


Figure 4. 1. Scatterplot based on Residual

The above figure 4.1 showed that the residuals at each level of explanatory variables look like they are evenly dispersed around 0 and in range between +3 and -3; and that the graph does not assume any type of shaped. Therefore, it is safe to say that this study has no heteroscedasticity problem.

4.8.1.4. Taste of normally distribution

In multiple linear regressions analysis requires that the error between observed and predicted values (i.e., the residuals of the regression) should be normally distributed (Statistics solution, 2017). This assumption can best be checked by plotting residual values on a histogram with a fitted normal curve or by reviewing a Q-Q-Plot. Normality can also be checked with a goodness of fit test (e.g., the Kolmogorov-Smirnov test), though this test must be conducted on the residuals themselves (White, 2011).

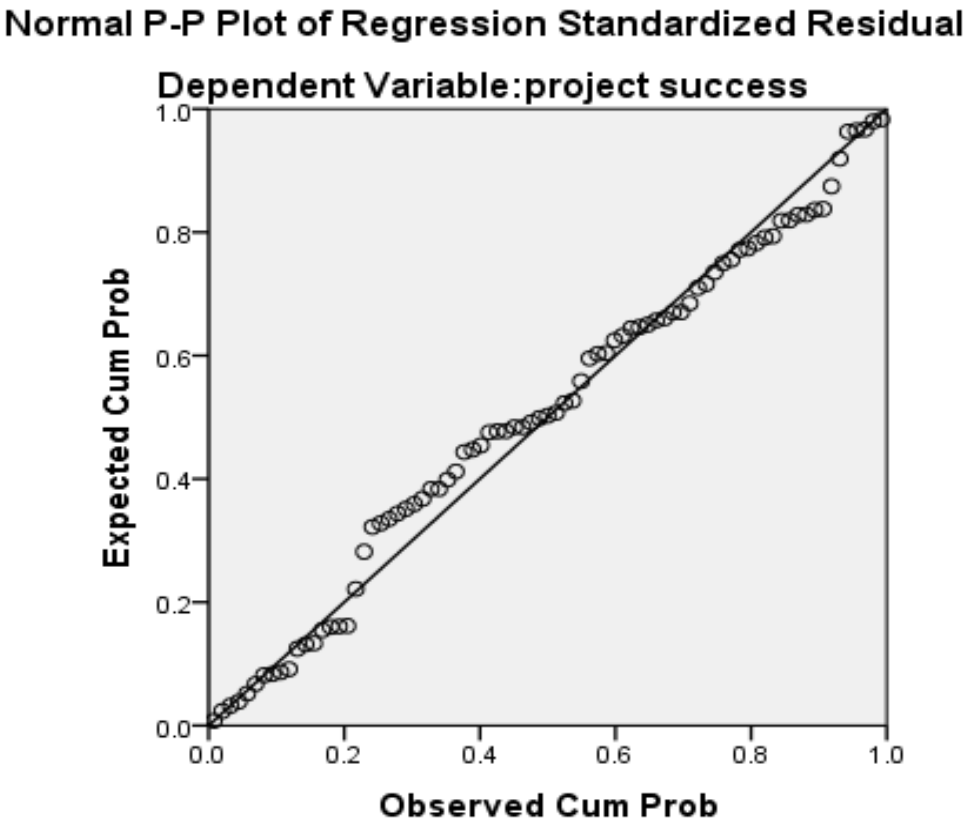


Figure 4. 2. P-P Plot of regression standardized residual

The above Figure 4.5 shows that the residuals have a sound normal distribution because the plotted residuals were around the diagonal straight line instead of making any other shape or curve.

4.8.2. Regression Analysis

Under regression analysis model summary, ANOVA, analysis of regression coefficients, and hypothesis testing are included.

