Assessing the Relationship between Project Management Maturity and Project Success: The Case of YOTEK Construction

By: Bizuneh Ahmed

A Research Project Work Submitted to the School of Graduate Studies of AAU in Partial Fulfillment of the Requirement for the Degree of Master of Arts in Project Management

Advisor: Wubshet Bekalu (PhD)

Addis Ababa University, School of Commerce
Addis Ababa, Ethiopia

June, 2023

ADDIS ABABA UNIVERSITY COLLEGE OF BUSINESS AND ECONOMICS
SCHOOL OF COMMERCE DEPARTMENT OF
PROJECT MANAGMNET

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By: Bizuneh Ahmed
GSD/1644/13
Approved By: -

Research Advisor	**Signature**	**Date**
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Internal Examiner	**Signature**	**Date**
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External Examiner	**Signature**	**Date**
_____	_____	_____

June, 2023

STATEMENT OF DECLARATION

I, Bizuneh Ahmed, declare that the project work titled " Assessment of the Relationship between Project Management Maturity and Project Success: The Case of YOTEK Construction" 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. This research has not been submitted for any degree at this or any other institution. It is provided as part of a Master of Art in Project Management degree program.

Bizuneh Ahmed

Signature: _____

Date: _____

Advisor: Dr Wubshet Bekalu

Signature: _____

Date: _____

June, 2023

Addis Ababa, Ethiopia

ACKNOWLEDGMENTS

First and foremost, I would like to thank God for his unconditional guidance and wisdom to finish this paper. My advisor, Dr. Wubshet Bekalu, deserves my gratitude and thanks for his insightful guidance and assistance during this study. I also want to express my gratitude to the groups and everyone who helped make this study possible by providing funding, resources, or other support, whether directly or indirectly.

Finally, my biggest thanks to my family and friends Tigist Abebe, Engineer Abiy Dagmawi, Ahmed Hussen, Messay Ahmed, Soliyana Anteneh, Yemei and Bisre who never give up on me and motivate me to the finish line with your everlasting and continued support.

Bizuneh Ahmed

Addis Ababa, Ethiopia

June, 2023

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ACRONYMS AND ABBREVIATIONS

AAMPCO	Addis Ababa Mega Projects Construction Office
AALAP	Addis Ababa Leadership Academy Project
ANSI	American National Standardization Institute
CMMI	Capability Maturity Model Integration
CMM	Cost Management Maturity
ECDSWC	Ethiopian Construction and Supervision Works Corporation
ETB	Ethiopian Birr
FDRE	Federal Democratic Republic of Ethiopia
GDP	Gross Domestic Product
HR	Human Resource
IMPA	International Project Management Association
MCP	Mega Construction Projects
PM	Project Management
PMBOK	Project Management Book of Knowledge
PMI	Project Management Institute
PMM	Project Management Maturity
PQM	Project Quality Management
PwC	Price water house Cooper
QMM	Quality Management Maturity
SPSS	Statistical Package for Social Sciences
SMM	Scope Management Maturity
TMM	Time Management Maturity
WBS	Work Breakdown Structure

ABSTRACTS

The relationship between project management maturity and project success has been examined before by various researchers including in the construction sector and this research could also be added to that collection. The study aimed to undertake the relationship between project management maturity, based on the four pillars of PM (scope, time, cost and quality,) also assessed the level of project success and lastly correlation between the project management maturity and project success by taking Yotek Construction as the case study. Primary data was collected using survey questionnaire which was an adaptation of an online survey published by surveymonkey.com and delivered to selected members of the project either in hardcopy or send a link of Google form to be filled. As the secondary data; related books, articles, journals, publication and documents from the project office were reviewed. The result of the study presents as frequency, percentages, mean and pearson correlation coefficient and the data collected analyzed by using SPSS version 29 software and MS excel. The results from the study revealed that there is a positive relationship between scope, time, cost and quality management maturity levels and project success. The findings of the study also showed that the project management maturity level in terms of the four pillars of PM knowledge areas of the company discovered that its stands at level 3. Furthermore, scope, time and quality management maturity was found to have significant relationship with project success.

Key Words: *Construction Project, Project Management Maturity, Project Success*

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

According to the Ministry of Construction in Ethiopia, the construction industry is expected to experience a rapid growth rate of 10.5% over the next 10 years, making it the second-fastest growing industry worldwide (FDRE Ministry of Construction, 2015). The National Bank of Ethiopia's 2018/19 Annual Report shows that the construction sector contributes to 72.596% of the Industry sector, which in turn makes up 28.1% of the country's GDP. Additionally, the construction industry is projected to maintain an annual growth rate of 8% until 2026. Companies are striving to deliver projects effectively and successfully because of the fact that project management has become dominant way for accomplishing work (Grant, K. P. and Pennypacker, J. S., 2006).

Project Management Institute (PMI) defines a project as a temporary endeavor that aims to create a unique product, service, or result. Project management involves the application of knowledge, tools, skills, and techniques to meet the project's requirements (PMI, 2013). Construction project management involves planning, coordination, and control of a project from conception to completion on behalf of a client (Walker, A., 2015). The success of a project is dependent on various factors such as project size, complexity, experience of owner, project stakeholders, and type of projects. Criteria of project success is defined as the set of principles or standards by which favorable outcomes can be completed within a set of specifications (Chan, A. P. C., & Chan, A. P. L., 2004). Contractors, clients, designers, and consultants do have their project success criteria because the project objectives of each entity vary.

Ethiopian construction projects have been affected by factors such as owner's competence, conflict among project participants, and poor human resource management (Sinesilassie, Tabish, & Jha, 2017). A developed project management system is necessary to fully reap the benefits of effective project management (Beset, 2007). Maturity in project management involves the existence of proper foundations of tools, techniques, processes, and culture

(Kerzner, 2003). Organizational Project Management Maturity refers to the level of an organization's ability to deliver desired strategic outcomes in a predictable, controllable, and reliable manner (PMI, 2013).

Organizations can use project management maturity measures to identify areas for improving project performance (Brookes, Butler, Dey, and Clark, 2014). To effectively deliver projects and increase performance, organizations must continuously evaluate their results and purposefully approach improvement efforts (Hillson, 2003). These improvement efforts for delivering projects must have purposeful approach by measuring where organization stands for its project management and where it wants to go (Grant, and Pennypacker, 2006). Project Management Maturity Models (PMMMs) provide a structured framework for measuring, benchmarking, and improving project management practices (Yazici, 2009).

There are over thirty maturity models available, with the majority including five levels of maturity as listed by Vergopia (Vergopia, 2008). Various researchers have examined the relationship between PPM and success, using different models, and have come to varying conclusions. However, most studies have shown a positive correlation between an organization's project management maturity and the level of project success. Mateen (2015) found that project management maturity has a direct impact on project performance, with organizations that have higher project maturity displaying higher performance. The 2012 PMI Pulse of the Profession survey also revealed that organizations with high project management maturity had projects aligned with their business goals and delivered on time and on budget, as reported by their employees. A survey of project professionals and engineers from 75 US organizations also supported this finding (Yazici, 2009).

PWC (Price water house Coopers) conducted a survey in 2004 to evaluate impact of project management maturity on project performance and found that increase in project management maturity level results in increased project performance.

This study sets an objectives to assess PPM and success in selected YOTEK Construction PLC projects in Addis Ababa by investigating maturity levels based on the four pillars namely, Scope, time, cost and quality of PM knowledge area among various PMMMs

models. The assessment will give the business a clear knowledge of where it is in terms of PM success and maturity.

1.2 Background of the Company

The company YOTEK, which established in 1991 EC, is a top-rated Ethiopian General Contractor that specializes in civil engineering construction projects such as high-rise buildings, educational institutions, roads, and more. The company is certified with an ISO-9001, 2015 Quality management system and is equipped with modern machinery and tools. YOTEK has completed projects worth over 14 billion ETB and currently has projects worth 8.5 billion ETB. The Company has four business lines: Buildings, Roads, Real-estate, and Air Fields and received positive feedback from clients for its efficiency, resourcefulness, well-organized team, fast execution, and quality performance. This study aims to analyze the correlation between PM maturity and project success using YOTEK Construction as a case study. The study will identify areas for improvement in project management maturity and recommend solutions to increase the chances of success.

1.3 Statement of the problem

As external factors might affect the success rate and continuity of PM implementation, Yen stressed that having repeatable project management methodologies and successful implementation alone does not ensure project management maturity (Yen, 2016). Therefore, both project management maturity and excellence are necessary for long-term survival. A constant stream of successfully managed projects, as evaluated by attaining performance that benefits the entire firm and completing specific projects, is created by organizations that are mature and excellent at PM. Project management maturity leads to increased productivity for the organization (Mateen, 2015). YOTEK Construction's existence relies on the success of its construction projects, so PMM is crucial for comparing its project delivery capability with industry standards and achieving continued improvement and success through PMM.