4.8.2.1. Model Summary

A multiple regression model R-squared is determined by pairwise correlations among all the variables, including correlations of the independent variables: project definition, management commitment, team capabilities, stakeholder involvement, risk management, quality management, monitoring and control with each other as well as with the dependent variable i.e. project success. The multiple correlation coefficients (R) are measures of the strength of the relationship between project success and seven predictor variables. R square value is a measure of the loss of predictive power or shrinkage in regression. The adjusted R square states that how much variance in the outcome would be accounted for if the model had been derived from the population from which the sample was taken (Statistical solution, 2017).

Table 4. 19. Model summary of regression

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.894[a]	.799	.618	.22868	1.949

a. Predictors: (Constant), team capabilities, project definition, monitoring and control, risk management, customer involvement, management commitment, quality management

b. Dependent Variable: project success

Source: Owen survey, 2023.

From model summary table the R square value (0.799) explain that 79.9 percent of the factor affecting project success as represented by the seven independent variables that were under investigation.

4.8.2.2. ANOVA Analysis

The sixth column of ANOVA table is the F-ratio, which is a test of the null hypothesis that the regression coefficients are all equal to zero. Because R square is not a test of statistical significance (it only measures explained variation in Y(dependent variable) from the predictors X(independent variables), the F-value is used to test whether or not R square could have

occurred by chance alone. In short, the F-ratio found in the ANOVA table measures the probability of chance departure from a straight line.

Table 4. 20. ANOVA Table

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.143	7	1.020	19.512	.000[b]
	Residual	3.817	73	.052		
	Total	10.960	80			

a. Dependent Variable: project success

b. Predictors: (Constant)

Table 4.20 showed that, the value of F is 19.512, which is significant at p = 0.050 (significance = 0.000, which is less than 0.05). The result confirmed that there is less than a 5% chance that an F-ratio found to be larger than 19.5, if the null hypothesis proposed about F-ratio were true. Therefore, we can conclude that our regression model results in significantly better prediction of project success and that the regression model overall predicts the project success significantly well.

4.8.2.3. Analysis of Regression Coefficients

In order to know which of the predictors' i.e. project definition, management commitment, team capabilities, stakeholder involvement, risk management, quality management, monitoring and control has contributed significantly to our understanding of Y (project success).

The following table presented standardized coefficient (β), standard error, t- coefficient and significance level of the regression analysis.

Table 4. 21. Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.516	.367		2.769	.023
Customer involvement	.179	.033	.400	5.381	.000
Management commitment	.289	.058	.007	3.092	.000
Monitoring and control	.022	.025	.064	1.876	.013
Project definition	.326	.042	.053	3.750	.000
Quality management	.033	.033	.075	2.985	.028
Risk management	.152	.059	.414	5.511	.000
Team capabilities	.240	.045	.412	5.347	.000

Dependent Variable: Project success

Source: Own survey, 2023.

The equation of multiple regression analysis to determine the relationship between project success of the Addis Ababa City Mega construction projects and the sevens project success factors: project definition, management commitment, team capabilities, stakeholder involvement, risk management, quality management, monitoring and control found to be:

$Y = \beta 0 + \beta_1 PD + \beta_2 MC + \beta_3 TC + \beta_4 SI + \beta_5 RM + \beta_6 QM + \beta_7 M\&C + \varepsilon)$

Where: Y – Project success

PD – project definition

MC– management commitment

TC– team capabilities

SI – stakeholder involvement

RM – risk management

QM – quality management and

M&C – monitoring and control

And β_0 , β_1 , β_2 , β_3 ,β_4, β_5 ,β_6 and β_7 are coefficients of constant, project definition, management commitment, team capabilities, stakeholder involvement, risk management, quality management, monitoring and control respectively.

Therefore,

Y = 0.506 + 0.326PD + 0.289MC + 0.240TC + 0.179SI + 0.152RM + 0.033QM + 0.022M&C

Based on the above equation, if project definition varied by one unit (and management commitment, team capabilities, stakeholder involvement, risk management, quality management, monitoring and control keep constant) Y (project success of AA mega construction projects) will differ by β_1 (0.326) units on average. Therefore, according to this model if project definition increases by 1%, on average, the success of mega project will be increased by 0. 326 %. The same holds for the other six variables.

Similarly, one percent change on management commitment, team capabilities, stakeholder involvement, risk management, quality management, monitoring and control can brings a change of 0.289, 0.240, 0.179, 0.152 and 0.022 units on mega construction projects success respectively.

But, if all success factors project management have not been well practiced (project definition, management commitment, team capabilities, stakeholder involvement, risk management, quality management, monitoring and control equals to zero), the success of AA mega construction projects will start form 0.506.

4.8.2.4. Testing of Hypothesis on Effects of Critical Success Factors and Project Success

In relation to the significant effects of project definition, management commitment, team capabilities, stakeholder involvement, risk management, quality management, monitoring and control on the success of AA mega construction projects:

Project definition has a positive and significant influence on AA mega construction project success at p value of 0.000 i.e. $p < 0.05$. The value of the coefficient of project definition was also found to be 0.326 which means that, keeping other variables constant, a unit change in project definition cause 32.6% increase in AA mega construction project success.

Management commitment has a positive and significant influence on AA mega construction project success at p value of 0.000 i.e. $p < 0.05$. The value of the coefficient of management commitment was also found to be 0.289 which means that, keeping other variables constant, a

unit change in management commitment cause 28.9% increase in AA mega construction project success.

Team capability has a positive and significant influence on AA mega construction project success at p value of 0.000 i.e. $p < 0.05$. The value of the coefficient of team capability was also found to be 0.240 which means that, keeping other variables constant, a unit change in team capability cause 24.0% increase in AA mega construction project success.

Stakeholder involvement has a positive and significant influence on AA mega construction project success at p value of 0.000 i.e. $p < 0.05$. The value of the coefficient of stakeholder involvement was also found to be 0.179 which means that, keeping other variables constant, a unit change in stakeholder involvement cause 17.9% increase in AA mega construction project success.

Risk management has a positive and significant influence on AA mega construction project success at p value of 0.000 i.e. $p < 0.05$. The value of the coefficient of risk management was also found to be 0.152 which means that, keeping other variables constant, a unit change in risk management cause 15.2% increase in AA mega construction project success.

Quality management has a positive and significant influence on AA mega construction project success at p value of 0.028 i.e. $p < 0.05$. The value of the coefficient of quality management was also found to be 0.033 which means that, keeping other variables constant, a unit change in quality management can cause 3.30% increase in AA mega construction project success.

Monitoring and control has a positively and significantly influence on AA mega construction project success at p value of 0.013 i.e. $p < 0.05$. The value of the coefficient of monitoring and control was also found to be 0.022 which means that, keeping other variables constant, a unit change in monitoring and control causes 2.20% increase in AA mega construction project success.

CHAPTER FIVE

MAJOR FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

This chapter presents the major findings of the study according to the research questions, conclusions drawn from the findings and recommendation suggested for future studies in the construction industry and discipline of project management.

5.2. Major Findings

Majority of sampled respondents were male (70.4 percent), age range of more than 30 years (81.5 percent), from project sponsor, main contractor and consultant organization (75.3percent), certified or trained project manager (65.5 percent), experience in project management for 5 years or more (59.3 percent), involved in 5 or more projects (85.2 percent), and involved in concurrent project handling (69.1 percent).

More of mega projects (76.5 percent) fall in acceptable range of project success with respect to time i.e. up to 15 percent of overtime. About three fourth (74.1 percent) mega projects fall in acceptable range of project success with respect to budget. Majority (83.9 percent) of Addis Ababa mega construction projects either meet or exceeded their requirement this indicate the success of project with respect to scope (requirement). More than three fourth (77.8 percent) of mega construction projects of Addis Ababa meet or exceeded their quality standard.