Ineffective resource management, a lack of stakeholder management mechanisms, ineffective and inefficient procurement management, and inadequate quality management are some of the key reasons why construction projects perform poorly. The performance of a construction

project can fail due to a number of resource, stakeholder, procurement, scope management related and quality management related reasons, resulting in time overruns, cost overruns, being out of scope and quality issues. An organization can better understand its existing situation, spot gaps in PM practice, and come up with solutions to increase project success by evaluating its PMM level. This study focuses on the four pillars of PM knowledge (scope, time, cost, and quality) and their relationship with PM success, as well as the correlation between PMM and success. Previous studies on YOTEK Construction have described its project maturity level to some extent.

1.4 Research Questions

1.4.1 This study's primary research question is:

What is the correlation between PM maturity and PM success in YOTEK construction?

1.4.2 Specific Research Questions

The specific questions of this study are:

- What is the maturity level of project management in the case of YOTEK construction based on the four pillars of PM knowledge (Scope, Time, Cost, and Quality)?
- What is the level of PM success in the case of YOTEK construction?
- What is the correlation between PM maturity and PM success in YOTEK construction?

1.5 Research objectives

1.5.1 General objective

The general objective of this study is:

- To assess the correlation between project management success and maturity in case of YOTEK construction.

1.5.2 Specific objectives

The specific objectives of this study are:

- To assess the level of PM maturity
- To evaluate the degree of PM success
- To assess the correlation between PM success and PM maturity in case of YOTEK construction.

1.6 Significance of the Study

This study is significant for YOTEK Construction PLC as it provides insight into the company's current project management practices and ensures that project management maturity models are applicable to all projects. The results of this study will contribute to project management practices within and outside the company, including consultants, construction businesses, academicians, policy makers, and business practitioners.

1.7 The scope of the study

This study focuses on project management maturity in YOTEK Construction based on four pillars of PM knowledge namely Scope, Time, Cost and quality Management as given by the PMBOK's Construction Extension. These parameters are straightforward, user-friendly, and applicable to project managing. The study primarily uses quantitative with incorporates qualitative methods of document review. Only projects located in Addis Ababa, including the AALAP (mega project), will be examined in this study, and the geographical coverage is restricted to Addis Ababa, Ethiopia.

1.8 Limitations of the study

Like any research project, this study has limitations. Due to time and budget limitations, not all of YOTEK Construction's projects were explored, notably those outside of the city Addis Abeba. The study was allocated a limited time frame, which was another obstacle. Lastly, this study focuses only on the four Project Management knowledge areas.

1.9 Organization of the study

The study is structured into five sections. The first chapter provides an introduction to the research, including background information, research problem, objectives, significance,

scope, and limitations. The next chapter includes both theoretical as well as empirical findings in a thorough overview of the relevant literature. The study methodology is covered in length in the third section, along with the research approach and design, sampling strategy, techniques for collecting and analyzing data and ethical considerations. The data that was gathered and examined are presented in the fourth chapter, and then the results are explained. The paper's recommendations, conclusions, and proposals for additional research are presented in the last chapter.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

The aim of the study was to determine the maturity level of YOTEK construction and its correlation with project success. The researcher reviewed various literature sources, including PMI (2016), PMBoK's construction extension, Kerzner's (2006) project management maturity model, Mok et al.'s (2015) stakeholder theory on megaproject management, and Uribe et al.'s (2018) studies on project success. The study identified relevant variables for both dependent and independent variables, utilizing the Kerzner model and PMI's project management body of knowledge framework, as well as other academic writers in the field of construction project management. The chapter is divided into Theoretical and Empirical sub-sections.

2.1 Theoretical literature review

2.1.1 Project and Project Management

According to PMI, a project is a temporary effort aimed at creating a distinct outcome, product, or service. The term "temporary" implies that the project has a defined start and end time, as well as a specific scope and resources. The uniqueness of a project lies in the fact that it involves a set of activities designed to achieve a particular goal (PMI, 2017). Businessdictionary.com defines project management as the body of knowledge that deals with the principles, techniques, and tools used in planning, controlling, monitoring, and reviewing projects. PMI further defines project management as the application of knowledge, skills, tools, and techniques to project activities with the aim of meeting the project requirements PMI (2013, p.1).

2.1.2 Projects in the construction sector and their Management

The construction of well-known structures like the Great Wall of the Republic of China, the Pyramids of the country of Egypt, Stonehenge in England, and Axum and Lalibela in Ethiopia can be credited with the beginning of project management. However, the 1950s saw the creation of mathematical scheduling models like PERT and CPM, which marked the beginning of contemporary project management. Businesses began to see the advantages of

structuring work around projects in the 1960s, which led to the founding of the Project Management Institute in 1969 (Kilkelly, 2008).

Project management has gained popularity in various fields, including engineering, construction, manufacturing, and software development, among others (Beset, 2007). Today, project management is an essential part of an organization's strategic and tactical management system, and many organizations are striving to improve their project management processes to achieve excellence (Neverauskas and Railaite, 2013). Construction projects have unique characteristics, such as a complex and ever-changing environment, high risk, and the need to address various stakeholder requirements. Late completion of construction projects often results in significant penalties or damages (PMI , 2016).

2.1.3 The Construction PM Knowledge Areas

The PMBOK handbook contains knowledge areas that, with a few modifications to account for their particular features, methods, and applications, can be used to construction projects. These updates and additional knowledge areas applicable to construction projects are included in the Construction Extension of the PMBOK Guide (PMI, 2016). According to Sharma (2002), equipment and material expenses account for a sizeable amount of the expenditures associated with construction activities, which is why these knowledge areas are prioritized. There are a total of 13 knowledge areas for construction project management once the HSSE management knowledge areas are generalized as Project Safety Management.

The study conducted by Yoseph (Yoseph Alemayehu, 2017) shows the relation between PMM and Project management success on the basis of three knowledge area the so called iron triangles namely; time, cost and quality and conclude that all these parameters have strong correlation with project management success. This study expands its investigation in the four pillars of PM knowledge areas because scope management enables a project manager or supervisor can define, control and ensure that the project deliverables are met, without any issues/risks occurring during the project lifecycle and gives route to effective project management. Scope management also important parameter for project success as: it describes essential ideas like the project scope, deliverables, and other project limitations. In Scope management the deliverables meeting stakeholder expectations is one of the most

crucial results of efficient project scope management. As a result, it saves any shortcomings when it comes to project requirements. The important point is that procedures involved in each of the project scope management processes are capable of handling any unusual changes to the project's requirements, budget, or deadlines and project scope management is crucial in the success of project with other parameters time, cost and quality as well. Therefore, the four pillars of PM knowledge areas that are pertinent to the study are the main emphasis of this research.

2.1.3.1 Project Scope Management

The PMBOK Guide's PSM pertains to ensuring that a project encompasses all necessary work for successful completion while avoiding unnecessary tasks (PMI, 2013). Wysocki (2014) notes that the PSM knowledge area focuses on determining and documenting client requirements. For construction projects, the scope is defined by contract documents and design drawings (PMI, 2016). The Plan Scope Management, Collect Requirements, Define Scope, Create WBS, Validate Scope, and Control Scope processes are involved in this knowledge area (PMI, 2013).

2.1.3.2 Project Time Management

Time management aims to create and manage a project schedule to ensure timely completion (Crawford, 2002; PMI, 2013). In construction, meeting contractual time restrictions is crucial, making this knowledge area particularly challenging as the involvement of numerous stakeholders (PMI, 2016). Define Activities to Control Schedule are some of the processes involved Project time management (PMI, 2013).

2.1.3.3 Project Cost Management

In the construction industry, project cost management includes cost estimation, budgeting, monitoring, and control, as well as the day-to-day management of project expenses (PMI, 2016). This knowledge area is crucial to the success of construction projects as it affects the profitability of the organization. The engagement of several stakeholders, the availability of competent personnel, weather conditions that affect productivity, transportation in remote places, and changes in material pricing are among the difficulties in cost management for

construction, according to PMI (2016). Plan Cost Management, Estimate Costs, Establish Budget, and Control Costs are the processes that are included in this knowledge area (PMI, 2013).

2.1.3.4 Project Quality Management

Project management's use of regulations and procedures to apply the organization's quality management system within the framework of the project also supports ongoing efforts by the performing organization to enhance its processes as needed. Three processes encompasses with this knowledge area: controlling quality, executing quality assurance, and planning quality management (PMI, 2013).

2.1.4 Project Management Maturity

According to Kerzner (2003), the main objective of a project management system is to ensure a continuous flow of successful projects, and he argues in his 2009 book that organizational excellence is based on maturity. PMI (2013) also supports this claim, stating that project management maturity (PMM) can impact project success. Fortune et al. (2011), who highlight that the acceptance of PM approaches and technologies among professionals has grown dramatically since 2002, are cited by Mir and Pinnington (2014). According to the research, a well-developed PM system has many advantages and is more effective than conventional functional management (Bryde, 2003; Kwak and Ibbs, 2000).

2.1.5 Review of Various Models of PM Maturity

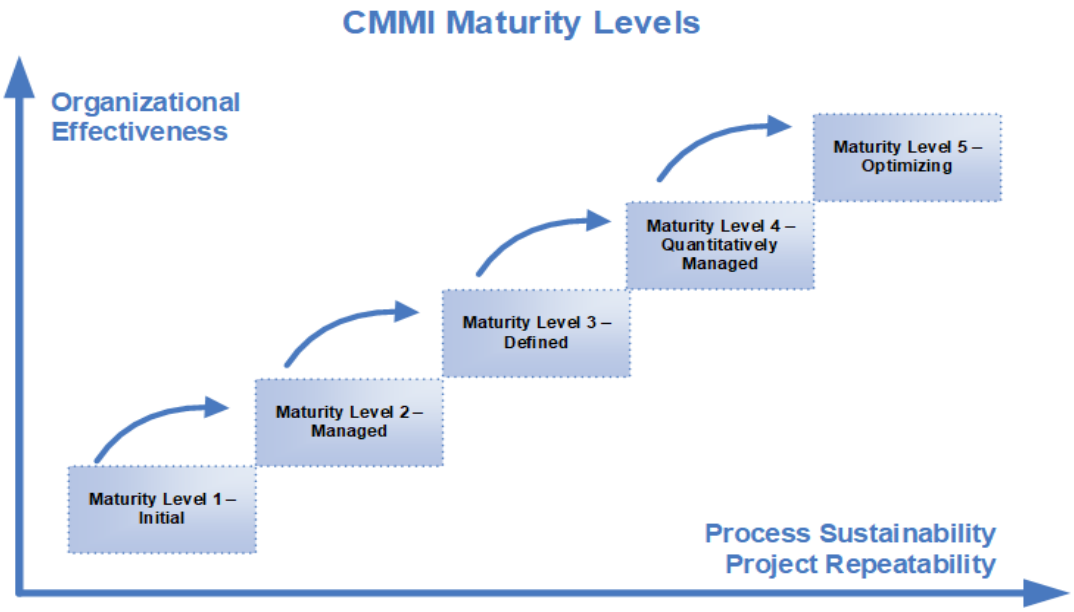
More than 30 PMMMs that were created in the 1990s and later were recognized by Grant and Pennypacker (2006). The selection criteria for a project management maturity model included alignment with the organization's methodology, scope, number of publications, independence from industry/organization type, ease of use, and years of existence. The Capability Maturity Model (CMM) is the cornerstone for the majority of PMMMs, and project management body of knowledge is used for assessment. This subsection reviews four PMMMs: CMM, OPM3, K-PMMM, and P3M3.

I. Capability Maturity Model (CMM)

The Capability Maturity Model (CMM), which was developed by the Software Engineering Institute (SEI) at Carnegie Mellon University, was the first project management maturity model. Initially created in 1987 and released in 1991, it was designed to assess the capability of software contractors for contract administration purposes, but was later extended to improve in the software development and other sectors. The model consists of five maturity levels that evaluate 18 process areas, 52 objectives, and over 300 key practices (Paulk et al., 1993; Sarshar et al., 1999). .

Each maturity level has the following characteristics:

Ad hoc and chaotic procedures, few clearly defined processes, and a reliance on individual effort characterize Level 1 (Initial) operations. The company does not offer a good atmosphere for software development, and amid crises, scheduled procedures are frequently abandoned. A strong project team or manager is absolutely necessary for success (Paulk et al., 1993). Repeatable Level 2: The foundational project management procedures are created to monitor functionality, cost, and schedule. There is process discipline to replicate prior accomplishments on comparable projects, and policies for project management are defined with processes to put them into practice Establishing institutionalized, trained, practiced, documented, enforced, measurable, and constantly improving management processes is the goal (Paulk et al., 1993). According to Paulk et al. (1993), Level 3 (Defined) of software process maturity involves a standardized and integrated process for engineering and management activities that is consistently used across all projects. Level 4 (Managed) includes a collection of product quality measures and a database for analyzing data from defined software processes. This level is predictable due to the application of well-defined measurements. Level 5 (Optimizing) is characterized by continuous improvement through incremental advancements and innovations using new methods and technologies.



(Source: Bi-insider.com, 2023)

Figure 2.1 CMM's Five Maturity Levels

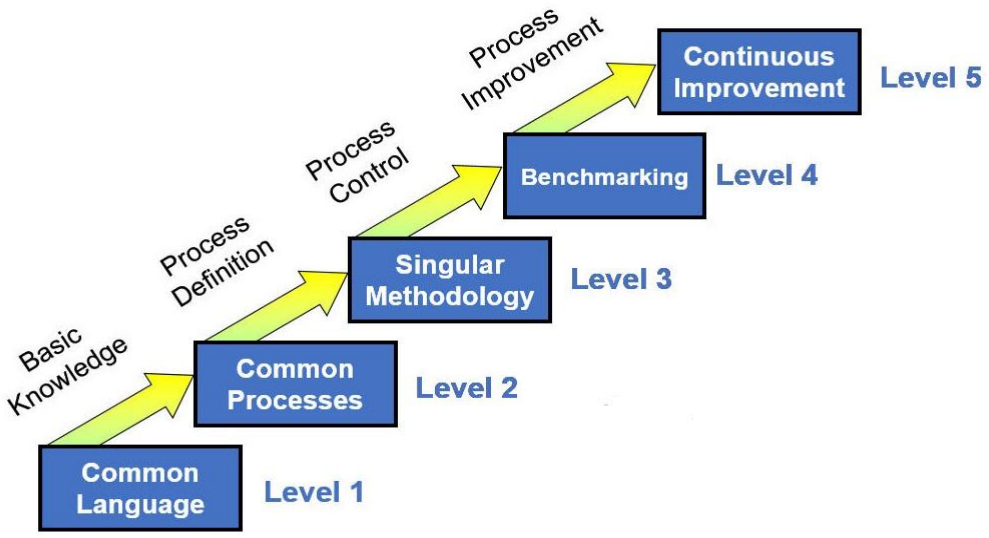
II. Organizational Project Management Maturity Model (OPM3)

The Project Management Institute (PMI) released the Organizational Project Management Maturity Model (OPM3) in 2003 to aid in the education of project management professionals and laypeople on the significant effects of implementing project management principles at the organizational level (PMI, 2003). The OPM3^{TM} model, which consists of three directories, offers close to 600 best practices in the field of project management, including portfolio management.

There are five stages of maturity for undertaking project, program, or portfolio management maturity evaluations. There is no such thing as a practice, hence Level 1 is none in OPM3. Level 2 entails the establishment and dissemination of a standardized project process within the organization, but only a few projects utilize it. Level 3 requires all projects to follow a standardized process that is measured to assess the organization's effectiveness. Level 4 involves adjusting the measured process to correct for non-adherence and determining upper and lower limitations. Finally, Level 5 is characterized by continuous process improvement as a result of implementing the Best Discipline standard.

III. Kerzner's PM Maturity Model (K-PMMM)

The K-PMMM maturity model was created by Harold Kerzner and has five levels. It is covered in his book from 2001 (Kerzner, 2001). Each level has unique qualities, challenges, dangers, and steps that must be taken in order to succeed. The model contains an assessment tool at the conclusion of each level's discussion, and passing each level requires knowledge and comprehension of basic concepts and procedures. Benchmarking, Common Language, Common Processes, Singular Methodology, and Continuous Improvement are the five levels.



(Source: kybridges.com, 2023)

Figure 2.2 K-PMMM's Five Levels of Maturity

IV. Project, Program and Portfolio Management Maturity Model (P3M3)

The Project, Program, and Portfolio Management Maturity Model (P3M3) was initially presented by the Office of Government Commerce (OGC) in 2006 (Mateen, 2015). P3M3 is a maturity model that focuses on the delivery of projects, programs, and portfolios and includes three sub-models: Portfolio Management (P3M3), Program Management (P3M3), and Project Management (P3M3). Each sub-model has seven process views that are rated on a scale of one to five, including Organizational Performance, Management Control, Benefits Management, Risk Management,

Stakeholder Management, Finance Management, and Resource Management (Swoden, 2008).

2.1.6 Project Success

The definition of success, as per the Canadian Oxford Dictionary (1998), is the achievement of a goal with a favorable outcome. However, when it comes to project success, there is no consensus on what constitutes it or project failure. Despite regular investigation, few concepts in project management have reached a consensus on definitions. Project success is a result of successful project management in delivering the project output, successful communication and understanding of stakeholder needs, and successful realization of the project's benefits by the organization (Badewi, 2015) As cited by (McLeod et al.). It is important to differentiate between project management success, measured against traditional performance gauges of time, cost, and quality, and project success, measured against overall objectives. One project can be said successful when the project finished with scheduled time, allocated budget, within scope, and specified quality standards. The members of the project team, project organization, external surroundings, prioritizing the development of quantifiable KPIs combined with company objectives, and creating fair and feasible targets are all factors that can affect the success of a project (Pretous, Jordan, & Steyn, 2012).