Majority of sampled respondent rated the importance of defining the project is most important for success of the project with mean value of 4.55. Stakeholder involvement from different groups often important factors for success of Addis Ababa city government construction project with mean value of 4.01.

A mean value of 4.37 of management commitment implied that it is most important to facilitate success of mega construction project of Addis Ababa city government. More of sampled respondent replied that monitoring and control is often important in order to achieving project goals and its success with mean value of 3.95.Risk management also often important in fostering success of mega construction projects with mean value of 3.3.72.

A capability of project management team is suggested as most important towards success of mega construction in Addis Ababa with mean value of 4.48. A mean value of 3.61 for quality management inferred that it is important to some extent for project success.

The success factors were shortlisted and selected after conducting extensive literature review on success criteria, critical success factor and project success factor. The internal consistency reliability was conducted on all success factors and Cronbach's Alpha (α) was observed to be more than 0.70 (Cronbach's alpha = 0.789) inferring that the measuring variables were deemed reliable.

To explore the critical success factor they considered as important for a project to be successful. As can be seen in Table 4.14, the top three critical success factors most perceived by sampled respondents of Addis Ababa mega construction project are project definition, management commitment and team capabilities ranked first, second and third respectively. These are followed by monitoring and control, stakeholder involvement, quality management, and risk management ranked fourth to seventh respectively.

Project definition encompasses basic factors such as scope, cost evaluation, project objectives, assigning of project manager, and preliminary risk analysis. Management commitment includes support from top management, leadership style, competency and experience.

Availability of sufficient personnel, technical competence, training, and coherent team work behaviour are included in team capabilities. Monitor and control composed of aspects to be monitored, project progress report, cost and schedule adjustment, and feedback. Stakeholder involvement covers full authority and knowledge to make decision, good relationship among them, and opportunity to add input.

Quality management aspect of project success are quality plan, quality assurance process, conformity of all stakeholders to quality management process, documenting and tracking of quality performance. At last risk analysis, risk assessment of likelihood and severity addressed by risk management factors of project success.

Correlation test was carried out to assess whether the various success factors can be associate with project success. SPSS software was used to test the individual success factor to determine

the strength of the correlation and also determine if the success factors are statistically significant. Based on the Table 4.16 (Spearman's rho correlation coefficient), project definition, monitor and control, management commitment, team capabilities, stakeholder involvement, quality management, and risk management correlate significantly ($p < 0.05$) with project success. The result demonstrates that project definition had strongest positive correlation with project success ($r = 0.540$, $p = 0.000$) among the seven factors, followed by management commitment ($r = 0.472$, $p = 0.000$), team capabilities ($r = 0.467$, $p = 0.000$), monitoring and control ($r = 0.419$, $p = 0.000$), stakeholder involvement ($r = 0.284$, $p = 0.010$) , quality management ($r = 0.260$, $p = 0.019$) and risk management ($r = 0.250$, $p = 0.048$). A strong correlation in project definition denotes that the greater the project mission, objectives and schedules are well defined the higher chance that the project will be successful. A second strong correlation in management commitment denotes that the greater the support from top management, the higher chance that the project will be successful and so on.

From the regression analysis all the independent variables have positive and significant effect on the dependent variable (project success). Project definition ($\beta = 0.326$ and $p = 0.000$), management commitment ($\beta = 0.289$ and $p = 0.000$), team capabilities ($\beta = 0.240$ and $p = 0.000$), stakeholder involvement ($\beta = 0.179$ and $p = 0.000$), risk management ($\beta = 0.152$ and $p = 0.00$), quality management ($\beta = 0.179$ and $p = 0.028$), monitoring and control ($\beta = 0.022$ and $p = 0.013$)

5.3. Conclusions

There are plenty of success factors that guarantee the overall success of project. These success factors varied with respect to industry sector, nature of ownership, perceptions of the project managers, mixes of stakeholder etc. In this study as the project is owned by the government (public project) seven success factors such as project definition, management commitment, team capabilities, stakeholder involvement, monitoring and control, quality management, and risk management were identified to be strongly correlated with project success. Hence, if the project office well managed these factors can be exhaled in its project success.