2.2 Empirical Review

Investing in project management maturity is expected to lead to higher project success, including cost savings, according to Ghorbanali (2011). There is a lack of consensus on what constitutes project success, but it is generally agreed that successful PM involves delivering the project output, understanding stakeholder needs, and realizing the project's benefits. Successful projects are completed on time, within budget, and meet quality standards. A link has been found between project management competence and business performance, with firms possessing strong project management capabilities outperforming those without (Kwak, 1998; PM Solutions, 2014; Yazici, 2009). The use of project management software and certified project managers has also been linked to higher project performance (Price water house Cooper, 2004; PM Solutions, 2014).

According to Ghorbanali (2011), investing in project management maturity should have additional benefits such as cost savings since high PM maturity is associated with higher project success. With higher levels of maturity in terms of project effectiveness and efficiency, as well as having a competitive edge in the market environment, prosper, according to Backlund et al. (2014). Completing projects effectively and efficiently, getting better results through planning, quick problem resolution, and resolving future problems before they arise, according to (Meda & Evelina, 2015).

The other study conducted 2016 by Pawar, Deshmukh, and Chavan aimed to evaluate project management maturity in the construction industries of developing countries, specifically India. To address existing shortcomings, they developed a PM maturity model that was customized for emerging nations. The model was applied to assess the maturity of Indian contractors, revealing that basic project management procedures were being informally practiced at a low level of maturity. The study also found that contractors certified by ISO demonstrated higher levels of project management maturity compared to those without certification. Bear in mind that Yotek construction is ISO-9001, 2015 certified and what I have found in this study that the Company is at average project management maturity level (Level 3). According to Pawar, Deshmukh, and Chavan's (2016) research, participation in the Capacity Building Program positively influenced project management maturity, resulting in higher levels of maturity among contractors who took part compared to those who did not. The study also revealed that cost, material, procurement, finance, time, and human resource management exhibited higher levels of maturity, while risk and safety management were identified as the least mature areas of project management.

2.3 Conceptual Framework

PM solutions provide a maturity model with five levels that defined by PMBOK's knowledge areas, and the researchers use a suitable benchmark to assess PMM aspects. The theoretical framework suggests that utilizing PMM models and achieving maturity in project management is crucial for project success. Furthermore, the four pillars of PM maturity (scope, time, cost, and quality) can ensure the success of a project.

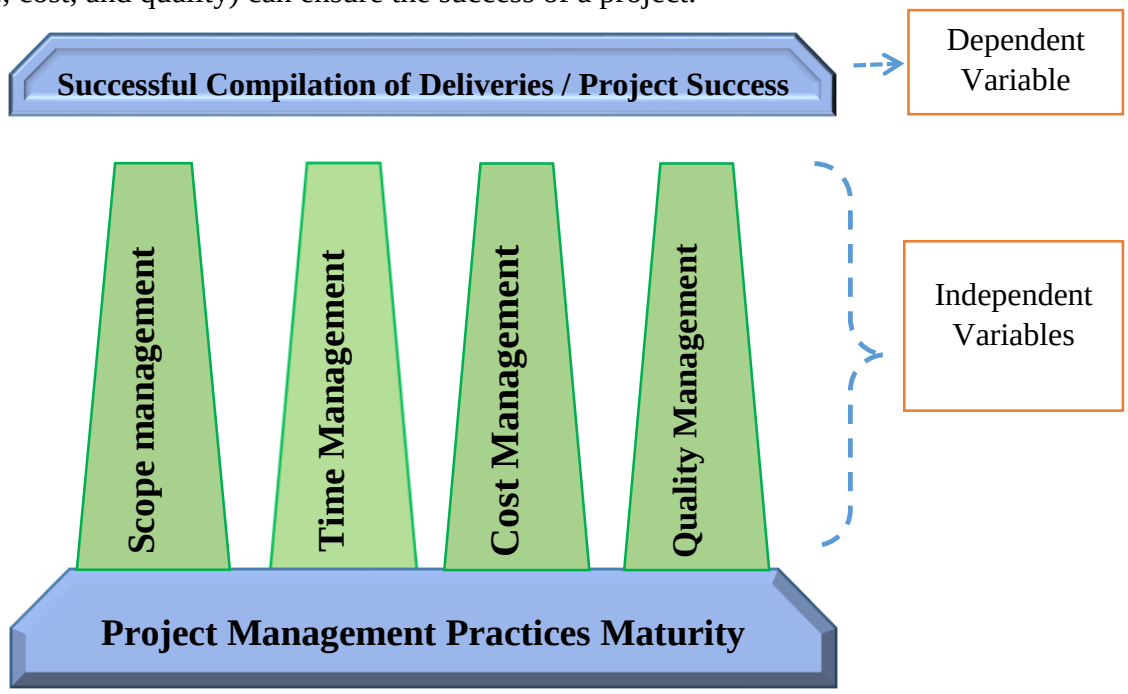


Figure 2.3 Four Pillars of Project Management Practices Maturity (created by researcher from literature review, 2023)

CHAPTER THREE

RESEARCH DESIGN AND METHODOLGY

3.1 Introduction

In this chapter, the focus is on the connection between project management maturity and project success at YOTEK Construction PLC. The chapter provides details on the sampling techniques used for data collection, the suitability of the research design and methodology employed throughout the study. Additionally, it covers the instrument's reliability and validity, the quantitative analysis applied for data collection and analysis, and ethical considerations to safeguard the rights of participants.

3.2 Research Design

The choice of research method depends on various factors such as the research purpose, available data, and research questions. For this study, a quantitative survey research design was chosen to collect data from different projects and study groups using sampling theory and statistical analysis. This design helps to generalize the correlation between organizational project management maturity level and project success for a larger population (Iversen, 2004). The researchers also employed a correlational research design to determine the extent of correlation among the variables. Correlational research designs are quantitative research methods that measure the correlation between two or more variables or sets of scores (Creswell J. W., 2008).. As the study was time-bound, a cross-sectional design was developed , and data was collected using questionnaire through both internet using Google form or by giving hard copy to respondents the questionnaires to capture all data relevant to study. This method was chosen for its cost-effectiveness, time efficiency, and ability to capture data from respondents with limited internet access or weak data speed. Ethical considerations were also taken into account to safeguard the rights of participants.

3.3 Description of Variables

The study utilized a correlational research design to evaluate the degree of correlation between the variables. This approach involves quantitatively measuring the correlation between two or more sets of scores or variables. Specifically, the study focused on two

variables - dependent and independent. The dependent variable was project success, while the independent variables included scope, time, quality, and cost management maturity. By measuring these factors, the researchers were able to assess the PMM level of YOTEK construction.

3.4 Study Area and Target Populations

The study focuses on Yotek construction projects located in Addis Ababa, Ethiopia, including mega projects. The main objective is to investigate project management maturity and success in YOTEK construction using the parameters of four knowledge area provided by the Construction Extension of PMBOK's Guide, also known as the Four Pillars of Project Management (Krishnaphani K (2004). These pillars include Project Time Management, Project Cost Management, Project Quality Management, and Project Scope Management, and their correlation with project management success will also be examined.

The target population of the study consists of the employees of Addis ababa city government MPCO (client side), Employees of ECDSWC (consultant side) , Employees of Universal Consultants (consultant Side), Amoileta Share Company (client side) , Employees of Ethiopian Shipping and Logistics Construction department (Client side) and employees of Yotek Construction in different position from four Projects and Head office (Contractor side).

3.5 Sampling Methods and Sample Size

This study focuses on four specific construction projects now being undertaken by YOTEK in city of Addis Ababa, including the Addis Ababa Leadership Academy(Mega project), Ethiopian Shipping and Logistics Head Office Project, Black Lion Referral Hospital Expansion Project, and Amoilita Educational Institution Project. The researcher employed purposive (subjective or selective) sampling to select respondents for the study, using relies on one's judgment to choose individuals who could provide informative insights into project management practices. The sample size was kept small, with participants selected based on work experience, and knowledge in PM. This approach allowed for the collection of needed information in a short and limited time as ensuring good results.

3.6 Data Collection

The researcher utilized a questionnaire survey to gather quantitative data from the study participants, which was developed based on a comprehensive literature review. The survey was administered using Google form and sent to the respondents via email with a link. The questionnaire was adapted and created by surveymonkey.com for OPM3, which was chosen due to its extensive coverage, detail, and applicability to various industries. When choosing the model, Mateen (2015) took into account various factors such as the publisher, scope maturity level, PM process, identification of weaknesses, definition of maturity, and assessment of coverage. This was based on a study by Khoshgoftar and Osman (2009).

The study also used secondary sources of information, including in-depth assessments of the literature, company documents, project reports, publications, case research studies, and books.

3.7 Data Analysis Method

The collected questionnaires were systematically organized to ensure that the raw data was easily analyzed. The consistency of the responses was checked and the data was cleaned before being entered into a computer file. The reliability and clarity of the gathered data were thoroughly examined. The IBM Statistical Package for Social Sciences (SPSS) was used to analyze the data, with tables, percentages, mean, and frequency used to display the results. As the study involved two variables, correlation coefficient was utilized to investigate the link between the independent parameters, the so called four pillars of PM maturity and the dependent variable of project success. The correlation between PM maturity and PM success was revealed as a result of the correlation analysis.

3.8 Reliability and Validity

To ensure the accuracy of the collected data, multiple methods were employed. Using Cronbach's alpha, the researcher also evaluated the variables' internal consistency, which yielded a score as shown below table 3.1 for each four pillars of PM. This high score indicates that the survey questions used to measure the respondents' opinions about project management maturity are reliable and consistent. The responses are measuring the same

underlying construct and are consistent across the sample, making the data obtained from this study valid and trustworthy.

Parameters	Cronbach's Alpha
Project Scope management	.91
Project Time management	.94
Project Cost management	.93
Project Quality management	.92
N=	**31**

Table 3.1 Reliability Statistics (Own Survey, 2023)

3.9 Ethical Consideration

The researcher adhered to ethical research practices by obtaining consent from participants prior to data collection, informing them of the study's purpose, and allowing them to make an informed decision about their participation. Participants were assured of their right to withdraw at any time and were informed of the potential risks and benefits associated with the study. Anonymity and confidentiality were also maintained to protect participants' personal information and data. The researcher's information was kept confidential and not shared outside of the research.

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND INTERPRETATION

4.1. Introduction

The objective of this quantitative and correlational study was to evaluate the maturity of Yotek's construction project management knowledge by polling project managers from contractors, consultants, and clients involved in active project sites contracted with the company. Statistical analysis was conducted using SPSS version 29 software and Microsoft Excel to examine the collected data. The findings on the level of PPM of the company and project success in respect to the four pillars of PPM knowledge area (cost, quality, time, and scope) are also included in this chapter.

4.2. Response Rate

According to Mugenda & Mugenda (2003), a response rate of 50% was considered as sufficient for the purpose of analysis and reporting, a response level of 60% was good, and a respond level of 70% or more was deemed very good. 31 of the total 41 questionnaires that were delivered to the project stakeholders were properly completed and returned, yielding a return rate of 76% that is deemed appropriate for further research. The study's final sample size in this case was 31.

Technique of Questionnaire delivered	No. of delivered questionnaires	No. of appropriately filled and returned	Rate (%)
Via hard copy	26	20	77%
Online (Google form)	15	11	73%
Total	**41**	**31**	**76%**

Table 4.1 Number of returned and Rate of response (Own Survey, 2023)

4.3. Demographic Data

The aim of conducting a demographic analysis in this study is to provide meaningful insights to the readers by describing the characteristics of the respondents. The demographic survey comprised various variables such as professional certification status, position in the company, age, education level, work experience, department, and prior project management training or education.

Variable	Scale	Frequency	Percentage (%)
1.Gender	Male	20	65%
	Female	11	35%
	N=31		**100%**
2. Age	<25	0	0%
	26-29	9	29%
	31-35	5	16%
	>36	12	39%
	N=31		100%
3.Educational Background	Diploma	2	6%
	BA/BSc	22	71%
	MA/MSc	6	19%
	PHD	1	3%
	N=31		

Table 4.2 Demographic distribution (Own Survey, 2023)

The gender frequency analysis of the respondents' responses from Table 4.2 revealed that there were more male respondents (65.0%) than female respondents (35.0%). The survey separated the respondents' ages into four groups, with 39% of the respondents falling under the category of greater than 36 years. The remaining falls 29% and 16% at age category of 26 – 29 years and 30-34 years respectively. Here, no respondent in age category of below 25 years.

In respect to educational level, the majority of the respondents are Bachelor of Art(BA) and Bachelor of Science(MSC) holders which 71% covers and following this figure 19% have Master. The least numbers is 1 respondent who had Ph.D. (3%) and the remaining 6% have diploma.

4.4. Position and Department of the Respondents

From table the top three positions, Project Manager, Construction Engineer, and Office Engineer, are commonly sought-after roles, with each having a percentage of 13%. These positions are crucial for overseeing and managing construction projects from planning to completion. The highest percentage of 45%, are many other roles in the company, include project administers, surveyors, and finances. The remaining 6% are site engineers and 10% are project professionals. According to the aforementioned data, 50% of the respondents were engineers who were in charge of organizing, planning, and guiding the completion of particular projects inside the organization to guarantee their project success. Regarding to

respondents department From the total of 31 respondents, the majorities are from engineering, coordination and operation department with 58% whereas Finance department followed with 19% as they are responsible for managing the financial resources of the company, including budgeting, accounting and financial reporting.

Variable	Scale	Frequency	Percentage (%)
1. Position	Project Manager	4	13%
	Construction Engineer	4	13%
	Office Engineer	4	13%
	Site Engineer	2	6%
	Project Professional	3	10%
	Other	14	45%
	N=31		100%
2. Department	Finance	6	19%
	Engineering	12	39%
	Operation	4	13%
	Coordination	2	6%
	Machinery and Equipment	2	6%
	Other	5	16%
	N=31		100%

Table 4.3 Position and Department (Own Survey, 2023)

4.5.Years of Experience and Project Management Training

Variable	Scale	Frequency	Percentage (%)
1. Years of Experience	Below 1	1	3%
	Between 1-5	7	23%
	Between 6-10	13	42%
	Between 11-15	5	16%
	Above 15	5	16%
	N=31		100%
2.Project Management Training	Yes	11	35%
	No	20	65%
	N=31		100%

Table 4.5 Experience and Project Management Training (Own Survey, 2023)

According to Table 4.5, only 3% of respondents had less than one year of work experience, 23% have between one and five years of experience, 42% have been employed for six to ten

years, and 16% have more than 15 years of experience in the industry. As a result, 74% of respondents had a minimum of six years of extensive experience.

According to the study's findings on participants in project management courses or training, 65% of respondents had never taken part in either. As a result, the responders are now working on projects, and since experience is the best teacher when it comes to project management techniques, closing this knowledge gap would allow the organization to develop its training programs.

4.6 Results and Data Analysis of the Study

The primary goal of this study was to determine the level of project management maturity of Yotek construction, using the four pillars of PM i.e. scope, time, cost, and quality management maturity. All research questions pertaining to maturity levels have the following response options: never and no need, never but probably should, yes but not always and appropriately, yes appropriately and competently, and yes in an exemplary manner. Each sentiment level for all elements of maturity questions are assigned a representation value scale of 1, 2, 3, 4 and 5 respectively. How many respondents chose each option is shown by the response frequency.

4.7. The Four Pillars of Project management Maturity Level

4.7.1 Scope management maturity

The exact task that has to be done must be defined as part of scope management. In addition, it entails creating a WBS, confirming the scope, and finally controlling the scope. This activity makes sure that every action is recorded and compared between the intended and actual course of action. Three questions on the maturity of Yotek construction projects were asked in order to assess the scope management maturity, as indicated in the table below.

The respondent’s response with regard to the first statement is that (35%) agree that the company has monitoring and control practice in regard to scope in the project appropriately and competently. A slightly smaller percentage (23%) rated that the company never practices

such monitoring and control, but probably should. A majority (35%) agree that the company practices monitoring and control appropriately, while only the remaining (10%) indicates that the company does so in an exemplary manner. The majority has positive responses about the use of monitoring and control practice related to scope management in the project within the company. Here, the company is at good level.

The following statement, "If the company uses computer software's or tools in related to the scope management process", that is, the majority of respondents (45%) agree and (16%) strongly agree with usage of computer applications or tools in the process," received disagreement from 19% of respondents.

The respondents were asked if the company practices by ensuring and verifying that all scope of the deliverables completed. A slightly smaller percentage (23%) are neutral on the issue, while a majority (35%) agree that such practices exist in appropriately and competently. From total respondents (26%) believes that the company expected to practice such verification the remaining (16%) strongly agree with the statement that the practices exist in exemplary manner. Overall, the result shows that almost 51% have positive responses about the existence of verification for all scope of the work when completed.

In overall terms, there is a 3.34 Maturity Level for Project Scope Management of the company. This means that Yotek Construction has documented and standardized its project scope management processes, and is actively monitoring and measuring their effectiveness. However, there may still expect an achievement for improvement in terms of optimizing these processes and continuously improving them over time.