Various success factors differently related to projects success. The extent of relationship among them is determined by the purpose of the project and nature of ownership. Based on the relative importance of success factors critical success factors were selected based on their relative rank. So, the rank dictate priorities given to each factors in order to successfully manage the projects.

The positive and significant effects of all the independent variables on project success infers that any improvement of independent variable induce significant change on the overall project success. Therefore, any change on project definition, management commitment, team capabilities, stakeholder involvement, monitoring and control, quality management, and risk management have meaningful effect on the success of mega construction project of Addis Ababa City Administration.

5.4. Recommendation

- ✓ The contribution of this empirical research provides as a reference that may help future project managers to identify the specific factors to focus on when engaging projects in construction industry sector.
- ✓ Project organization supposed to assess its own critical success factors in order to manage their projects effectively and paying more attention on it.

Further Research:

- ✓ The success criteria evaluated in this study is only seven these are not the only success factors for project success. Therefore, further study should evaluate an additional success factors that affects the success of project.
- ✓ The criteria to measure project success should not only confine to the traditional project efficiency measure such as time, cost, scope and quality but should also consider the other dimensions. So, in the future it is demanding to include other dimensions of project success different from time, cost, scope and quality.
- ✓ In addition the significant effect of success factors affected by the sectors, but this study considered only construction project. Hence, evaluating success factors across different sectors is mandatory to provide strong empirical evidence on critical success of project management.

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ANNEXES

Questionnaire

Addis Ababa University

School of Commerce Post Graduate Programs

Department of Project Management

Dear respondents

I kindly request you to spent your Precious time to fill the questionnaire as frank as and responsible as possible. I inform you that, the information you provide will be consumed for academic purpose only. It will be handled in a confidential manner and will not be used to identify you in any way. Therefore, you all are not expected to write your name.

Thank You!

I. General Information of Respondent

1. Gender
   A. Male B. Female
2. Age
   A. Less than 20 B. 20-29 C. 30-39 D. 40-49 E. 50 and above
3. Type of organization
   A. Project Sponsor (developer) D. Consultant
   B. Main contractor E. Outsource service provider
   C. Sub-contractor
4. Where is your project base in?
   A. National B. International
5. Are you a certified or trained Project Manager?
   A. Certified Project Manager
   B. Trained Project Manager
   C. Neither certified nor trained
6. How many years of working experience in the context of project management?

A. Less than 2 years
B. 2-5 years
C. 6-9 years
D. 10 years and more

7. How many projects your experiences contain?
A. Less than 5
B. 5 to 10
C. 11 to 15
D. More than 15

Part Two
Measure of project success
INSTRUCTION: Please rate the following dimensions of project success by choosing only one number from 1 to 7 based on scale mentioned below.

Range	Schedule	Budget	Scope	scale
>60%	over time	over budget	requirements missed	1
45-59%	over time	over budget	requirements missed	2
30-44%	over time	over budget	requirements missed	3
15-29%	over time	over budget	requirements missed	4
1-14%	over time	over budget	requirements missed	5
	On time	On budget	Requirement meet	6
	Ahead of schedule	under budget	Requirement exceeded	7

A. Measure of project success

No	Project success dimensions	1	2	3	4	5	6	7
1.1	How successful was the project in meeting project time goals?							
1.2	How successful was the project in meeting project budget goals?							
1.3	How successful was the project in meeting scope and requirements goals?							