PM Knowledge area	Response scale	Freq.	Perce. (%)
1. The company has formal monitoring and control practice of scope within contracted project	4	7	23%
	3	10	32%
	2	11	35%
	1	3	10%
		N=31	100%
2. The company uses computer applications or tools in scope management process.	4	6	19%
	3	14	45%
	2	7	23%
	1	4	13%

	N=31		100%
3.The company practices by ensuring and verifying that all scope of the deliverables completed	4	8	26%
	3	7	23%
	2	11	35%
	1	5	16%
	N=31		100%

Table 4.6 Scope management maturity (Own survey, 2023)

4.7.2 Time management maturity

Time is one of the four pillars of project management. Effective project time management aims to adhere to the schedule and complete projects on time. Time management becomes even more important because it never stops and never waits for anyone. Reduced stress, increased productivity, higher work standards, effective budget and resource management, and improved company image are some advantages of good project time management. Analyzing and creating a schedule and timeframe for project completion are both part of time management.

The first statement in time management were the company implement the tools and techniques in creating a project schedule, most of respondents (52%) believe that the company implements appropriately or in an exemplary manner. A significant number of respondents (29%) have a neutral opinion or believe that the company implements these processes, tools, and techniques yes but not always or probably. Among the respondents only a small percentage (13%) believe that the company never implements these processes, tools, and techniques appropriately. Here, the study suggests that 91% of respondents believe that the company implements this element appropriately or in an exemplary manner. However, 29% of respondents are not fully convinced that the company always implements these processes, tools, and techniques appropriately, this indicates there is still remain a room for improvement as accompany.

The second statements were the project schedule will be checked and if there is changes, those changes will be assessed and monitored. A considerable number of respondents (23%) have a neutral opinion or believe that this element assessed not always or probably. Only a

small percentage (10%) believe that these process will never happen. The study found that the company's approach to checking, monitoring, and assessing changes to the project schedule is satisfactory as 74% of respondents believe that it will be done appropriately or in an exemplary manner.

The other question was about the organization used WBS when developing the schedule tasks, only 10% of respondents are strongly disagree and 26% not fully convinced. But a majority of respondents (65%) believe that the company used WBS when defining the schedule either completely or exemplary manner.

The next statement was about project activities progress in the company monitored and controlled in regular manner, a slightly smaller percentage (26%) disagree but (29%) neutral in this statement, whereas (45%) believes that project activities continuously monitored and controlled appropriately or exemplary manner.

The fifth question was whether updating the project schedule on bases of a project baseline, A significant respondent (26%) disagree with the some figure the respondent believes that schedule not always updated. Significant of respondents (48%) believe that the company implements appropriately or in an exemplary manner, all this indicates there is a room for improvement as accompany regarding to updating schedule on a regular basis.

The sixth question was whether project has schedule deadline, significant number of res respondents (42%) Strongly agree or agree. But (32%) believes that project has no schedule deadline at all. This shows that the project schedule deadline were quite low level based on the observed data obtained.

From the next question, Only (26%) of the respondents disagree with this crucial question, however 73% of respondents think the organization uses computer technologies effectively or in an excellent way. From this, it may be inferred that "the application of computer tools" is rated as being of very high quality.

The final query concerned about the relation among activities identified and the tasks are sequenced, A slightly smaller percentage (26%) disagree and the majority (45%) believes that identify and sequencing low level.

The questions pertaining to time management maturity level had an overall mean score of 3.2. This indicates that a company has standardized and documented its project time management procedures and is actively monitoring and assessing their effectiveness. However, there may still be room for improvement in terms of optimizing these processes and continuously improving them over time.

PM Knowledge area	Response Scale	Freq.	Perce. (%)
1. The company implement the processes, tools and techniques used to develop a project schedule	4	9	29%
	3	6	19%
	2	12	39%
	1	4	13%
	N=31		100%
2. The organization describes how the project schedule will be checked, monitored and how changes to it will be assessed	5	3	10%
	4	6	19%
	3	7	23%
	2	13	42%
	1	2	6%
	N=31		100%
3. The organization used WBS when defining the schedule activities	5	3	10%
	4	8	26%
	3	9	29%
	2	7	23%
	1	4	13%
	N=31		100%
4. The Progress of project activities in the company continuously monitored and controlled?	4	8	26%
	3	9	29%
	2	9	29%
	1	5	16%
	N=31		100%
5. The Project Scheduling updated regularly?	4	8	26%
	3	8	26%
	2	9	29%
	1	6	19%
	N=31		100%
6. The project has schedule deadline (Start	4	10	32%

and finish dates are approved and fixed)	3	8	26%
	2	9	29%
	1	4	13%
	N=31		100%
7. Application of computer tools such as Microsoft project, Primavera, Microsoft excel etc. in scheduling	4	8	26%
	3	6	19%
	2	11	35%
	1	6	19%
	N=31		100%
8. The relation among activities identified and the activities are sequenced, for critical activities	4	9	29%
	3	14	45%
	2	5	16%
	1	3	10%
	N=31		100%

Table 4.7 Time management maturity (Own survey, 2023)

4.7.3 Cost management maturity

Cost Management involves estimating, budgeting, and controlling project costs. It includes developing a project budget, tracking expenses, and managing project finances to ensure that the project is completed within budget.

The procedure, tools, and techniques used to estimate costs for the project were implemented by the company, which was the first question regarding cost management maturity, a significant percentage of respondents (32%) stated that the company never implements this element on the project sites, but probably should. A similar percentage (32%) agree that the company implements these practices appropriately and competently. A slightly smaller percentage (26%) indicates that the company implements these practices but not always appropriately.

The second question was about project cost estimates examined and tracked as well as modification to them was evaluated, a significant percentage of respondents (42%) believes that the company examines and tracks project cost estimates and evaluates modifications to them appropriately and competently. A smaller percentage (19%) strongly agree that the company examines and tracks project cost estimates and evaluates modifications to them in

an exemplary manner. However, a minority of respondents (10%) replied practices are never implemented but probably should be, while another group (13%) rated that the company implements these practices but not always appropriately. All these figures indicates the company is at good level project cost estimates examined and tracked.

A majority of respondents (64%) believe that the company implements these practices appropriately or in an exemplary manner in response to the third question, which asked about the processes, tools, and strategies used in the preparation and documentation of a project budget. Only a small minority (16%) disagree, all these indicates that the respondents gave positive feedback on these practices.

The question about the projected project budget will be examined, tracked, and managed, and any modifications will be evaluated. (29%) of the respondents disagree, only small (10%) respondents believes the implementation is in exemplary manner. A significant (32%) of the respondents believes the projected project budget will be examined, tracked, and managed is not always implement. This implies the company gets low level and expected to imrove this gap.

The next question about EVM, a significant respondents (29%) disagree, (39%) of the respondents believe quality management processes are checked monitored, changes also assessed. (32%) strongly agree it implements either completely or exemplary manner. This all implies the company gets an average level in EVM tools and techniques.

Regarding the sixth question project cost tracking versus the baseline project budget, the majority of participants (32%) expressed their belief that the company is not implementing this practice effectively. This suggests that there is a lack of proficiency in monitoring project expenses in relation to the original budget.

The last question was about the use of cost and budgeting software, Even if the majority (45%) believes that implements appropriately or in an exemplary manner, the significant respondents (32%) disagree no implementation at all. This indicates that the company has low level in the use of cost and budgeting software in this technology era.

Overall, the mean score of the questions under Cost management maturity level is 3.1. This indicates that the company has made some positive progress in cost management practices but may need to focus on further developing their strategies to enhance their overall cost management maturity level.

PM Knowledge area	Response Scale	Freq.	Perce. (%)
1. Yotek construction implement the procedures, tools and techniques used to estimate costs on the project.	4	10	32%
	3	8	26%
	2	10	32%
	1	3	10%
	N=31		100%
2. How project cost estimates will be examined and tracked as well ashow modifications to them will be evaluated.	4	3	10%
	3	10	32%
	2	13	42%
	1	6	19%
	N=31		100%
3. Yotek describes the processes, tools and techniques used to prepare and document a project budget	4	5	16%
	3	6	19%
	2	15	48%
	1	5	16%
	N=31		100%
4. The projected project budget will be examined, tracked, and managed, and any modifications will be evaluated	4	9	29%
	3	10	32%
	2	9	29%
	1	3	10%
	N=31		100%
5. The use of earned value management techniques for monitoring cost and/or time	4	9	29%
	3	12	39%
	2	9	29%
	1	1	3%
	N=31		100%
6. Yotek practices in tracking of project cost against base line project Budget	5	1	3%
	4	12	39%
	3	8	26%
	2	8	26%
	1	2	6%
	N=31		100%
7. Yotek defines and requires the use of cost and budgeting software.	4	10	32%
	3	7	23%
	2	8	26%
	1	6	19%

	N=31	100%

Table 4.8 Cost management maturity (Own survey, 2023)

4.7.4 Quality management maturity

The method of quality management takes into account how to carry out a project in order to produce deliverables of the appropriate caliber. Project managers must continuously assess the effectiveness of the procedures and activities used in the project. When it comes to project quality management, deliverables are measured against predetermined standards, and course corrections must be made as needed during the project. Quality management process include quality planning, quality assurance, and quality control.

The first question in quality management maturity section offered to the respondent was whether Yotek Construction has any standard quality management policies, methods, and guidelines, (32%) of the respondents disagree, a majority of respondents (68%) has a appositive replies in the availability and implementation of standard quality management policies but among these (26%) of respondents has hesitation on complete implementation, the remaining respondents (42%) believes the standards are implemented ether completely or in exemplary manner. This implies Yotek is at good level and as the company is certified ISO-9001, 2015 Quality management system, it is expected to sustain for better improvement.

The second question was about bring the quality assurance into action, most of the respondents (61%) believes the quality assurance practices on ground completely. Only small respondents (10%) disagree with this. All the figures indicates the company is at good level in implement quality assurance into practice.

The next question gives to the respondents was audits the quality assurance in the project. The majority (48%) believes completely and (16%) in exemplary manner. The rest (19%) it is not always implemented and only (16%) disagree with this. All figure implies the company gets a positive response with some improvement expected.

The fourth statement was inspecting and document quality control on the projects, (29%) of the respondents disagree, only small (10%) respondents believes the implementation is in exemplary manner. A significant (32%) of the respondents believes inspect and documentation of quality control is not always implement. This implies the company gets low level and expected to bridge this gap.

The fifth question was checking, monitor and assess changes in quality management process, a significant respondents (29%) disagree, (39%) of the respondents believe quality management processes are checked monitored, changes also assessed. (32%) rated it implements either completely or exemplary manner. This all implies the company gets an average level in checking, monitor and assess changes.

The next question was application of quality management software, the significant (42%) disagree or strongly disagree but the majority believes there is an application of quality management software. Here, the company gets a medium level and there is a room for improvements.

The seventh statement was availability of specialized in quality management either depart or employees in the company, significant respondents (32%) disagree as there should be, (68%) believes there is department but among these respondents (45%) strongly agree that the comply specialized department in quality management achieving its responsibility either completely or exemplary manner.

The last question in quality management maturity was practicing outcomes monitoring and reviewing to ensure they meet quality standards, above half of (58%) agreed there is a standard in measuring the results of checking and monitoring practice. A significant respondents (39%) disagree that such standard should be in place. Hence, the company is at average level practising outcomes monitoring and reviewing to ensure they meet quality standards.

Therefore, A mean score value for quality management maturity is 3.2. From a PMM level, the company is at a moderate degree of maturity, which implies that there are some standard

quality management procedures, and guidelines in operation, but there is still space for improvement in terms of consistency, effectiveness, and efficiency. By improving its project quality management maturity level, the organization can achieve better project outcomes, increase customer satisfaction, and enhance its reputation in the marketplace.

PM Knowledge area	Response scale	Freq.	Perce. (%)
1. Availability of standard quality management policies, procedures and guidelines in Yotek construction	4	10	32%
	3	8	26%
	2	10	32%
	1	3	10%
2. Yotek bringing quality assurance into action within its project	4	3	10%
	3	10	32%
	2	13	42%
	1	6	19%
3. Yotek implements quality assurance audits within its project	4	5	16%
	3	6	19%
	2	15	48%
	1	5	16%
	N=31		100%
4. How quality control will be defined, inspected and documented on the project	4	9	29%
	3	10	32%
	2	9	29%
	1	3	10%
	N=31		100%
5.The quality management processes will be checked monitored , changes also assessed	4	9	29%
	3	12	39%
	2	9	29%
	1	1	3%
	N=31		100%
6. the application of quality management software	5	1	3%
	4	12	39%
	3	8	26%
	2	8	26%
	1	2	6%
	N=31		100%
7. Quality department or employees specializing in quality management	4	10	32%
	3	7	23%
	2	8	26%
	1	6	19%

	N=31		100%
8. Yotek construction has a practice in checking and monitoring results to comply with quality standards	5	1	3%
	4	12	39%
	3	8	26%
	2	8	26%
	1	2	6%
	N=31		100%

Table 4.9 Quality management maturity (Own survey, 2023)

As a summary from the mean score level of SMM (Scope management maturity = 3.4), TMM (Time management maturity = 3.2), CMM (Cost management maturity = 3.1) and QMM (Quality management maturity = 3.2), the Scope management maturity within Yotek construction showed the highest level of maturity.

4.7.5 The company's level of PM success

According to Kerzner (2003), for the past 20 years or so, the term "project success" has been defined as the accomplishment of an activity within the specified time, cost, and performance while making only minimal or mutually agreed-upon scope modifications.

Variable		Mean	Std Deviation
Project management success		3.2	0.064
	N=31		

Table 4.10 level of project management success (Own survey, 2023)

If Projects that have exceeded time or cost constraints, the projects are generally considered successful (Pinto & Slevin, 1988a). As this study, in an attempt of accomplishing one of its objectives, the respondents were asked the some question to evaluate project management success of Yotek Construction. in order to determine the project success of the company Scope, Time, Cost and quality management of the PM knowledge areas were considered. From the above table the level of project management success of Yotek Construction 3.2. The figure implies the company is at average level.

According tcoro Pinto and Slevin (1988a), projects that exceed their time or cost constraints are typically viewed as successful projects. As part of this study's objective to assess PM success at Yotek Construction, respondents were asked questions related to the company's PM success. Here, the four pillars of PM knowledge areas scope, time, cost, and quality management are considered in leveling of PM success of the company. Based table 4.1, the overall level of PM success at Yotek Construction is 3.2, The figure indicates that the company has an average level of proficiency in these areas.

4.8 PMM and Project Success relation in case of Yotek construction

The study's final objective was to identify and determine whether there is a relationship between the PMM and project success. The study uses Pearson correlation to identify the relation between the independent four pillars of PM maturity (scope, time, cost and quality) with dependent variable project success to measure the strength and direction of the linear relationship between these two variables. The significance values (Sig) for Scope management, time management and cost management is correlations are less than .05 but for quality management significance values is less than 0.01 which means that the relationships are statistically significant at the 0.05 level (2-tailed) and 0.05 level (2-tailed) respectively. At 0.01 level the correlation between Quality management and project success is .47 which indicates there is moderate positive relation between these variables. At significant level 0.05 the correlation between time management and project success is .433, which indicates a moderate positive relationship between the two variables. The correlation between cost management and project success is .383, which also suggests a moderate positive relationship. Finally, the correlation between scope management and project success is .44, which again indicates a moderate positive relationship.

Correlations

		Time mangement	Cost Management	Qualtiy Management	Scope management	Project Succcess
Time mangement	Pearson Correlation	1	.894**	.761**	.885**	.433*
	Sig. (2-tailed)		<.001	<.001	<.001	.015
	N	31	31	31	31	31
Cost Management	Pearson Correlation	.894**	1	.888**	.914**	.383*
	Sig. (2-tailed)	<.001		<.001	<.001	.033
	N	31	31	31	31	31
Qualtiy Management	Pearson Correlation	.761**	.888**	1	.815**	.470**
	Sig. (2-tailed)	<.001	<.001		<.001	.008
	N	31	31	31	31	31
Scope management	Pearson Correlation	.885**	.914**	.815**	1	.440*
	Sig. (2-tailed)	<.001	<.001	<.001		.013
	N	31	31	31	31	31
Project Succcess	Pearson Correlation	.433*	.383*	.470**	.440*	1
	Sig. (2-tailed)	.015	.033	.008	.013	
	N	31	31	31	31	31

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

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

Table 4.11 Correlation Analysis (Source: Own Survey, 2023)

Overall, this study results suggest that effective scope, time, quality and cost management is closely related with project success. However, all these variables are important for project success, it is not the only factor that contributes to success. Other factors, such as stakeholder engagement, risk management, and communication, may also play important roles.

Summary of Open Ended Questions

In open ended question the first question was any contributors to project success in case of Yotek construction. The major of the respondents listed a adaption of technology, well defined WBS, effective integration of teams, organizational structure, communication, effectiveness of project manager, effectiveness of functional manager, organizational experience in the sector and effective managements of all four pillars of PM(scope, time, cost, quality management).

The study included an open-ended question asking respondents to identify contributors to project success for Yotek construction. The majority of respondents listed various factors such as technology adoption, a well-defined WBS, effective team integration, organizational

structure, communication, the effectiveness of project and functional managers, organizational experience in the sector, and effective management of all four pillars of PM (scope, time, cost, and quality). The other question asked if more application of PM tools, methods and techniques is expected in the company due to their execution of complex civil works such as mega projects, airfields, real estate development, and construction of asphalt concrete highways across the country. The majority of respondents believed that more application of PM tools, methods and techniques would help to solve the complexity of managing such projects.

The last question was about the evaluation of the application of project management tools and methodologies in Yotek construction.