B. Measures of Satisfaction

Instruction: Please rank the successfulness by choosing only one number from 1 to 5 according to the followed range:

Status	Scale	Status	Scale	Status	Scale
Failure	1	Not fully successful	2	Mixed	3
Successful	4	Very successful	5		

No.	,Aspects of satisfaction, success	1	2	3	4	5
1.4	How do you rate the project sponsor's satisfaction with the project's deliverables?					
1.5	How do you rate the project team's satisfaction with the project?					
1.6	How do you rate the client's satisfaction with the project's results?					
1.7	How do you rate the end user's satisfaction with the project's product?					
1.8	How do you rate the overall success of the project?					

Part Three: Importance of project success factor to project successfulness
INSTRUCTION: Please rate the importance of each success factors by choosing only one of the numbers from 1 to 5 according to the following range.

Unimportant	Little Importance	Moderately Important	Often Important	Most important
1	2	3	4	5

No.	Success Factors categories Variable	1	3	3	4	5
1	Project Definition					
1.1	Up-front risk analysis was conducted before the project starts					
1.2	The key persons for project management were knowledgeable in principles and process					
1.3	An effective progress tracking mechanisms was followed					
1.4	Well-defined project scope and objectives were developed for the project					
1.5	Up-front detailed cost evaluations were performed and validated					

2	Project Success					
2.1	The project was successful in terms of quality of the project outcome or of the resulting product.					
2.2	The project was successful in terms of costs and efforts being under budget or within estimates					
2.3	The project was successful in terms of scope and requirements of the project being met.					
2.4	The project was successful in terms of timeliness of project completion					
3	Customer Involvement					
3.1	The customer representative on the project had full authority and knowledge to make decisions on-site					
3.2	The project was conducted with strong customer commitment and presence					
3.3	A good relationship with the customer was maintained throughout the project					
3.4	The clients were given the opportunity to provide input early in the project development stage					
3.5	The limitations of the project have been discussed with the clients (what the project is not designed to do)					
4	Team Capabilities					
4.1	All the team members in the project were capable of working in a coherent, self-organizing teamwork manner					
4.2	There was sufficient manpower to complete the project					
4.3	A high technical competence and expertise was demonstrated by the team members					
4.4	Adequate technical and /or managerial training (and time for training) was available for members of the project team.					
4.5	Job description for team members have been written and distributed and were understood.					
5	Management commitment					
5.1	The project was supported by management commitment through a committed sponsor or a committed organization manager					
5.2	The project received strong executive and management support					
5.3	Project manager leadership style had influenced the performance of the project team and led to successful					

	implementation of projects					
5.4	Project manager had maintained a leadership style that adapts to each employee assigned to the project.					
5.5	The project manager was competent and possessed with the necessary skills, experience and qualification.					
6	Monitor and control					
6.1	All important aspects of the project were monitored					
6.2	Regular meetings to monitor project progress and improve the feedback to the project team were conducted					
6.3	Cost control was precisely adjusted by taking into account any changes and feedback from project performance					
7	Quality management					
7.1	Organization had developed quality plan with project technical quality standards, quality assurance processes, quality standards,					
7.2	Owners, suppliers, contractors, and all tiers of sub-contractors conform to quality management process and practices					
7.3	There was a proper documenting and tracking procedure for the quality performance of contractors, sub-contractors and suppliers					
8	Risk management					
8.1	Project plan included risk analysis to identify threats and evaluate risks in the project					
8.2	Risk assessment was carried out to identify the likelihood and severity of risk/hazard					
8.3	Continuous assessment was held on decisions taken during project life cycle which leads to project risk enhancement					

Lists of Addis Ababa City Administration Mega Construction Projects

- Abrehot (enlightenment)Library
- Meskel Square redevelopment
- Beautifying Sheger
- Renovation of Addis Ababa City Hall
- Adwa +000 project
- Africa Convention and Conference center
- Unity park
- National Palace Parking lot
- National Theatre new building
- Zewditu Hospital expansion project
- Agricultural products market center
- Shola Gebeya Parking Lot