- Through the use of daily, weekly, and monthly reports
- By using well defined WBS during budgeting and scheduling
- Having half year and Annual evaluation
- By making regular review processes are the most ranked to control the application of PM tools, methods and techniques in the company.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

5.1 Conclusion

As projects become more prevalent in organizations, the questions of what constitutes project success and how to ensure its sustainability have become increasingly important (Shenhar et al., 2001). The level of the company's PMM and effectiveness is closely tied to the question of project success. This study examined the four pillars of project management, their maturity level in Yotek construction, and their relationship to overall project management success by utilizing project management maturity models and existing research. The survey results showed a strong positive correlation between project management maturity and project success, which is consistent with the findings of other studies.

The quantitative survey within the company revealed the existence of a strong positive relationship between degree of project management maturity and project success. The result of this inquiry is validates with the findings of Toledo Gandarias and Otegi Olaso (2019), and Busse et al. (2020), who discovered that higher degrees of project management maturity results in a greater likelihood of project success.

Finally, by taking the four pillars of PM knowledge areas, The maturity of Yotek construction projects is in the range of 3.1 to 3.4, which indicates that the category falls into the average maturity level of 3 as measured based on Capability Maturity Model (CMM). These numerical values indicate that the company follows well organized and stable procedures and processes are used by all projects and helpful to evaluate effectiveness. From those maturity level, Scope management maturity ,SMM (3.4), Time management maturity ,TMM (3.2), quality management maturity ,QMM (3.2) implies that the company well organized in management structure both at functional manager and project management level to sustain its certification in ISO and to deliver projects successfully as well. The four pillars of PM parameters used in the study revealed in the correlation analysis there is a positive relationship between project successes. More implementation of project management tools and processes is anticipated as long as there is vast room for improvement to boost the

maturity level in Yotek construction and helps achieving success in today's fast-paced business environment.

5.2 Recommendation

The objective of the study was to evaluate the level of project management maturity of Yotek construction and its correlation with project success by examining various literature sources, including PMI and Kerzner's project management maturity model. The study found that the company had prioritized project scope management , time and cost management which were considered more mature PM knowledge areas. However, the company should expand its focus to other knowledge areas. The study found that scope management, time management, and quality management had a high positive impact on project success, and the company should leverage this by educating its project team on project management tools and techniques. The study revealed that the project management maturity level was average, indicating that most tools and processes used standard for all projects in the standard manner but there is a gap in integration. The researcher recommended that staff members receive training on cost and scheduling software and project management tools and procedures to improve the company's project management maturity and bridge the construction technology and knowledge gap between Ethiopia and the rest of the world.

5.3 Study limitations and future research

The study were in four pillars of PM knowledge areas addressed; the study did not address individual project management maturity. Even if mega projects included, the study also limited in one company and limited number of projects. The field of project management has not been thoroughly researched across the nation. A rigorous technique should be used to examine the link between construction PMM and project success. Numerous studies on this link have been conducted for IT projects, but not for construction projects. Since this essential relationship determines the usefulness of PM maturity evaluations, the impact of the assessments should be obvious. Future study should take into account all of the aforementioned elements because there is a lot to analyse regarding the discipline's application, the advantages organisations could get from it, and how they could align with project management ideas.

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APPENDIX

ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

SCHOOL OF COMMERCE

MASTER IN PROJECT MANAGEMENT PROGRAM

Dear respected respondents:

My name is Bizuneh Ahmed. I am a student at Addis Ababa University in Project management department. Currently, I am undertaking a research, titled "Assessing the Relation between Project Management Maturity and Project management Success; The case of Yotek Construction". You are one of the respondents who have been selected to participate in this research. Needless to say, that your time is invaluable, please take few minutes of your precious time to complete all questionnaires and, I hereby assure you that all the information will remain confidential and you have an option to not include your name in the questionnaires.

If you have any hesitation or question, feel free to contact me via:

Tel : +251 921 25 65 95

Email : bizusoli@gmail.com

Sincerely,

Bizuneh Ahmed

April 2023, Addis Ababa, Ethiopia

This questionnaires has three parts:

Part I –Respondents profile

Part-II- Project Maturity and Project success

Part III- Open ended questions

Part I- General Information

i) Name (* Optional)

……

1. Sex: Male ☐ Female ☐

2. Age: Less than 25 ☐ 25-29 years ☐ 30-35 years ☐ above 35 ☐

3. Educational background

High School completed ☐ Diploma ☐ BA/BSc ☐ MA/MSc ☐ PhD ☐

4. Position/role in the company

Project Manager ☐ Construction Engineer ☐ Office Engineer ☐

Site Engineer ☐ Project Professional ☐ Other……..

5. Department you are currently working in

Finance ☐ Engineering ☐ Operation ☐ Coordination ☐

Machinery & equipment ☐ Other……

6. Years of working experience in the company

Below 1 ☐ 1-5 ☐ 6-10 ☐ 11-15 ☐ above 15 ☐

7. Have you ever attended any Project Management course or training?

Yes ☐ No ☐

If yes, please elaborate ……

……

8. Based on your own evaluation, Do you think Yotek Construction project management is matured and successful ? If yes , elaborate.....

……

PART II. Project Management Maturity and Project Success

This portion of the questionnaire is composed of questions on the ten knowledge areas of project management where you, the respondent are expected to simply answer by ticking (√) in the box you think best describes the condition in your company.

- ☑ Never and no need. (5)
- ☑ Never but probably should (4)
- ☑ Yes but not always and appropriately (3)
- ☑ Yes, appropriately and competently (2)
- ☑ Yes, in an exemplary manner (1)

1. Project Time Management

State that your organizations application of the following elements

		(5)Never and no need	(4)Never but probably should	(3)Yes but not always and appropriately.	(2)Yes, appropriately and competently	(1)Yes, in an exemplary manner.
TM_1	Your company implement the processes, tools and techniques used to develop a project schedule					
TM_2	Your organization describes how the project schedule will be checked, monitored and how changes to it will be assessed.					
TM_3	your organization used WBS when defining the schedule activities??					

TM_4	Does Progress of project activities in the company continuously monitored and controlled ?					
TM_5	In your organization , the Project Scheduling updated regularly?					
TM_6	The project has schedule deadline (Start and finish dates are approved and fixed)					
TM_7	Application of computer tools such as Microsoft project, Primavera, Microsoft excel etc. in scheduling					
TM_8	For identifying critical tasks, the relation among activities identified and the activities are sequenced					

2. Project Cost Management

State the your organization's application of the following elements

		(5)Never and no need	(4)Never but probably should	(3)Yes but not always and appropriately .	(2)Yes, appropriately and competently	(1)Yes, in an exemplary manner.
CM_1	Yotek construction implement the processes, tools and techniques used to estimate costs on the project.					
CM_2	Your organization describes how project cost estimates will be checked, monitored and how changes to them will be assessed.					
CM_3	Your organization describes the processes, tools and techniques used to prepare and document a project budget.					

CM_4	Your organization describes how the project budget forecast will be checked, monitored and controlled as well as how changes to it will be assessed.					
CM_5	The organization requires the use of earned value management techniques for monitoring cost and/or time.					
CM_6	Yotek practices in tracking of project cost against base line project Budget					
CM_7	As a company Yotek describes and requires the use of cost and budgeting software.					

3. Project Quality Management

State the your organization's application of the following elements

		(5)Never and no need	(4)Never but probably should	(3)Yes but not always and appropriately .	(2)Yes, appropriately and competently	(1)Yes, in an exemplary manner.
QM_1	Availability of standard quality management policies, procedures and guidelines in yotek construction like ISO.					
QM_2	Your organization describes the processes for implementing quality assurance in the project.					
QM_3	Your organization describes how quality assurance audits will occur in the project					
QM_4	Your organization describes how quality control will be defined, inspected and documented on the project					

QM_5	Your organization describes how the quality management processes will be checked monitored and Implementation of quality assurance how changes to them will be assessed.					
QM_6	Your organization describes and requires the use of quality management software.					
QM_7	Quality department or employees specializing in quality management					
QM_8	Yotek construction has a practice in checking and monitoring results to comply with quality standards					

4. Project Scope Management

State the your organization's application of the following elements

		(5)Never and no need	(4)Never but probably should	(3)Yes but not always and appropriately .	(2)Yes, appropriately and competently	(1)Yes, in an exemplary manner.
SM_1	Does the company has formal monitoring and control practice of scope in the project yotek					
SM_2	The company uses computer applications or tools in scope management process.					
SM_3	Your organization practices inspection to ensure or verify that all scope of the work completed					

Part III. Open-ended questions

a. What do you think are the contributors to project success in your organizations context?

_____
_____
_____
_____.

b. Do you expect more application of project management tools and methodologies in your organizations context? Why?

_____
_____
_____.

c. How do you evaluate the application of project management tools and methodologies in the Yotek projects?

_____
_____
_____.